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** **This Order Relates to** ***City of Stuart, Fl. v. 3M Co., et al.*****, Case No. 2:18-cv-3487-RMG**

Before the Court is Defendants' Co-Lead Counsel's omnibus motion to exclude Plaintiff's experts' testimony. (Dkt. No. 2696). For the reasons set forth below, the Court rules as follows.

I. Background

Plaintiff the City of Stuart ("Plaintiff," "Stuart," or the "City") alleges that various Defendants manufactured and distributed aqueous film-forming foam ("AFFF") and/or fluorosurfactant additives for use in AFFF that contaminated the city's water supply with PFAS, including PFOS and PFOA. (*City of Stuart v. 3M Co., et al.*, 2:18-cv-3487-RMG, Dkt. No. 54, ¶ 1).

Defendants filed an omnibus motion seeking to exclude Plaintiff's expert testimony. (Dkt. No. 2696). Plaintiff filed a response in opposition, (Dkt. No. 2798), to which Defendants filed a reply, (Dkt. No. 2851).

Defendants' motion is fully briefed and ripe for disposition.

II. Legal Standard

Under Rules 104(a) and 702, "the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." *Daubert v. Merrell Dow*

Pharms., Inc.., 509 U.S. 579, 589 (1993). The trial court must ensure that (1) "the testimony is the product of reliable principles and methods," (2) "the expert has reliably applied the principles and methods to the facts of the case," and (3) the "testimony is based on sufficient facts or data." Fed. R. Evid. 702(b), (c), (d). "This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid," *Daubert*, 509 U.S. at 592-93, and whether the expert has "faithfully appl[ied] the methodology to facts." *Roche v. Lincoln Prop. Co.*, 175 F. App'x 597, 602 (4th Cir. 2006). To make this determination, Courts consider several factors, including "whether a theory or technique . . . can be (and has been) tested," "whether the theory or technique has been subjected to peer review and publication," the "known or potential rate of error," the "existence and maintenance of standards controlling the technique's operation," and whether the theory or technique has garnered "general acceptance." *Daubert*, 509 U.S. at 593-94; *accord United States v. Hassan*, 742 F.3d 104, 130 (4th Cir. 2014). However, these factors are neither definitive nor exhaustive, *United States v. Fultz*, 591 F. App'x 226, 227 (4th Cir. 2015), and "merely illustrate[] the types of factors that will bear on the inquiry." *Hassan*, 742 F.3d at 130. Courts have also considered whether the "expert developed his opinions expressly for the purposes of testifying," *Wehling v. Sandoz Pharms. Corp.*, 162 F.3d 1158 (4th Cir. 1998), or through "research they have conducted independent of the litigation," *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995) (on remand), and whether experts have "failed to meaningfully account for . . . literature at odds with their testimony." *McEwen v. Balt. Wash. Med. Ctr. Inc.*, 404 F. App'x 789, 791-92 (4th Cir. 2010).

Rule 702 also requires courts "to verify that expert testimony is 'based on sufficient facts or data.'" *EEOC v. Freeman*, 778 F.3d 463, 472 (4th Cir. 2015) (quoting Fed. R. Evid. 702(b)). Thus, "trial judges may evaluate the data offered to support an expert's bottom-line opinions to

determine if that data provides adequate support to mark the expert's testimony as reliable." *Id.* The court may exclude an opinion if "there is simply too great an analytical gap between the data and the opinion offered." *Id.* "The proponent of the [expert] testimony must establish its admissibility by a preponderance of proof." *Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194, 199 (4th Cir. 2001).

The Court is mindful that the *Daubert* inquiry involves "two guiding, and sometimes competing, principles." *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 261 (4th Cir. 1999). "On the one hand, . . . Rule 702 was intended to liberalize the introduction of relevant expert evidence," *id.*, and "the trial court's role as a gatekeeper is not intended to serve as a replacement for the adversary system." *United States v. Stanley*, 533 F. App'x 325, 327 (4th Cir. 2013) *cert. denied*, 134 S. Ct. 1002 (2014). On the other hand, "[b]ecause expert witnesses have the potential to be both powerful and quite misleading, it is crucial that the district court conduct a careful analysis into the reliability of the expert's proposed opinion." *United States v. Fultz*, 591 F. App'x 226, 227 (4th Cir. 2015).

III. Discussion

First, Defendants argue that the opinions of Drs. Siegel, Levy, MacIntosh, and Mr. Petty should be excluded to the extent they relate to violation of the "public health" standard of care or the "precautionary principle." (Dkt. No. 2696-1 at 9-15). Defendants argue that Plaintiff is attempting to "usurp the Court's role by espousing a standard of care [not required by the law] and then the jury's [role] by declaring that standard violated." (*Id.* at 10-11).

The Court grants in part and denies in part Defendants' motion on this point. Plaintiff does not contend that the public health standard or the precautionary principle are industry standards which form duties on Defendants' part. *Handley v. Union Carbide Corp.*, 804 F.2d 265, 273 (4th

Cir. 1986) (holding that an "industry standard" is one that is well known and commonly accepted and that establishing such a standard requires "at least some evidence that an equal or similar standard was in place or recognized by a business or industrial entity conducting the same or similar activities as the defendant"); (Dkt. No. 2798 at 12 n. 27) ("Plaintiffs' experts here are not opining that public health sets so called 'industry standards,' but rather that public health standards of conduct are, in fact, applicable to industry."); *see Sheppard v. CSX Transp., Inc.*, No. 5:01-4312-22-CMC, 2002 WL 34378297, at *10 (D.S.C. Nov. 8, 2002) (excluding testimony for lack of proper foundation where expert "offer[ed] no source (such as accepted industry standards) for the duties he seeks to impose"); (Dkt. No. 2696-1 at 14-15) (citing Levy testimony admitting that public health "standards of conduct" are "not about what is common practice in an industry" but rather "broad standards of care" which state that "entities should take action to prevent harm"); (*Id.* at 10) (citing Siegel testimony that the precautionary principle requires "companies . . . take action before there's definitive evidence of harm, . . . when there is reasonable evidence of a risk, a probable risk"); *see also New Mexico v. General Elec. Co.,* 335 F.Supp.2d 1185, 1221 (D.N.M.2004) (the precautionary principle "requires that in the light of scientific uncertainty, when credible evidence is put forth that a risk exists, action should be taken to minimize that risk or eliminate it even though absolute proof has not been obtained which quantifies the risk."). Thus, the motion is granted to the extent that Plaintiff's experts opine that a public health standard of care or the precautionary principle impose legal duties in this case. *See In re Welding Fume Prods. Liab. Litig.*, MDL 1535, 2005 WL 1868046, at *21 (N.D. Ohio 2005) (excluding as confusing to the jury Levy's opinions regarding "how industry and defendant's actions (or inactions) measured up to prudent practices of occupational health" where such actions were measured by the "Precautionary Principle" because "the duties demanded by this principle are not coterminous with

the legal obligations that are relevant in this case"); *Id.* (noting "[t]his principle 'call[s] for policies to protect health from potential hazards even when definitive proof and measurement of those hazards is not yet available'"); *City of Huntington v. Amerisource Bergen Drug Corp.*, No. 3:17-1362-DAF, 2021 WL 1320716, at *3 (S.D.W. Va. April 8, 2021) (noting "expert testimony regarding defendants' corporate ethics, duties, or responsibilities should be excluded"). The Court otherwise denies Defendants' motion as evidence of public health standards, or the precautionary principle, is potentially relevant to foreseeability, the reasonableness of a defendant's conduct, or negligence generally. (Dkt. No. 2798 at 8, 10-11) (citing 3M marketing material asserting company's reliance on the "precautionary principle" and citing Siegel report noting that Dr. Bruce Karrh, "former medical director of DuPont," wrote in a 1978 article that a company "should disclose health-hazard information" "when [it] come[s] to light").

Second, Defendants argue that the opinions of Dr. Siegel, Mr. Petty, Dr. Levy, Dr. MacIntosh, Dr. Higgins, Dr. Martin, Dr. Lowder, and Dr. Travis should all be excluded to the extent they opine on "Defendants' mental states." (Dkt. No. 2696-1 at 15-17).

Expert testimony about a party's intent, motive, or state of mind is inadmissible. *See Fuma Int'l LLC v. R.J. Reynolds Vapor Co*., No. 1:19-CV-260, 2021 WL 4820738, at *3 (M.D.N.C. Oct. 15, 2021) (citing *In re Rezulin Prods. Liab. Litig.*, 309 F. Supp. 2d 531, 545–47 (S.D.N.Y. 2004)). First, intent is a question for the trier of fact that does not require expert testimony. *See BorgWarner, Inc. v. Honeywell Int'l, Inc.*, 750 F. Supp. 2d 596, 611 (W.D.N.C. 2010). Second, expert testimony concerning state of mind, intent, or purpose is unreliable because it is not grounded in analytically sound principles or methods. *See DePaepe v. General Motors Corp.*, 141 F.3d 715, 720 (7th Cir. 1998); *In Re Diet Drugs,* No. MDL 1203, 2001 WL 454586, * 2 (E.D. Pa.

Feb. 1, 2001) (excluding testimony of expert regarding "what the corporate intent of [defendant] and/or what beliefs of FDA officials were on matters upon which they spoke or acted.")

The Court grants in part and denies in part Defendants' motion on this point. To the extent Plaintiff's experts opine on a defendant's intent, motive, or state of mind, such testimony is improper. *See* (Dkt. No. 2696-1 at 16) (describing specific statements by Dr. Siegel that 3M "improperly minimized" certain health risks, was "not forthcoming" with researchers, and was "lying" or "misleading the public" by "hiding" certain facts); *In re Flonase Antitrust Litig.*, 884 F. Supp. 2d 184, 193 (E.D. Pa. 2012) (excluding expert's statement that "GSK was well aware" of an issue because that specific opinion went "beyond opining on the *information and knowledge* available to [GSK]" and was, to the contrary, "evidence by which GSK's state of mind in filing the May 2004 citizen petition may be inferred") (emphasis added). The Court rejects Defendants' argument, however, to the extent it contends that Plaintiff's experts may not testify in a more general manner regarding a defendant's knowledge over time. *See In re: Tylenol (Acetaminophen) Marketing, Sales Practices, and Prods. Liab. Litig.*, 2016 WL 4039329, at *5-6 & n.16 (E.D. Pa. July 28, 2016) (excluding testimony "about what the defendants intended by their actions" but permitting testimony as to what the "defendants knew about risks of acetaminophen-induced liver failure based on internal documents or depositions by defense witnesses [the expert] reviewed. [The expert's] opinions are not based on speculation or inference. She offers these opinions to show how the defendants' actions differed from what a reasonable drug manufacturer should or would have done"); *In re Mirena IUD Prod. Liab. Litig.*, 169 F. Supp. 3d 396, 480 (S.D.N.Y. 2016) (same, allowing expert to opine "on what documents in Bayer's possession said—in other words, on what Bayer 'knew' in the sense of what information was in its possession" but granting "Defendants' motion with respect to state of mind testimony . . . to the extent Dr. Parisian opines

on the motives, intent or state of mind of an entity that is not set forth in documents or grounded in specific, objectively knowable facts").

Third, Defendants seek to exclude Brown's opinions, adopted by Dr. Higgins, that the primary and secondary sources of PFAS detected in the City's wells is AFFF. (Dkt. No. 2696-1 at 19).

Defendants first challenge Brown's "primary source opinion." Defendants argue that Brown "cherry-picked" data and ignored alternate sources of PFAS to arrive at the conclusion that "[n]o sources of PFAS other than fire-fighter training areas have been confirmed as having contributed to the PFAS concentrations detected in samples from the City wells." (*Id.* at 20).

In his report, Brown opines:

> The only primary sources of PFAS contamination proximate to, and/or up-gradient of, the City's Wells are properties where AFFF was used. No other sources of PFAS capable of contributing to the PFAS detected in samples from the City Wells have been identified. AFFF was used at the following locations (referred to as primary source sites) in the vicinity of the City's Wells:
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> - PSC [Public Safety Complex/Fire Rescue Facility] (AFF[F] was used for fire response training)
> - 18th Street, east of SE Palm Beach road (AFFF was used for fire response training)
> - FS2 [Fire Station No. 2/Stuart Landfill] (AFFF was used for fire response training)
> - City Landfill (AFFF was sprayed in the northerly part of the landfill).
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> . . .
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> SFD [Stuart Fire Department] activity logs, City purchase records, and witness testimony (City, 2022b) confirm that AFFF was purchased and used by the City. Witness testimony confirms that AFFF was used at the PSC and FS2 (Spence, 2022; Felicione, 2022; Dyal, 2022). Soil and groundwater sampling have confirmed that PFAS contamination is present beneath the PSC and FS2 (FDEP, 2020). This contamination resulted from the use of AFFF at these locations.
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> AFFF was also reportedly used during fire training at the north end of the City Landfill (Felicione, 2022; Dyal, 2022; Spence, 2022), immediately southwest of FS2. However, there is limited data on soil and groundwater contamination by

> PFAS in this area of the landfill. In addition, AFFF was also reportedly used in fire training at 18th St., just east of SE Palm Beach Boulevard (Felicione, 2022; Dyal, 2022, Spence, 2022). No reports of soil and/or groundwater samples collected at the 18th St. location have been identified.

(Dkt. No. 2711-2 at 37, 57) (filed under seal).

During his deposition, Brown testified he evaluated businesses or sites "that may have used PFAS-containing compounds and then . . . based on data from the State of Florida, whether there had been any actual sample of PFAS at those locations. (Dkt. No. 2711-21 at 253-54) (filed under seal). Brown concluded he was not "able to identify any additional PFAS locations from that business search, that is, locations where PFAS may have been used and then was detected in sampling programs." (*Id.* at 254). Brown further testified that he also "evaluated the concentrations of PFAS that have been detected in samples of groundwater beyond the samples collected from the city's water supply wells and beyond investigations at the confirmed primary sources. . . . And again, in doing that, we couldn't identify any other primary PFAS release locations." (*Id.* at 254-55).

Brown also explained that for a source to turn from a "potential to a confirmed source," he considered whether (1) there was documented use of products containing PFAS and whether (2) there was sampling performed that confirmed PFAS was present in soil and groundwater. (*Id.* at 257-58). Brown added that beyond "the four primary sources" identified in his report, no other sites met his "criteria to go from potential to confirmed." (*Id.* at 258-59) (noting there "were only two other sites we were aware of . . . [which had] PFAS detection in samples" but that Brown "could not conclude it was more likely than not that releases at those sites ultimately led to PFAS, or any of the PFAS being detected in city wells").

The Court denies Defendants' motion as to Brown's primary source findings. As noted above, Brown did consider alternate sources of PFAS while determining his primary sources. Defendants' contention that Brown "cherry-picked" data in the sense that he wholly failed to consider alternative sources of PFAS besides AFFF is without merit. The challenges raised by Defendants to Brown's conclusions are most properly addressed through cross-examination. *See, e.g.*, (Dkt. No. 2696-1 at 21) (describing challenge from Defendants' expert Thomas that Brown did not consider other "common sources of PFAS" such as the City Landfill, wastewater effluent and Classic Cleaners, a dry cleaners); (Dkt. No. 2711-21 at 310-11) (Brown testimony that he assumed there was PFAS in the northern area of the landfill due to reports of spraying of AFFF but further testifying that no data existed as to other compounds that may have been placed in the landfill which contain PFAS); *New Jersey Dept. of Env. Protec. v. Amerada Hess Corp.*, No. 15-6468 (FLW) (LHG), 2019 WL 4052431, at *10-11 (D.N.J. Aug. 28, 2019) (rejecting argument Brown failed to consider alternate sources of contamination where Brown explained that, to locate potential sources he "looked for any NJDEP leaking underground storage tank (LUST) reports for other stations proximate to the plume, but found no evidence suggesting a possible other source" and otherwise ruled out additional potential sources based on geography and probable groundwater flow); *Id.* ("Moreover, that there may have been other sources of contamination does not necessarily render Brown's opinion that the H.P. Delta site was *a source* of contamination inadmissible . . . [because] to prevail in this case, Plaintiffs need . . . only prove that it was *a source*").

Defendants next challenge Brown's secondary source opinions. Defendants contend that Brown concluded that "*all* of the PFOA and PFOS in the entire 6.12-square mile area of the City's groundwater must have come from AFFF" without citation to underlying data or performing any

scientific analysis. (Dkt. No. 2696-1 at 22). Defendants contend these opinions must be excluded as they are not scientific in nature or otherwise reliable.

In his report, Brown opines that a portion of the AFFF-water mix used at primary source sites "was dispersed beyond the area of use by any over-spray and wind-drift to more distant locations. This air-borne deposition of fugitive fire-fighting foam more likely than not caused shallow soil contamination across a wider area that acts as a secondary source for groundwater contamination." (Dkt. No. 2711-2 at 38). Brown continues that prior "to the City becoming aware of PFAS contamination in their water supplies, PFAS-contaminated water was unknowingly delivered throughout the City" and "[l]eaks from pipes, sewer lines, and landscape irrigation more likely than not resulted in PFAS contamination of shallow soils in areas beyond the primary source sites where AFFF was used (e.g., playing fields, public parks)." (*Id.*). In § 5.9.2 of his report, titled "Pathways," Brown analyzes the soils present beneath the City and explains how he believes PFAS moved from primary sources to secondary sources. (*Id.* at 39-40).

The Court denies Defendants' motion on this point. As explained above, contrary to Defendants' assertion otherwise, Brown's report does contain scientific analysis supporting his secondary source opinions. Accordingly, the Court rejects Defendants' challenges to Brown's testimony.

Fourth, Defendants argue that Dr. Martin's opinions allocating PFOA to 3M through his B/L/T-method are inadmissible because they were "invented-for-litigation" and have "never been replicated or tested." (*Id.* at 24).

In his report, Dr. Martin explains he analyzed water samples using a modified "branched/linear/total" or B/L/T-method. (Dkt. No. 2711-13 at 45-48) (filed under seal). According to Dr. Martin, PFOA generated by telomerization contains only "linear" isomers as

opposed to PFOA generated by electrochemical fluorination ("ECF")—a process used by 3M—which creates both branched and linear PFOA. *See* (Dkt. No. 2696-1 at 24). Thus, Dr. Martin opines that measuring the percentage of branched isomers in a water sample "allows differentiating between two major manufacturing sources of PFOA" and enables him to attribute specific detected PFOA to 3M. (*Id.*) (noting that, per Dr. Martin, 3M's ECF-generated PFOA has a branched-to-linear isomer ration of between 18.9% and 28.6%).

Dr. Martin's modified B/L/T-method is based on EPA Method 537/537.1. (Dkt. No. 2711-13 at 45). Dr. Martin explains, however, that the EPA "methods do not adequately account for the possibility that drinking water may contain significant proportions of branched PFAS isomers" and cites to a formal letter sent to the EPA by 3M in May 2011 propounding the same critique and citing Dr. Martin's published work on this point. (*Id.*). Accordingly, Dr. Martin explains that he worked with Eurofins, a commercial laboratory, to develop a "modified Method 537 that could deliver accurate %br-PFOA data, as well as accurate total PFOA concentrations." (*Id.* at 46).

Defendants argue that Dr. Martin's allocation opinion "based on his modified B/L/T analysis is inadmissible for three [specific] reasons." (Dkt. No. 2691-1 at 25).

To begin, Defendants argue that the allocation opinion must be excluded because it was developed for litigation and is thus unreliable. (*Id.* at 25-26). Defendants take issue with the fact Dr. Martin was the first person to use the modified B/L/T-method, that said method has not been submitted for "independent review," and that Eurofins allegedly refused to provide "Martin's sample preparation and instrument methodologies in order to allow the telomer Defendants' experts to attempt to validate or replicate his methodology." (*Id.*).[1]

[1] Defendants present no explanation for why they did not seek Court intervention to obtain this information from Eurofins. For its part, the City notes that Defendants never formally served a discovery request on Eurofins. (Dkt. No. 2798 at 22 n.78) ("The alleged 'refusal' by Eurofins to

The Court denies Defendants' motion on the above point. While Defendants list the above "problems" with Dr. Martin's method, they provide no specific argument as to why, for example, the fact Dr. Martin's modified B/L/T-method has not been submitted for "independent review" renders it per se inadmissible. *Davis v. CSX Transp., Inc.*, No. 1:10CV74, 2011 WL 6888290, at *4 (N.D.W. Va. Dec. 30, 2011) (denying motion to exclude and observing that "lack of peer review will be an important factor for the jury to consider, but it is only one factor of many"); *Daubert*, 509 U.S. at 593-94 (noting that "[p]ublication (which is but one element of peer review) is not a sine qua non of admissibility; it does not necessarily correlate with reliability, ... and in some instances well-grounded but innovative theories will not have been published"). At bottom, Defendants articulate no specific criticism of Dr. Martin's method, and the Court denies their motion on this point.

Second, Defendants argue that Dr. Martin failed to account for "isomer fractionation." (Dkt. No. 2696-1 at 26). Defendants argue that, regarding PFOA, "studies show that linear isomers travel slower than branched isomers through the environment," a process called fractionation, and that this "can cause the relative percentage of branched isomers to increase the farther PFOA travels from the source area." (*Id.*). Because Dr. Martin's analysis "ignores these effects," Defendants argue Dr. Martin's testimony must be excluded.

The Court denies Defendants' motion on this point. As the parties' respective briefing makes clear, Defendants merely disagree with Dr. Martin's opinions and dispute certain factual premises on which he bases those opinions. *See* (*id.* at 27) (acknowledging Dr. Martin did consider fractionation but noting he believed it does not apply in Stuart); (Dkt. No. 2711-13 at 44-45)

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provide certain information was not in response to a formal request by Defendants but to an unsolicited call from a defense expert.").

(explicitly considering fractionation in report and explaining why it does not alter analysis—"While I agree that measuring PFOA isomer profiles in soil and sediment samples cannot be used to accurately evaluate the manufacturing origins of PFOA, the surrounding groundwaters or surface waters are valid for this purpose, at least according to all available evidence to date"); *Patenaude v. Dick's Sporting Goods, Inc.*, No. 9:18-CV-3151-RMG, 2019 WL 5288077, at *2 (D.S.C. Oct. 18, 2019) (denying motion to exclude noting the "Court will not weigh the evidence between two sparring experts, and instead these disagreements may be addressed through testimony and cross-examination and must be resolved by a fact-finder, not the Court on summary judgment. More fundamentally, each of these arguments goes to the factual basis of the report, namely, whether the testing was structured in such a way to reasonably assess the athletic cup at issue here, and it is well settled that the factual basis for an expert opinion generally goes to weight, not admissibility."); *Synergetics, Inc. v. Hurst*, 477 F.3d 949, 955 (8th Cir. 2007) ("As a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination.").

Third, Defendants argue Dr. Martin's B/L/T-method is prone to systemic analytical bias "if the comparator standard has a different isomer pattern than the test sample." (Dkt. No 2696-1 at 28). Defendants argue that Dr. Martin acknowledged this bias and could have performed an "isomer-specific" analysis to "account for any isomer pattern differences," but explicitly failed to do so, rendering his testimony inadmissible. (*Id.*).

The Court denies Defendants' motion on this last point. Defendants' briefing ignores that Dr. Martin acknowledged such a potential shortcoming and addressed it in his report. (Dkt. No. 2711-13 at 46, 85, 90); (Dkt. No. 2711-30 at 101-03) (responding, when asked if using "ECF as a

standard" he would "introduce bias into" his analysis, "[o]nly if the sample was composed of—primarily the isopropyl is what's going to throw things off. . . . I mean, if those are major sources, then I expect to be able to see that in the profile. Ok? That's why, again, in my report I've transparently shown the profiles for the most contaminated well, which are influencing my opinions. I want your experts to see I'm not—I'm not considering that. That I am considering that."). Accordingly, Defendants' motion is denied on this last point with respect to Dr. Martin.

Fifth, Defendants argue that Brown, Dr. Higgins, and Dr. Martin cannot testify that C8 fluorotelomer surfactants in fluorotelomer ("FT") AFFF transformed into PFOA at Stuart. (Dkt. No. 2696-1 at 29). Defendants note that these experts did not opine that FT AFFF contains PFOA. Instead, Defendants argue that Plaintiff's experts concede "that for the FT-AFFF to be a source of PFOA in Stuart's wells, a C8 FT-surfactant present in FT-AFFF would have to have undergone transformation through a series of chemical reactions"—i.e., degrade to PFOA. (*Id.*). Problematically, Defendants conclude, because "this complex transformation to PFOA has only been elucidated in a lab setting when the FT-surfactant is subjected to highly artificial experimental lab-based conditions—conditions which none of Plaintiff's experts have tied to the actual conditions at Stuart," testimony by the noted experts on the subject must be excluded because it is unreliable.

The Court denies Defendants' motion on the above point. As Plaintiff notes, evidence exists establishing that "there is no debate in the scientific community that FT-AFFF transforms into PFOA—it is an established fact based on more than a decade of testing and analysis set forth in peer reviewed publications." (Dkt. No. 2798 at 24-27 & n. 92); *see, e.g.*, Higgins Deposition, (Dkt. No. 2711-26 at 315) ("[T]here is an expectation amongst the broader scientific community, amongst the regulatory community and consistent with this e-mail from Anne Regina [an

employee of one of defendants], that the transformation of these fluorotelomer products will yield, ultimately, perfluorocarboxylates."); Mejia-Avandano *et al.*, *Novel Fluoroalkylated Surfactants in Soils Following Firefighting Foam Deployment During the Lac-Megantic Railway Accident*, Environ. Sci. Tech. 51:8313-8323 (2007), (Dkt. No. 2806-102) (studying regarding "PFASs present in the soil after [] AFFF deployment" and noting, inter alia, a "trend suggest[ing] the influence of soil microbial degradation of PFAA-precursors, either with or without treatment intended for remediation of petroleum hydrocarbons." The study concluded that "[t]he low concentration of PFOS confirms that the phase-out of PFOS based formulations has indeed resulted in an increased use of fluorotelomer-based AFFFs, which, however, were found to contain a significant portion of long-chain PFASs that can still lead to PFOA or longer chained congeners through environmental transformation processes."). Plaintiff also observes that even one of Defendants' own experts, Dr. Tiffany Thomas, admitting that three of Stuart's wells could "have been impacted by PFOA generated by the degradation of FT-AFFF products," (Dkt. No. 2978 at 27), further undermining Defendants' arguments. Given the above, Defendants' cited cases are distinguishable because they involved highly disputed or novel scientific issues in which there was no consensus among the scientific community. *Compare* (Dkt. No. 2696-1 at 32) (arguing that Plaintiff cannot "simply assume that one thing (here, laboratory conditions) is necessarily like another (here, actual environmental conditions in Stuart)" *with, e.g.*, *Bishop v. Triumph Motorcycles (Am.) Ltd.*, No. 21-2113, 2022 WL 17103710, at *2 (4th Cir. Nov. 22, 2022) (affirming exclusion of opinion from a crashworthiness expert as to the alleged defect of a motorcycle where expert relied chiefly on testimony from an eyewitness without performing any analysis or testing specific to the accident); *Chikovsky v. Ortho Pharm. Corp.*, 832 F. Supp. 341, 345–46 (S.D. Fla. 1993) (finding unreliable the opinion that Retin A causes birth defects where

expert had no specialized, relevant training, no published literature existed tying defect to Retin A, and expert assumed, despite the above, that because "high doses of Vitamin A" were teratogenic and Retin A contained vitamin A, Retin A caused birth defect in instant case).

Relatedly, Defendants also argue that Dr. Martin's opinions should be excluded because he has no basis on which to opine that "residual telomer-based PFOA" comes from FT-AFFF "rather than the other likely sources of PFAS which he conveniently ignores." (Dkt. No. 2696-1 at 34-45). Namely, Defendants take issue with the fact that Dr. Martin did not attempt to determine whether the FT AFFF discharged in Stuart contained either C8 or C6 FT-surfactants though "many FT-AFFF products contain predominantly C6 FT-surfactants" that cannot degrade to PFOA. Defendants also contend that Dr. Martin's "sole analysis of whether FT-AFFF is the source of PFOA in *all* of Stuart's wells is based on his extrapolation of *one* single well (labeled as 'PW3')." (*Id.*) ([S]olely based on the presence of fluorotelomer sulfonate (FTS) in the raw water at PW3, Dr. Martin [concludes] that FT-AFFF must be the source of all PFOA throughout the entirety of Stuart that he cannot attribute to ECF sources.").

The Court denies Defendants' motion on the above points. As to whether Dr. Martin attempted to determine the source of the PFOA he detected, Plaintiff correctly notes that Dr. Martin employed isomer profiling to that end, (Dkt. No. 2711-13 at 12, 39 *et seq.*), and further evaluated Stuart site conditions and hydrological pathways in reaching his opinions, (*Id.* at 52-53) (usage of AFFF products at Stuart); (*Id.* at 57) (Stuart groundwater survey); (*Id.* at 60) (Stuart soil sampling); (*Id.* at 66-67) (Stuart groundwater and soil sampling); (*Id.* at 68) (PFAS plume map). As to Defendants' argument that Dr. Martin's relied "solely" on PW3 to determine FT AFFF must be the source of PFOA not attributable to 3M, the Court rejects the argument as it misstates Dr. Martin's work and report. *See* (Dkt. No. 2711-30 at 407-410) ("Q: If you do not see FTS in a

particular well, would you agree that it's unlikely that linear telomer AFFF has impacted that particular well? A: No, it's not that simple. . . . And the reason is—the reason is that if you have a site where you know the AFFF has been applied some years past . . . whereby all of that precursor may have actually degraded to—if we're talking about fluorotelomers, linear PFA, then there's no longer that chemical forensic evidence present. So all we have is the existence of the linear isomer. So that's where we look for site histories and known product usage."); (*Id.*) ("The beautiful thing about the isomer-specific method is that you don't need to know all that information. You're just measuring the proportion of telomer and ECF, and it—against, its agnostic to whether there was a transformation present. When you find the FTS, we know, more likely than not, that those transformation processes are active.").

Sixth, Defendants argue that Brown's persistence opinions are inadmissible because they are not the result of a reliable methodology and do not fit the facts of this case. (Dkt. No. 2696-1 at 36).

To begin, Defendants argue that Brown's persistence opinions are inadmissible because they do not address "PFOS levels in Stuart's drinking water at Stuart's water treatment plant" but rather focus on persistence levels in the vadose zone—the area between the ground surface and the permanent water table—and groundwater, which is immediately below the vadose zone. (*Id.* at 36-27).

The Court rejects said arguments. As Plaintiff explains, "[b]ecause PFOS in the vadose zone leaches into the groundwater, the persistence of PFOS in the vadose zone directly affects how long PFOS will continue to enter the groundwater from which Stuart draws its drinking water." (Dkt. No. 2798 at 30). Defendants' argument that the "relevant" question is the level of PFOS at

the treatment plan ignores these facts and is better suited to cross examination than the instant motion.

Next, Defendants take issue with how Brown calculates the carbon partition coefficient, or K_{OC}. (Dkt. No. 2696-1 at 38) (noting the higher the value for a "substance like PFOS, the more the substance will bind the soil, and the longer it will persist in the vadose zone and the groundwater"). Defendants argue that rather than "reliably determine the appropriate value to use for the particular environmental conditions at Stuart . . . Brown simply averaged the K_{OC} values from seven articles that studied a variety of different environmental conditions." (*Id.*). Defendants argue that the use of this average renders Brown's findings unreliable. Defendants also criticize Brown's calculation of F_{OC}, which represents the organic content of the soil. Defendants argues that in his vadose model, Brown used F_{OC} data applicable to the upper two feet of the soil to model soil characteristics throughout the entire 8.5 feet of the vadose zone. Defendants also note that in his batch flush model—which predicts the time it takes for PFOS levels to dissipate in groundwater—Brown used F_{OC} data from soils between five and ten feet below the ground to model F_{OC} in groundwater that was between 40 and 65 feet deep, again rendering his findings unreliable.

The Court rejects the above arguments. As to K_{OC}, the Court finds that Brown's use of an average value does not warrant exclusion. Defendants' cited cases criticizing the use of averages are inapposite as they concern, for example, the necessity of proving commonality in antitrust class actions and do not, as Defendants would have it, articulate a per se ban on the use of averages by experts. *See In re Pharmacy Benefit Managers Antitrust Litig.*, No. CV 03-4730, 2017 WL 275398, at *20 (E.D. Pa. Jan. 18, 2017) ("Another insurmountable Daubert fit problem arises from the use of national averages in the expert model since averages cannot demonstrate antitrust impact for individual class members."). At bottom, Brown's use of an average rests on good grounds. *Ponca*

Tribe of Indians of Oklahoma v. Cont'l Carbon Co., No. CIV-05-445-C, 2008 WL 7211698, at *4 (W.D. Okla. Dec. 3, 2008) (where all data points have some degree of imprecision, it can be appropriate to use an average. "The Court finds that an expert such as Sadeghbeigi could reasonably rely on this data for averaging purposes. There is no evidence that this data should not be considered in assessing catalyst loss in the manner in which Sadeghbeigi did or that his conclusion is invalid because of the selection of the data used. Continental Carbon may cross-examine Sadeghbeigi about his selection of particular years to use in his calculations as well as his decision to base his average on five years and not more. But the Court will not exclude his testimony on grounds of insufficient data."); *see also* (Dkt. No. 2798 at 33) (noting Defense expert Steven Hart "used the same approach in selecting a K_{OC} value for PFOA"). As to Brown's modeling regarding F_{OC}, the Court rejects Defendants' argument as well. Said arguments again do not fundamentally attack the reliability of Brown's methodology nor its application but instead concern questions more appropriately addressed on cross examination. (Dkt. No. 2798 at 34-35) (noting Brown used USDA data for determining F_{OC}, that USDA data is primarily from the upper portion of the soil, "at Stuart there was not significant variation" in the vadose zone depth and the available data indicated that the F_{OC} in the upper soil at Stuart is "considerably lower than the F_{OC} in the deeper soils," causing Brown's vadose zone models to present conservative values for persistence); (*Id.*) (noting that, as to the batch flush model, "F_{OC} data is generally unavailable for [depths of 65 feet] below ground" and, as Brown testified, "he is unaware of any data that indicate a change in F_{OC} values at varying depths that would have yielded a result more favorable to Defendants, and Defendant have failed to cite any"); *see Bresler v. Wilmington Trust Co.*, 855 F.3d 178, 195-96 (4th Cir. 2017) (noting that, "[i]n the present case, Wilmington's *Daubert* challenge amounts to a disagreement with the values Pugh chose to assign to certain variables, including the

cost of insurance and future interest rates" and finding this "did not require the district court to exclude [the challenged expert's] opinion under *Daubert*").

Additionally, Defendants challenge Brown's "qualitative" opinions about PFOA persistence. (Dkt. No. 2696-1 at 41). Defendants note that Brown admitted that he "did not do a quantitative persistence analysis for PFOA" and "simply made a qualitative comment as it relates to PFOA, given its properties relative to PFOS." (*Id.*). Defendants argue said qualitative opinion about PFOA should be excluded because it is not reliable.

The Court grants Defendants' motion on this narrow point. As Defendants note, Brown admitted in his deposition that "if he was calculating persistence for an AFFF foam that did not contain PFOS, 'clearly we'd have run our analysis different[ly].'" (*Id.*). Plaintiff presents no cogent argument addressing Brown's cited testimony and the Court finds the challenged opinion lacks a reliably articulated methodology. (Dkt. No. 2798 at 38). Accordingly, the Court excludes Brown's "qualitative" PFOA persistence opinion and Berryhill's testimony to the extent it relies on said opinions.

Seventh, Defendants argue that the Court should exclude the testimony of Gregory Walton in its entirety. (Dkt. No. 2696-1 at 42). Walton opines that producing C6-based AFFF in the 1980s onward would have been comparable in cost to C8 AFFF. Walton further opines that if all AFFF had been low-C8 from the beginning, it would have resulted in a "greater than 99% reduction of the PFOA in groundwater from AFFF has compared to what actually occurred historically."

The Court grants Defendants' motion and excludes Walton's testimony. Walton's opinion that the relative cost to manufacture C6 versus C8 fluorosurfactants and fluorotelomer surfactants is devoid of a factual basis. (*Id.* at 45); Fed. R. Evid. 702(b). In his report, Walton admits "[t]he cost of C6 and C8 ECF reactor feedstocks from the 1960s to 2000s was not readily available . . .

and there are gaps in the data." (Dkt. No. 2711-18 at 23) (filed under seal). Nevertheless, despite conceding he lacks appropriate data, Walton concludes that because "there is no indication that the feedstocks for making C6 fluorosurfactants were more expensive per ton than the C8 flurosurfactant feedstocks," "the cost to manufacture AFFF concentrate formulations using C6 fluorosurfactants was about the same as the cost to manufacture AFFF concentrate formulations using PFOA, PFOS, and their derivatives." (*Id.*); (Dkt. No. 2696-1 at 45) (citing deposition testimony of Walton admitting he had "not actually modeled any actual differences in costs between the two processes"). Walton's conclusion is the product of speculation and must therefore be excluded. *In re Lipitor (Atorvastatin Calcium) Mktg., Sales Pracs. & Prod. Liab. Litig.*, 174 F. Supp. 3d 911, 920 (D.S.C. 2016) (trial judges may evaluate the "data offered to support an expert's bottom-line opinions to determine if that data provides adequate support to mark the expert's testimony as reliable"). Walton's further opinion that if "C6-based (i.e., <1% C8) AFFF manufactured in the 1980s [had] been used exclusively it would have resulted in a greater than 99% reduction of the PFOA in groundwater that is associated with AFFF" must also be excluded as Walton provides no information whatsoever in his report to support the assertion, which Defendants further note rests on false factual premises. *See* (Dkt. No. 2696-1 at 45) (noting Walton testified that he is "not an expert" on the degradation of C8 fluorosurfactants to PFOA and that he is "not qualified to give [] an opinion" on such matters); (*Id.*) ("As a matter of simple math, the use of AFFF containing 1% C8 would have reduced the amount of C8 in the environment by 99% only if all historical AFFF contained surfactants consisting of 100 C8. But no historically marked AFFF, much less all of it, was 100% C8, as Mr. Walton acknowledges.") (internal citations omitted).

Eighth and last, Defendants seek to exclude Robert Johnson's testimony as it concerns (1) the financial condition of certain defendants and (2) the present value of future costs of treating Stuart's water supply. (Dkt. No. 2696-1 at 46). Defendants do not dispute Johnson's qualifications, which includes over 40 years of experience as an economist. *See* (Dkt. No. 2798 at 42).

The Court denies Defendants' motion on these last points. In forming his opinions about the financial conditions of certain defendants, Johnson does—as Defendants contend—rely on publicly filed financial disclosures such as 10-K Reports, Proxy Statements, and Stock Market Data from the Wall Street Journal. Nevertheless, the Court finds said testimony would be helpful to a layperson who has little to no understanding concerning detailed financial disclosures. *See In re Yasmin & YAZ (Drospirenone) Mktg., Sales Pracs. & Prod. Liab. Litig.*, No. 3:09-MD-02100-DRH, 2011 WL 6732819, at *7 (S.D. Ill. Dec. 16, 2011) (permitting substantially similar testimony from Johnson—"[T]he Court finds Johnson's report is helpful to the trier of fact as it converts currency forms of various documents and then uses generally-accepted economic formulas to determine Bayer's total wealth; a task not within the general ability of a layperson.").

As to the present value of future remediation, Defendants first challenge Johnson's use of a 3.5% rate of inflation. Johnson arrived at this rate of inflation by averaging the Consumer Price Index average inflation rate between 1950 and 2020. (Dkt. No. 2696-1 at 47). Defendants argue that Johnson provided no explanation for why averaging seventy years of CPI data is a "reliable methodology."

The Court denies Defendants' motion on this point. In his deposition, Johnson explained why he choose this range, (Dkt. No. 2798 at 43) (citing Johnson testimony that he "started in 1950" to account for "economic cycles post-World War II"), a methodology other courts have accepted, *see Coleman v. Dydula*, 139 F. Supp. 2d 388, 394 (W.D.N.Y. 2001) ("Next, defendants point out

Reiber's concession that there is no standardized number of years that forensic economists use when looking at historical CPI data. Defendants contend that this reveals a lack of general acceptance for Reiber's decision to look at only 10 years of CPI data, as opposed to 20 or 30 years of data. On this count, though, it is enough that Reiber identifies the number of years he used and offers a reasoned explanation as to why he used that number of years" in calculating future interest rates."); *Trevino v. United States*, 804 F.2d 1512, 1518 (9th Cir. 1986) ("We have no confidence in the ability of experts, the district court, or this court, to predict inflation or interest rates over the period of Sophia's life other than by extrapolating from the past."). *Cf. Jones & Laughlin Steel Corp. v. Pfeifer*, 462 U.S. 523, 546, 103 S. Ct. 2541, 2555, 76 L. Ed. 2d 768 (1983) ("The litigants . . . urge us to select one of the many rules that have been proposed and establish it for all time as the exclusive method in all federal trials for calculating an award for lost earnings in an inflationary economy. We are not persuaded, however, that such an approach is warranted. . . . [B]y its very nature the calculation of an award for lost earnings must be a rough approximation.").

Last, as to Defendants' challenge to Johnson's use of U.S. Treasury zero coupon strips, the Court likewise rejects the argument. As Plaintiff notes, Defendants' contention on this point represents little more than a disagreement with Johnson about how Stuart should utilize other investments and financial instruments and does not represent a specific critique of Johnson's methodology. (Dkt. No. 2798 at 44).

IV. Conclusion

For the foregoing reasons, Defendants' omnibus motion to exclude Plaintiff's experts' testimony is granted in part and denied in part as detailed herein.

AND IT IS SO ORDERED.

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

May 2, 2023
Charleston, South Carolina