IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION
No. 7:23-CV-897

IN RE: CAMP LEJEUNE WATER LITIGATION	)
	)
This Pleading Relates to:	)
	)
ALL CASES.	)
	)

MEMORANDUM OF LAW IN SUPPORT OF PLAINTIFFS' LEADERSHIP GROUP'S MOTION TO EXCLUDE DEFENSE EXPERT DR. JULIE GOODMAN

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Plaintiffs' Leadership Group ("PLG") moves to exclude Department of Justice General Causation[1] expert Dr. Julie Goodman for the following reasons:

I. Dr. Goodman has demonstrated a lack of objectivity and extraordinary bias;

II. Dr. Goodman failed to apply the CLJA's "at least as likely as not" standard;

III. Dr. Goodman's reports are not reliable because she did not prepare and/or write important parts of her reports, resulting in contradictory statements and conclusions; and

IV. Dr. Goodman's analysis is not reliable because it is impermissibly "result-driven" and contains other flawed methodologies.

INTRODUCTION

Dr. Goodman's reports and opinions in this case are unreliable and irrelevant. This is consistent with Dr. Goodman's long-standing history of supporting large corporate and industry-friendly entities without regard to the principles of science. *See* §§ I.D & I.E, *infra*. As an initial matter, scientific organizations have called her work "junk science" because she makes up facts and uses flawed methodologies. *See generally* Ex. A at 21 (International Network for Epidemiology in Policy ("INEP"), *Position Statement on Conflict of Interest and Disclosure in Epidemiology*, attached hereto); Ex. B at 6-11 (Environmental Defense Fund ("EDF"), *Comments of EDF on Candidates Under Consideration for Selection*, attached hereto); Ex. C at 7 (Center for Public Integrity ("CPI"), *Meet the "rented whited coats" who defend toxic chemicals*, attached hereto). She has never given testimony on behalf of an injured plaintiff despite having been retained in litigation over 100 times. Goodman Dep Tr. at 159:13-21 (JA Ex. 172, D.E. 471-1). She has been called a "rented white coat." Ex. C at 1, 11. Here, the rent is high: she has charged over ***4 million dollars*** in expert costs. *See* Goodman Dep. Tr. at 120:15-21 (JA

[1] Dr. Goodman signed reports on General Causation for all five Track 1 diseases: kidney cancer, bladder cancer, leukemias, NHL, and Parkinson's disease.

Ex. 172, D.E. 471-1); Ex. D at 2 (Gradient Invoices for Goodman, attached hereto).

Her articles and testimony are funded by industry-friendly entities, and her conclusions line up with their interests. *See* §§ I.D & I.E, *infra.* These include articles in support of chemical manufacturers. Of note, Dr. Goodman is an owner of Gradient LLC, which is owned and controlled by the private equity fund Blackstone. Goodman Dep. Tr. at 175:2-177:4, 182:12-14 (JA Ex. 172, D.E. 471-1). Blackstone continues to have ownership interests in corporations that manufacture and produce large quantities of TCE and PCE. *See* Ex. E at 2, 3, 13 (SEC FORM N-CSR Blackstone and Westlake TCE & PCE Safety Sheets, attached hereto). Peer-reviewers have rejected her articles over conflict-of-interest concerns and pseudo-science criticisms. *See* § I.C, *infra*.

Dr. Goodman's bias infects her methodology. *First*, she ignores the applicable burden of proof set by the plain language of the CLJA statute. Goodman Dep. Tr. at 205:19-206:7 (JA Ex. 172, D.E. 471-1); *see* § II, *infra*. Instead, she raises the bar of causation to the most stringent standard and then asserts no plaintiff can meet it. This renders her opinions both unreliable and irrelevant.

Second, her reports are rife with internal contradictions, rendering them unreliable. *See* § III, *infra*. These contradictions, which she was forced to admit in deposition, are not surprising because Dr. Goodman admitted that she did not "prepare" or write important parts of the reports. *See* § III.A, *infra*. She instead relied on a revolving cast of junior subordinates. This, too, is improper.

Third, she discounts almost every single one of the ***hundreds*** of studies relating to the chemicals in the water at Camp Lejeune and the five Track 1 Diseases, including the most relevant Camp Lejeune epidemiology, with no good reason. *See* § IV, *infra*.

Finally, Dr. Goodman cherry-picks data and uses a host of other flawed "result-driven" methodologies. *See* § IV.C & IV.D, *infra*.

In short, while Marines, their families and others are dying from exposure to Camp Lejeune's contaminated water, the DOJ has paid Dr. Goodman more than four million dollars to opine that every single plaintiff in this litigation who was diagnosed with kidney cancer, bladder cancer, leukemia, NHL and Parkinson's disease, including all bellwethers, should be thrown out of Court. *See* Goodman Dep. Tr. at 207:7-208:1, 228:10-229:10 (JA Ex. 172, D.E. 471-1). These opinions are so far outside of any reasonable interpretation of the science, especially considering the burden of proof in this case, that they can only be explained by the overt prejudice of Dr. Goodman. Each of these arguments is a sufficient basis for exclusion. Considered in totality, the evidence of unreliability is overwhelming. For these reasons, and as detailed further below, this Court should exclude the opinions of Dr. Julie Goodman.

LEGAL STANDARD

Rule 702 addresses a district court's gatekeeping responsibility "to 'ensur[e] that an expert's testimony both rests on a *reliable* foundation and is *relevant* to the task at hand.'" *Nease v. Ford Motor Co.*, 848 F.3d 219, 229 (4th Cir. 2017) (emphasis in original) (quoting *Daubert v. Merrell Dow Pharms., Inc.,* 509 U.S. 579, 597 (1993)). Expert testimony is reliable when it is "based on scientific, technical, or other specialized knowledge and not on belief or speculation, and inferences must be derived using scientific or other valid methods." *Id.* (emphasis omitted) (quoting *Oglesby v. Gen. Motors Corp.*, 190 F.3d 244, 250 (4th Cir. 1999)).

The reliability of an expert's methods "may be indicated by testing, peer review, evaluation of rates of error, and general acceptability." *Oglesby,* 190 F. 3d at 250 (citing *Daubert*, 509 U.S. at 593-94). However, district courts are not limited to these factors listed in *Daubert*; rather, "the court's evaluation is always a flexible one, and the court's conclusions necessarily

amount to an exercise of broad discretion guided by the overarching criteria of relevance and reliability." *Id.*

A trial court faced with a proffer of expert scientific testimony, "must conduct 'a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts at issue.'" *Sommerville v. Union Carbide Crop., LLC*, No. 24-1491, 2025 WL 2383496, at *7 (4th Cir. Aug. 18, 2025) (quoting *Daubert*, 509 U.S. at 592-93). "The Supreme Court also has emphasized that 'the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable.'" *Id.* at *8 (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999)).

ARGUMENT

I. Dr. Goodman Has Demonstrated a Lack of Objectivity and Extraordinary Bias.

"An expert may be excluded if the expert has a clear conflict of interest or bias of an extraordinary degree." *El Ansari v. Graham*, No. 17-CV-3963, 2019 WL 3526714, at *8 (S.D.N.Y. Aug. 2, 2019); *see also Keystone Transp. Sols., LLC v. Northwest Hardwoods, Inc.*, No. 5:18-cv-00039, 2019 WL 1756292, at *6 (W.D. Va. Apr. 19, 2019) (The credibility of an expert may be appropriate grounds for exclusion when the circumstances are "different than the typical case."). Courts may exercise their "inherent power to disqualify an expert witness" to "preserve the integrity of court proceedings[.]" *Sells v. Wamser*, 158 F.R.D. 390, 393 (S.D. Ohio 1994); *Keystone Transp. Sols.*, 2019 WL 175692, at *3 ("[E]xclusion could be premised on a court's inherent authority to exclude testimony as against public policy.").

Courts have upheld the exclusion of expert testimony where the expert is clearly an "advocate." *Lippe v. Bairnco Corp.*, 288 B.R. 678, 687 (S.D.N.Y. 2003). When expert witnesses "become partisans, objectivity is sacrificed to the need to win." *Id.* (quoting *Cacciola v. Selco*

Balers, Inc., 127 F. Supp. 2d 175, 184 (E.D.N.Y. 2001); *see also Viterbo v. Dow Chem. Co.*, 646 F. Supp. 1420, 1425 (E.D. Tex. 1986), *aff'd*, 826 F.2d 420 (5th Cir. 1987) ("[W]here an expert becomes an advocate for a cause, he therefore departs from the ranks of an objective expert witness, and any resulting testimony would be unfairly prejudicial and misleading."); *EEOC v. Mod. Grp., Ltd.*, 725 F. Supp. 3d 644, 661 (E.D. Tex. 2024) (quoting *Betts v. Gen. Motors Corp.*, No. 3:04-CV-169-M-A, 2008 WL 2789524, at *12 (N.D. Miss. July 16, 2008)) (same).

The Seventh Circuit stated that an expert's bias was disqualifying when the expert indicated they would "probably weigh [their] opinion in favor of the police as opposed to that of persons who were arrested or were involved in the arrest itself." *Stachniak v. Hayes*, 989 F.2d 914, 925 (7th Cir. 1993). "Financial arrangements that provide incentives for the falsification or exaggeration of testimony threaten the very integrity of the judicial process which depends upon the truthfulness of the witnesses," and are grounds for exclusion. *Accrued Fin. Servs., Inc. v. Prime Retail, Inc.*, No. CIV JFM-99-2573, 2000 WL 976800, at *3 (D. Md. June 19, 2000), *aff'd*, 298 F.3d 291 (4th Cir. 2002). Dr. Goodman meets this threshold.

A. Dr. Goodman's Billing Is Shocking.

The most recent invoices produced by the Department of Justice reveal that Dr. Goodman and her business, Gradient LLC, have billed the United States **$4,321,996.36** for this case. Goodman Dep. Tr. at 120:15-21 (JA Ex. 172, D.E. 471-1). We know Dr. Goodman has billed even more money to date as the invoices referenced above only reflect payments as of March 9, 2025, approximately one and a half months prior to her deposition.[2] *Id.* at 121:7-23. Dr.

[2] These totals do not include the fact that another Gradient principal and DOJ expert, Dr. Lisa Bailey, performed risk assessment calculations for all Bellwether plaintiffs. According to Dr. Bailey's testimony, she and her team, on behalf of Gradient, have additionally billed approximately 1.7 million dollars ($1,700,000.00) for her time and opinions in this case. *See* Bailey Dep. Tr. at 36:16-20 (JA Ex. 618, D.E. 510-7).

Goodman enlisted approximately ***sixty*** different employees to prepare her reports. *See generally* Ex. D.

B. Dr. Goodman Has Never Testified on Behalf of a Plaintiff.

Dr. Goodman has been (1) retained as an expert witness in litigation over 100 times, (2) testified at deposition as an expert between 25 and 30 times, and (3) testified at trial between 6 and 7 times. Goodman Dep. Tr. at 159:5-160:3 (JA Ex. 172, D.E. 471-1). She has never given testimony supporting an injured plaintiff in her career. *Id.* at 159:13-21.

Of the 100-plus times she has been retained as an expert, Dr. Goodman could only recall two instances in which she *believed* she was retained by a "plaintiff." *Id.* at 164:5-16. She refused to answer any questions about one of them because it was "confidential." *Id.* at 164:13-16. As to the other, Dr. Goodman was retained by a "toy company" *defending* a lawsuit brought by injured plaintiffs. *Id.* at 164:5-16, 161:24-162:6. As part of her retention, the "toy company" sued a laboratory who allegedly did not perform adequate testing on the toys at issue. *Id.* at 162:14-21.

C. Dr. Goodman Has Been Routinely Exposed for Extraordinary Bias and a Demonstrated Lack of Objectivity.

Scientific organizations have publicly criticized Dr. Goodman's bias as a professional expert. For example, the INEP[3] called Dr. Goodman's work "junk science" in a 2020 position statement on conflict of interests in epidemiology.[4] Ex. A at 1, 21. The INEP cited Dr. Goodman's bias and lack of objective science as the **number one recent example of the**

[3] The INEP is a non-profit organization and global network of 24 professional epidemiological and public health organizations, including the American College of Epidemiology. Ex. G at 1 (INEP, *Our Mission, Vision, and Approach*, attached hereto). The INEP creates and disseminates evidence-based knowledge about epidemiology. *Id.*

[4] This INEP position statement had nine co-authors who work for various reputable universities and public health agencies across the United States and the world. Ex. A at 6. This position statement had six peer-reviewers. *Id.*

definition of a conflict of interest in public health:

> The exposé included a video link to Dr. Julie Goodman giving expert testimony that cited junk science. As a member of the American College of Epidemiology (ACE) Board, **she attempted to obstruct** the ACE endorsement of the 2012 IJPC-SE Position Statement on Asbestos. **CPI exposed Dr. Goodman's COI as financially benefiting from vested interests; her employer (Gradient) had been associated with a number of scientists employed to manufacture doubt and foment uncertainty about scientific evidence**.

Id. at 21 (emphasis added). The INEP stated Dr. Goodman's conflict of interest highlighted the importance of trying to prevent "industrial apologists," who deter the advancement of scientific knowledge, from infiltrating professional boards, councils and review panels. *Id.* at 21-22.

Two of the statement authors, Colin Soskolne Ph.D. (Professor Emeritus, University of Alberta) and Jane Caldwell Ph.D. (U.S. Environmental Protection Agency (retired)), published PowerPoint slides from a presentation they gave in San Francisco in 2021 on the INEP position statement. Ex. H at 1. One slide states:

> **They exposed Dr. Julie Goodman giving expert testimony, citing junk science, and financially benefiting from vested interests of her employer, Gradient**. Gradient has long been associated with scientists employed to manufacture doubt and foment uncertainty about scientific evidence.

Id. at 9 (emphasis added).

To take another example, the EDF documented Dr. Goodman's extraordinary bias in 2022.[5] Ex. B at 6-11. It submitted comments to the US Environmental Protection Agency ("EPA") on candidates applying to be on a panel overseeing the Toxic Substances Control Act Systematic Review Protocol. *Id.* at 1. Dr. Goodman submitted her name for consideration for this

[5] The EDF is a non-profit environmental advocacy organization. Ex. I (EDF, *We are Environmental Defense Fund*, attached hereto).

panel.[6] In its comments related to Dr. Goodman, the Fund noted Dr. Goodman's bias[7] toward issues relating to the committee and stated: "**she has financial conflicts of interest and a significant appearance of loss of impartiality"** related to issues involving chemical companies." *Id.* at 11.

The CPI[8] similarly criticized Dr. Goodman and her firm for being untruthful and manufacturing faulty science in a 2016 article. *See generally* Ex. C. The title of the article is "**Meet the 'rented white coats' who defend toxic chemicals**." *Id.* at 1. In the 2016 article, CPI described Dr. Goodman's firm as follows:

> "Gradient belongs to a **breed of scientific consulting firms that defends the products of its corporate clients beyond credulity**, even exhaustively studied substances whose dangers are not in doubt, such as asbestos, lead and arsenic."

Id. at 3 (emphasis added). CPI gave a myriad of examples of Dr. Goodman and Gradient acting as "rented white coats" by defending the products of corporate clients with fraudulent science. *Id.* at 3-19. There are too many examples in the CPI article to detail in full, but even a brief review of this article shows the enormous bias, prejudice, and conflicts of interest of Dr. Goodman.

Unsurprisingly, Dr. Goodman's literature has been rejected for publication. For example, Dr. Goodman attempted to publish an article on smoking and mesothelioma risk *funded by lawyers* who defended asbestos claims. Goodman Dep. Tr. at 65:3-22, 69:14-23, 70:12-21 (JA Ex. 172, D.E. 471-1). The article claimed that cigarette smoking can cause mesothelioma. Ex. K

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[6] Dr. Goodman was not selected for the EPA Committee. Goodman Dep. Tr. at 43:1-3 (JA Ex. 172, D.E. 471-1).

[7] The EDF noted the many times Dr. Goodman has published work for entities having a vested interest in chemical assessment activities under the Toxic Substances Control Act. Ex. B at 6-7. It gave specific examples of literature written by Dr. Goodman contradictory to well established science and funded by industry groups that stood to benefit from these unsupported opinions. *Id.* at 8-10.

[8] The CPI is an investigative journalism nonprofit. Ex. J at 1 (CPI, "*About Us*", attached hereto).

at 1, 10 (*Cigarette Smoking May Increase Mesothelioma Risk*, attached hereto). This is an outrageous position that has no basis in science or medicine. Dr. Goodman's article was rejected for publication by the Journal of Human and Ecological Risk Assessment after all three peer reviewers recommended rejection. Ex. L at TEW 188 (Smoking-Mesothelioma Article Reviewer Comments, attached hereto). Two reviewers had particularly scathing comments:

> (1) "I recommend that this paper be rejected for publication. First of all, it is an **opinion piece and not a scientific article** in the usual sense. Second, it is full of statements that are **not supported by the published literature**."
>
> (2) "This paper presents what I consider a **highly biased review** of the evidence that tobacco exposure is associated with an increased risk of mesothelioma. **I strongly suspect the authors must work with someone with a strong financial interest in this subject**. I recommend rejecting this paper."

Id. at TEW 189, 191 (emphasis added).

Moreover, Dr. Goodman's objectivity has been questioned by the National Resources Council of Maine.[9] Ahead of Dr. Goodman's testimony in Maine against legislation that would restrict the use of BPA in infant formula and baby food packaging, the NRCM stated Dr. Goodman was "**one of the 'go to' people that the oil and chemical industries hire** when they want someone to put together a study showing that a particular chemical might not be as cancerous or harmful to public health as other scientists claim." Ex. N at 1 (NCRM, *Julie Goodman – Advocate for Industry*, attached hereto).

Finally, in 2023, the New York Times wrote an article criticizing Gradient's "track record of working on behalf of its clients to push back against research on health risks associated with a range of products." Ex. O at 6 (Hiroko Tabuchi, *In the Fight Over Gas Stoves, Meet the*

[9] The National Resources Council of Maine ("NRCM") is a nonprofit organization dedicated to protecting, restoring, and conserving Maine's environment. Ex. M (NRCM, *About Us*, attached hereto).

Industry's Go-To Scientist, New York Times (Jan. 30, 2023), attached hereto). The article noted that Dr. Goodman worked on behalf of tobacco companies portraying cigarettes as "safe for smokers." *Id.* This opinion was described by a Massachusetts Superior Court judge as "inconsistent and contrary to the consensus of the scientific community.'" *Id.*

Dr. Goodman admitted at deposition she has never once attempted to contact any of the above entities to correct the record as to these harsh criticisms of her objectivity.[10]

D. <u>Since Joining Gradient, Virtually All of Dr. Goodman's Publications Are Paid for by an Industry That Stands to Gain From Her Conclusions.</u>

Dr. Goodman testified that close to 100% of her publications are funded by an industry having an interest in the outcome of the publication. Goodman Dep. Tr. at 167:6-21 (JA Ex. 172, D.E. 471-1). Essentially, the industry entity pays Gradient to write an article with a conclusion that benefits them financially. Dr. Goodman often sends the interested industry member(s) drafts of the article before publication to get their comment.[11] *Id.* at 172:4-14.

E. <u>Since Joining Gradient, the Overwhelming Number of Articles Dr. Goodman Has Published Have Concluded That a Causal Relationship Does Not Exist Between an Exposure and a Disease at Levels to Which Humans Are Typically Exposed.</u>

In its 2016 article, the CPI stated:

> "Gradient scientists rarely acknowledge that a chemical poses a serious public health risk. The Center for Public Integrity analyzed 149 scientific articles and letters published by the firm's most prolific principal scientists. **Ninety-eight percent** of the time, **they**

[10] Dr. Goodman testified at the following pages she did not contact or in any way attempt to correct the record as to the above sources. Goodman Dep. Tr. at 44:1-4; 49:24-50:16; 52:24-53:11; 55:5-8; 61:19-22; 64:5-9; 83:17-84:8; 111:4-7, 133:21-134:17 (JA Ex. 172, D.E. 471-1).

[11] For example, Dr. Goodman has disclosed the following in a study: "These sponsors were provided an opportunity to review a draft of the paper and offer comments for consideration by the authors." Ex. P at 37 (JE Goodman et al., *Critical Comments on the WHO-UNEP State of the Science of Endocrine Disrupting Chemicals – 2012*, Regul. Toxicol. Pharmacol. 2014; 69(1), attached hereto). Dr. Goodman has similar language in many of her articles. *See* Ex. Q (*Examples of Industry Sponsors Reviewing Drafts of Dr. Goodman's Literature*, attached hereto), containing examples of Dr. Goodman's industry-sponsored literature where the industry was provided with drafts of the articles prior to publication.

> **found that the substance in question was harmless at levels to which people are typically exposed**."

Ex. C at 3 (emphasis added).

Dr. Goodman's "Publications – Journal Articles" section of her CV evidences a significant number of similar articles. *See* Ex. R at 20-30 (Goodman CV, attached hereto). Overwhelmingly, whenever Dr. Goodman writes an article analyzing the causal relationship between an exposure of interest and a disease, she concludes there is no causal relationship at levels to which humans are typically exposed.

For example, Dr. Goodman claimed to have performed a "systematic review" in this case.[12] Goodman Dep. Tr. at 149:1-8 (JA Ex. 172, D.E. 471-1). A review of the section of Dr. Goodman's CV entitled, "Publications-Journal Articles," reveals that she published a "systematic review" or a similar assessment of the causal relationship between an exposure of interest and a disease approximately 29 times. *See generally* Ex. S (*Conclusions of Dr. Goodman's Systematic Reviews*, attached hereto); *see also* Ex. R at 20-30. In just about every one of these reviews, Dr. Goodman concludes that the evidence is not sufficient to show a causal relationship. *Id.*

In reviews that are the closest to supporting a causal relationship, her bias is still evident. For example, Dr. Goodman concluded the current evidence "strongly suggests" a *non-asbestos* exposure, ionizing radiation, increases the risk of mesothelioma.[13] She was paid to write that article by a law firm that defends asbestos lawsuits. Ex. T at 1252; Goodman Dep. Tr. at 65:3-

[12] A systematic review is defined by Dr. Goodman as follows: "A systematic review evaluates a body of evidence using a systematic, reproducible, transparent approach that includes a research question, a search strategy, study inclusion and exclusion criteria, study screening methods, an evaluation of study quality, and information about data analysis and synthesis (Krnic Martinic et al., 2019)." Goodman Rep. (Bladder) at 12 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Kidney) at 12-13 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Leukemia) at 13 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at 13 (JA Ex. 117, D.E. 466-11); Goodman Rep. (PD) at 13 (JA Ex. 134, D.E. 467-17).

[13] Ex. T (JE Goodman, MA Nascarella et al., *Ionizing radiation: a risk factor for mesothelioma,* Cancer Causes Control, 2009;20:1237-1254 (2009), attached hereto).

66:5, 69:13-23 (JA Ex. 172, D.E. 471-1). Dr. Goodman has an extensive history testifying as a defense expert witness in asbestos cases and has made very large sums of money in this work. Goodman Dep. Tr. at 64:19-65:2, 69:14-23 (JA Ex. 172, D.E. 471-1).

As discussed in greater detail below, *see infra,* § II.D, Dr. Goodman wrote one article in which she found a causal relationship but only at a lower level of proof than the EPA's finding on the same subject.[14] This article was funded by the Texas Commission on Environmental Quality, a regulatory agency with a $2.8 million contract with Gradient. Goodman Dep. Tr. at 173:6-16, 297:14-22 (JA Ex. 172, D.E. 471-1). Dr. Goodman's conclusion that there was less evidentiary support for a causal relationship than the EPA's finding may be why Dr. Goodman was asked to write this article by the TCEQ. *See* Ex. U at 392, 396.

Finally, she wrote an article that finds a "possible" association between radionuclides in cigarettes and lung cancer.[15] Dr. Goodman's article attempts to explain, at least in part, why cigarettes cause lung cancer. Ex. V at 158. One of the most well-understood causal connections in epidemiology is that cigarettes cause lung cancer. Even still, she concludes that it is not clear the role radionuclides play in smoking-induced lung cancer. *Id.* at 160.

Besides the few examples just described, Dr. Goodman concluded that the evidence was not sufficient for a causal relationship in every single example of a systematic review that PLG was able to obtain (26 additional reviews). *See generally* Ex. S.

F. Dr. Goodman Made Misleading Statements.

First, Dr. Goodman testified untruthfully as to the article she authored that was rejected for publication regarding smoking and mesothelioma risk. When asked about the conclusions,

[14] Ex. U (J.E. Goodman, et al., *Short-term ozone exposure and asthma severity: Weight-of-evidence analysis*, Environmental Research, 2018; 160:391-397 (2018), attached hereto).
[15] Ex. V (RL Prueitt, JE Goodman, & PA Valberg, *Radionuclides in cigarettes may lead to carcinogenesis via p16^{INK4a} inactivation*., J. of Environ. Radioactivity. 2009;100:157-161 (2009), attached hereto).

she testified: "I am certain that our conclusions were that the evidence wasn't sufficient to support it was a cause." Goodman Dep. Tr. at 74:16-75:10 (JA Ex. 172, D.E. 471-1). However, this testimony by Dr. Goodman stands in contrast to the conclusion of her own article submitted for publication:

> Exposure to specific types of asbestos fibers at sufficient levels represent the most common risk factor for mesothelioma, but there are other exposures, independent of asbestos, that are also causal. Based on biological plausibility, constituents of cigarette smoke, including radionuclides emitting ionizing radiation, likely fall into this category.[16]

Ex. K at 10.

Second, she testified that she disclosed "funding" for work performed on behalf of a gas company during public testimony in Oregon. Goodman Dep. Tr. at 106:5-17 (JA Ex. 172, D.E. 471-1). On November 10, 2022, Dr. Goodman appeared at a public hearing in Oregon on the health hazards posed by gas stoves. Ex. O at 1; Ex. W (Multnomah County Commission 11.10.22 Video Screenshot, attached hereto). Dr. Goodman did not disclose that she was paid by a local gas provider to make her comments. Ex. O at 1-2. She stated this was an "oversight." *Id.* When asked about this "oversight" at deposition, she backtracked, testifying that she believed she sent a letter "with her testimony," which indicated that she received funding for her testimony. Goodman Dep. Tr. at 106:5-17 (JA Ex. 172, D.E. 471-1). The form submitted for Dr. Goodman's testimony to the Multnomah County Commission in advance of the hearing was obtained by the PLG via public records request. That form indicated Dr. Goodman "would like to submit" her

[16] When Dr. Goodman was asked whether this sentence from her article could be "reasonably interpreted to mean that you-all thought that smoking caused mesothelioma[,]" she replied: "*I think that would be a **big stretch** from that sentence*." Goodman Dep. Tr. at 83:6-11 (JA Ex. 172, D.E. 471-1). It is unclear why Dr. Goodman thought this was a stretch, but the words speak for themselves. Further, it is clear from the peer reviews of the article that Dr. Goodman's statements are not accurate. Ex. L at TEW 192 (Smoking-Mesothelioma Article Reviewer Comments, attached hereto).

testimony by "Oral testimony **only**." Ex. X at 1. The letter Dr. Goodman claimed "went in with [her] testimony" was produced by Dr. Goodman following her deposition. Goodman Dep. Tr. at 106:9-11 (JA Ex. 172, D.E. 471-1). The letter is dated a month and a half *after* the public hearing. *See* Ex. Y at 1 (Goodman Letter to Director of Multnomah County Health Department Re. Multnomah County Hearing (Dec. 22, 2022), attached hereto). Moreover, the first sentence of that letter does not state "where [she] received funding from." *Compare id.*, *with* Goodman Dep. Tr. at 106:9-11 (JA Ex. 172, D.E. 471-1). Instead, the first sentence reads, "Northwest Natural requested that I review a report from the Multnomah County Public Health titled 'A Review of the Evidence – Public Health and Gas Stoves' (referred to herein as the 'County Report')." *See* Ex. Y at 1. Nowhere in that sentence—or anywhere else in the letter—does Dr. Goodman disclose that she was being paid to testify on behalf of a gas company.

II. Despite Her Familiarity With the CLJA's "At Least As Likely As Not" Standard, Dr. Goodman Failed to Apply It Here, Rendering Her Opinion Irrelevant.

As argued in Plaintiffs' contemporaneously filed Motion to Exclude Expert Opinions that Failed to Apply the CLJA's Burden of Proof (D.E. 567), Dr. Goodman applied the wrong causation standard (like many other government experts). She testified that her general causation analysis did not attempt to use the CLJA's "at least as likely as not" standard of proof. Goodman Dep. Tr. at 205:19-206:7 (JA Ex. 172, D.E. 471-1). In fact, the first time she heard about the CLJA's "at least as likely as not" standard was from Plaintiffs' expert reports. *Id.* Dr. Goodman testified ***she never reviewed the CLJA statute at issue.*** *Id.* at 204:1-15.

Dr. Goodman is well familiar with the equipoise standard and has used it as the standard for causation in her own writing. When she has done so, her causal analysis is markedly different. In 2018, Dr. Goodman wrote an article entitled, "Short-term ozone exposure and asthma severity: Weight-of-evidence analysis." Ex. U at 391; *see also* Goodman Dep. Tr. at

293:16-22 (JA Ex. 172, D.E. 471-1). It was published in a peer-reviewed journal. Ex. U at 391; Goodman Dep. Tr. at 293:23-294:1 (JA Ex. 172, D.E. 471-1). In this article, Dr. Goodman used the Institute of Medicine's 2008 categories for strength of the evidence, including the category "equipoise and above," to make her causal determination. Ex. U at 392. This is the same IOM 2008 classification system used by the ATSDR 2017 Assessment of the Evidence analyzing causation at Camp Lejeune. ATSDR 2017 Assessment at 5-7 (JA Ex. 182, D.E. 472-3). In her article, Dr. Goodman defined equipoise and above as follows:

> "*Equipoise and above*: The evidence is sufficient to conclude that a causal relationship is **at least as likely as not**, but not sufficient to conclude that a causal relationship exists."

Ex. U at 392 (emphasis added).

This is identical to the ATSDR 2017 Assessment of the Evidence classification of "Equipoise and above" and is the same "at least as likely as not" language used in the CLJA. ATSDR 2017 Assessment at 5-7 (JA Ex. 182, D.E. 472-3). In the article, Dr. Goodman specifically chose to use "causal relationship" language when concluding her analysis under the "at least as likely as not" framework. Ex. U at 396. The CLJA also requires Plaintiffs to show that a "causal relationship . . . is at least as likely as not." Pub. L. No. 117-168, § 804(c)(2), 136 Stat. 1759, 1802-04.

Dr. Goodman's analysis under this framework shows the significantly reduced burden of proof required with an "at least as likely as not" standard. Dr. Goodman described the degree of epidemiologic, animal, and biologic plausibility in that analysis as follows:

(1) *Epidemiology*: "Overall, most epidemiology studies reported associations that were **small in magnitude**, and many were **not statistically significant**. Taken together, the magnitude of associations generally observed in this body of evidence does not increase our confidence that observed associations between ozone and asthma severity are causal." Ex. U at 393 (emphasis added).

(2) *Animal Studies*: "There was also uncertainty with regard to the relevance of these

studies to humans exposed to ambient ozone levels. Most studies were conducted at levels that exceed typical human exposures, with many conducted with exposures an order of magnitude higher than the lowest exposures in the human studies. In addition, interspecies differences in nasal structures, ventilation rates, and body surface area/ volume ratios, as well as obligate nose breathing in rodents compared to humans, all **limit the relevance of study results to humans** (Hatch et al., 2013)." *Id.* (emphasis added).

(3) *Biologic Plausibility*: "Overall, the specific MoA by which short-term exposure to ozone could affect asthma severity is unknown, but several MoAs have been proposed. Sufficient data are not available, however, to assess whether these mechanisms occur at concentrations that reflect typical US ambient exposures or if they are high-exposure mechanisms. Because we cannot be confident that the proposed mechanisms for respiratory health effects occur at the levels of ozone exposure measured in epidemiology studies, the overall **strength of the evidence for causality is diminished**." *Id.* at 394 (emphasis added).

As to the effects of "confounding and biases," Dr. Goodman stated that the overall evidence "reduced" the strength for causation. *Id.* at 395. Yet, she still found a causal relationship under the "at least as likely as not" standard.

At deposition, Dr. Goodman confirmed the significantly reduced burden of proof when utilizing the "at least as likely as not" standard found in the CLJA. She consistently referred to the "at least as likely as not" standard as a "coin flip" and one that requires a low threshold of evidence for causation. Goodman Dep. Tr. at 310:23-311:6, 312:9-17, 313:23-315:12, 317:18-23, 318:12-320:1 (JA Ex. 172, D.E. 471-1). In short, her analysis using the "at least as likely as not" standard is markedly different from her opinions in this case.[17]

[17] *See* Goodman Rep. (Bladder) at 57, 62 (JA Ex. 75, D.E. 463-14) (finding most TCE studies reported weak risk estimates/ statistically null results and concluding no causation); Goodman Rep. (Kidney) at 82 (JA Ex. 94, D.E. 464-15) (finding most benzene studies reported weak risk estimates/some statistically significant results and concluding no causation); Goodman Rep. (PD) at 45 (JA Ex. 134, D.E. 467-17) (finding most Camp Lejeune studies reported weak/ statistically null risk estimates and concluding no causation); Goodman Rep. (NHL) at 64 (JA Ex. 117, D.E. 466-11) (finding most TCE studies reported weak associations and concluding no causation); Goodman Rep. (Leukemia) at 58, 66 (JA Ex. 102, D.E. 465-7) (finding most TCE studies reported non-statistically significant risk estimates were between 1-2 and concluding no causation).

III. Dr. Goodman's Reports Are Not Reliable Because She Did Not Prepare and/or Write Important Parts of Her Reports Resulting in Contradictory Statements and Conclusions.

A. Dr. Goodman's Reports Are Not Reliable Because She Did Not Prepare and/or Write Important Parts of Her Reports.

Rule 26(a)(2)(B) requires that an expert's testimony "be accompanied by a written report—prepared and signed by the witness." Fed. R. Civ. P. 26 (a)(2)(B). The failure to "prepare" and be able to explain opinions and inconsistencies in a report is grounds for its exclusion. *See Moore v. Equitrans, L.P.*, 27 F.4th 211, 223-24 (4th Cir. 2022); *Butera v. District of Columbia*, 235 F.3d 637, 660-61 (D.C. Cir. 2001); *see also Pacific Life Ins. Co. v. Bank of New York Mellon*, 571 F. Supp. 3d 106, 115 (S.D.N.Y. 2021).

In *Moore*, the Fourth Circuit upheld the district court's order excluding the report of an expert who admitted he did not author significant portions of his report and did not perform the calculations contained in his report. *Moore,* 27 F. 4th at 223. The Fourth Circuit found this expert's opinions unreliable in part because he was unable to answer questions regarding how he came to the conclusions in his report. *Id.* Other courts from around the country have rendered similar decisions. *See id.* (collecting cases and citing *Dura Auto. Sys. of Ind. v. CTS Corp.*, 285 F.3d 609, 612-13 (7th Cir. 2002)) (explaining that while an "expert witness is permitted to use assistants in formulating his expert opinion," issues may arise where those "assistants aren't merely gofers or data gatherers but exercise professional judgment that is beyond the expert's ken"); *TK-7 Corp. v. Est. of Barbouti,* 993 F.2d 722, 732 (10th Cir. 1993)); *see, e.g., Moore v. BASF Corp.*, No. CIV.A. 11-1001, 2012 WL 6002831, at *7 (E.D. La. Nov. 30, 2012), *aff'd sub nom.*, *Moore v. Int'l Paint, L.L.C.*, 547 F. App'x 513 (5th Cir. 2013). Indeed, this Court has stated that while an expert is permitted to use assistants in the development of their report, they cannot simply "parrot" the opinions of others. *See Bouygues Telecom, S.A. v. Tekelec*, 472 F. Supp. 2d

722, 730 (E.D.N.C. 2007); *see also Pacific Life Ins. Co.*, 571 F. Supp. 3d at 115.

These same shortcomings are present here, so Dr. Goodman's reports should be excluded. She testified that large parts of her reports were written by "junior staff." Goodman Dep. Tr. at 213:14-214:5 (JA Ex. 172, D.E. 471-1). When asked how her reports were created, she testified that she came up with **the scope and the outline**, but then "delegated a lot of work to the junior staff" who "would do their research and find the studies that were relevant." *Id.* at 213:10-18. Dr. Goodman admitted that it was junior staff who filled in the study quality tables she based her report on, testifying:

> We came up with the study quality criteria and then had **junior staff** review the studies and **fill in information about the studies in tables** on both the quality study characteristics and results, and these were then checked.
>
> And then ***we wrote text kind of based on the tables*** and based on the articles themselves and then did, you know, the Bradford Hill assessment and summarized agency reviews.

Id. at 213:24-214:10 (emphasis added). When asked who actually did the Bradford Hill analysis, she testified that "it was done under my direction." *Id.* at 214:19-20. Goodman later admitted that others wrote the text of her reports and that **different people were assigned to write the five different reports,** and even these people changed over time. *Id.* at 215:19-217:12, 217:16-24.

The invoices also indicate that other individuals worked substantially more hours than Dr. Goodman. For example, Denali Boon is a Gradient "epidemiologist" who billed approximately ***twenty-three hundred (2300) hours*** on this case. *See generally* Ex. D. This a staggering number for someone who is not disclosed to give any opinions. It is made even more staggering in light of Dr. Goodman billing only 1000 hours for work on this case. *See generally id.* Denali Boon billed for invoice items such as: ([redacted]

"[redacted]"[18] Ex. D at 4, 19-20, 42, 106, 132, 207, 333, 346, 392-393. Other Gradient employees billed for c[redacted], including "[redacted] *Id.* at 43. [redacted] Goodman Dep. Tr. at 156:20-157:10 (JA Ex. 172, D.E. 471-1). It defies logic to think that [redacted], an epidemiologist, billed approximately 2300 hours in this case and her professional opinions as an epidemiologist are not represented in these reports. Finally, Dr. Goodman billed only ***7 hours*** on work specifically related to drafting her reports, indicating that she did not write them.[19]

That Dr. Goodman so extensively relied on other individuals to make judgments and write reports with her name on them is cause for exclusion. *See Moore*, 27 F.4th at 223 (collecting cases); *BASF Corp.*, 2012 WL 6002831at *7; *Pacific Life Ins. Co.*, 571 F. Supp. 3d at 115. This is evidenced by the fact that Dr. Goodman could not explain inconsistencies in the tables of her reports, as is detailed in §§ III.B.i, III.B.ii, & III.D, *infra*.

B. <u>The Reports Are Self-Contradictory and Should Be Excluded.</u>

Many of the same epidemiology studies, including those focusing on Camp Lejeune, are

[18] Dr. Boon spent approximately 170 hours [redacted] and an additional, approximate 190 hours [redacted] *See generally* Ex. D. By comparison, Dr. Goodman billed 1.5 hours for [redacted] and "[redacted] *Id.*

[19] [redacted] *See generally* Ex. D. There were also an additional 3 hours of [redacted] *Id.* at 27, 28, 29. Dr. Goodman tries to explain away this conduct. For example, Dr. Goodman stated the job titles listed on the billing "don't reflect people's role on the project." Goodman Dep. Tr. at 152:19-22 (JA Ex. 172, D.E. 471-1). Similarly, she testified when she puts the word "research" in her billing, that might mean she was drafting her reports. *Id.* at 146:7-16. As to these discrepancies, Dr. Goodman stated that her billing reflects the following: "I think **it's just whatever I think** as I'm sitting down that day to write down what's in my – the time." *Id.* at 147:5-7 (emphasis added).

addressed in multiple reports and are summarized in charts at the end of each report. Dr. Goodman's reports state that many studies have "weaknesses." These conclusions are based on the charts summarizing these opinions, which were also written by other people. Goodman Dep. Tr. at 213:24-214:15 (JA Ex. 172, D.E. 471-1). But there are many instances where the reports contain contradictory interpretations of the very same study. Specifically, and as detailed below, the reports take opposite positions as to the same issue (likely because the actual authors are her subordinates who do not agree with one another).

As the Supreme Court has cautioned "conclusions and methodology are not entirely distinct from one another," and a court can reasonably conclude that the analytical gap between the data and opinion can be "too great." *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). Here, that gap is too great. Dr. Goodman's contradictory conclusions regarding the same studies demonstrates a lack of any methodology, save improperly relying on the contradictory opinions of unnamed assistants. Self-contradictory testimony is inherently unreliable and is grounds for exclusion. *Salamone v. Wal-Mart Stores E., LP*, No. 10-CV-892, 2011 WL 2787788, at *2 (E.D. Pa. July 15, 2011) (finding that "self-contradictory" information in reports demonstrates that the methodology is flawed); *Cummings v. Deere & Co*., 589 F. Supp. 2d 1108, 1112 (S.D. Iowa 2008) (excluding "self-contradictory" testimony); *Jones v. Novartis Pharms. Corp.,* 235 F. Supp. 3d 1244, 1294 (N.D. Ala. 2017), *aff'd in part sub nom. Jones v. Novartis Pharms. Co.*, 720 F. App'x 1006 (11th Cir. 2018).

1. Dr. Goodman's Analysis of the Epidemiology Relating to Camp Lejeune in Tables C.1 Is Contradictory in Different Reports.

When analyzing the Camp Lejeune epidemiology, Dr. Goodman's reports contain the

following contradictions which are summarized in the attached Exhibit Z.[20]

(1) Bove (2024b) Cancer Incidence Study:

a. *Kidney Cancer Report*: The report states a "STRENGTH" of Bove (2024b) is that Dr. Bove considered "negative control diseases" to account for smoking history. Goodman Rep. (Kidney) at C-32 (JA Ex. 94, D.E. 464-15).

b. *Bladder Cancer Report and Leukemia Reports*: The reports state a "WEAKNESS" of the very same study was that Dr. Bove "Did **not** control for or consider: smoking[.]"[21] Goodman Rep. (Bladder) at C-41 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Leukemia) at C-40 (JA Ex. 102, D.E. 465-7) (emphasis added to all).

In fact, the Bove (2024b) study did use negative control diseases to account for smoking history. Dr. Bove, in this study, stated the results from this analysis suggested that "confounding due to smoking and alcohol consumption would be minor." Bove 2024 Cancer Incid. Study at 11 (JA Ex. 191, D.E. 472-12).

When asked about this inconsistency, Dr. Goodman initially testified: "I also believe if we look at that Bove study, I would need to look at it, but I think something was different for bladder and kidney. And I can't remember what as I sit here, but I remember there being a difference." Goodman Dep. Tr. at 232:12-16 (JA Ex. 172, D.E. 471-1). However, after she was given a chance to review the Bove (2024b) study, she testified as follows:

> Q. Did you find anything in there that would differentiate bladder from kidney cancer?
>
> A. **I did not**.
>
> Q. Okay. So would you agree with me that that is an inconsistency in your charts in terms of the data quality section of your reports?

[20] PLG has collected excerpts from each of Dr. Goodman's reports to demonstrate these inconsistencies to the Court. *See* Ex. Z (Collected Inconsistencies in Dr. Goodman's Reports, attached hereto).
[21] Dr. Goodman erroneously mixed up the titles of certain studies. Therefore, when Dr. Goodman refers to the Bove (2024a) incidence study in her Leukemia report, she is actually referring to the Bove (2024b) incidence study. The other errors in Dr. Goodman's naming conventions are further detailed in the footnotes of Exhibit Z.

> A. **Yes, I would say that they're different and I would say that I would, if I were to do it right now, I would take it out of a strength because the analysis was not – was not adequate**.

Id. at 234:23-235:10 (emphasis added).

(2) Bove (2014b) Cancer Mortality Study for Civilians:

a. *Kidney cancer, Bladder cancer, Leukemia, and NHL reports*: The reports state a "STRENGTH" of this study was that Dr. Bove used "**Direct** chemical exposure measurement (*i.e.*, **measured in groundwater**[.)]" Goodman Rep. (Kidney) at C-27 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Bladder) at C-34 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Leukemia) at C-30 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at C-23 (JA Ex. 117, D.E. 466-11) (emphasis added to all).

b. *Parkinson's Report*: The report states that a "WEAKNESS" of this very same study was that Dr. Bove used "**Indirect** chemical exposure measurement – based on employment at CL (external analyses) or **modeling of groundwater** contamination (internal analyses)." Goodman Rep. (PD) at C-1 (JA Ex. 134, D.E. 467-17) (emphasis added).

Dr. Bove was using the ATSDR water modeling in his 2014b study. Bove 2014 Mort. Study - Civ at 3 (JA Ex. 189, D.E. 472-10). As the Court is aware, there were direct samples taken from the water which formed the basis of the water modeling. It makes no sense Dr. Goodman would have analyzed this key fact differently when looking at Parkinson's, but not the other four diseases.

(3) Bove (2014b) Cancer Mortality Study for Civilians:

a. *Kidney Cancer Report*: The report states a "STRENGTH" of the study was that Dr. Bove considered smoking by "using negative control diseases[.]" Goodman Rep. (Kidney) at C-27 (JA Ex. 94, D.E. 464-15).

b. *Parkinson's Report*: The report states as a "WEAKNESS" that Dr. Bove "Did **not** consider or control for . . . smoking in any analyses[.]" Goodman Rep. (PD) at C-1 (JA Ex. 134, D.E. 467-17) (emphasis added).

When asked about this inconsistency at her deposition, Dr. Goodman testified as follows:

> Q. So is that an error in the kidney cancer report is what you're saying?

> A. **I think I was – I believe that is an error**.
>
> Q. Okay. Do you think that that error could have occurred because there were multiple people working on multiple diseases and it could be that somebody looked at the fact that they controlled using these negative controlled diseases for smoking and somebody else thought maybe that wasn't a strength and that's why they're different?
>
> A. I think I looked at all of these tables multiple times and **I somehow did not notice this mistake in reviewing this table here**.

Goodman Dep. Tr. at 248:18-249:8 (JA Ex. 172, D.E. 471-1) (emphasis added).

This "mistake" Dr. Goodman testified she "did not notice" in her kidney cancer report was repeated in the bladder cancer and leukemia reports as a "STRENGTH" of Bove (2014b). Goodman Rep. (Bladder) at C-34 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Leukemia) at C-30 (JA Ex. 102, D.E. 465-7). The study itself addresses this issue. In Bove (2014b), Parkinson's was a disease of "secondary interest" while kidney cancer, bladder cancer, and leukemia were diseases of "primary interest." Bove 2014 Mort. Study – Civ at 2 (JA Ex. 189, D.E. 472-10). Bove et al. explicitly stated that "Using the HR for COPD to adjust for the possible confounding effects of smoking **would reduce the HRs for the diseases of primary *and* secondary interest** by approximately 17.5%." *Id.* at 8 (emphasis added). Therefore, it makes no sense Dr. Goodman would have analyzed this issue differently for different diseases.

2. <u>Dr. Goodman's Analysis of the Non-Camp Lejeune Epidemiology Studies in Tables C.1 Are Contradictory in Different Reports.</u>

Dr. Goodman's inconsistent interpretations continued in her evaluations of the non-Camp Lejeune epidemiology studies:

(1) Zhao (2005):

a. *Kidney Cancer Report*: The report states that Zhao (2005) had "**No major weaknesses**" in the study population. Goodman Rep. (Kidney) at C-19, C-20 (JA Ex. 94, D.E. 464-15) (emphasis added).

b. *Bladder Cancer Report*: The report states that the study population was a

> "WEAKNESS" of the study because there was "Unknown loss to follow-up." Goodman Rep. (Bladder) at C-24 (JA Ex. 75, D.E. 463-14).

When Dr. Goodman was asked about this inconsistency at her deposition she testified as follows:

> Q. Would you agree that that's inconsistent?
>
> A. **Yes**.
>
> Q. Do you think that that inconsistency could have been because you had multiple people working on different multiple parts of the report and different diseases, and one person might have thought that their study population had no major weaknesses and another person might have thought there was an unknown loss to follow-up as a weakness?"
>
> A. (Reviews document) **I'm – I'm not sure how to explain it. It just looks like an oversight.**

Goodman Dep. Tr. at 251:19-252:8. (JA Ex. 172, D.E. 471-1) (emphasis added).

This inconsistency cannot simply be explained away as an oversight. It is a completely different analysis of the same issue in the same study.

(2) Pukkala (2009):

a. *NHL and Leukemia Reports*: The reports state a "STRENGTH" of the study was that Pukkala (2009) had "**No loss to follow-up** or exclusions." Goodman Rep. (NHL) at C-19 (JA Ex. 117, D.E. 466-11); Goodman Rep. (Leukemia) at C-26 (JA Ex. 102, D.E. 465-7) (emphasis added to all).

b. *Kidney Cancer and Bladder Cancer Reports*: The reports state a "WEAKNESS" of the study is that Pukkala (2009) had "Amount **lost to follow-up unknown**[.]" Goodman Rep. (Kidney) at C-24 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Bladder) at C-30 (JA Ex. 75, D.E. 463-14) (emphasis added to all).

(3) Lipworth (2011):

a. *Kidney Cancer Report*: The report states a "STRENGTH" of Lipworth (2011) was "**Appropriate consideration of latency** (analyses by duration 10+ years, and 5+ yrs of exposure)." Goodman Rep. (Kidney) at C-26 (JA Ex. 94, D.E. 464-15) (emphasis added).

b. *NHL Report*: The report states as a "WEAKNESS" that there was "**No consideration of latency.**" Goodman Rep. (NHL) at C-21 (JA Ex. 117, D.E. 466-11) (emphasis added).

(4) Garabrant (1988):

a. *Kidney Cancer and Bladder Cancer Reports*: The reports state a "STRENGTH" of Garabrant (1988) was that there were "No exclusions for missing data" and that there were "No major weaknesses" in the study population. Goodman Rep. (Kidney) at C-1 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Bladder) at C-2 (JA Ex. 75, D.E. 463-14).

b. *Leukemia and NHL Reports*: The reports state as a "WEAKNESS" there were an "**Unknown number of exclusions**" in the study population. Goodman Rep. (Leukemia) at C-3 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at C-1 (JA Ex. 117, D.E. 466-11) (emphasis added to all).

(5) Dagg (1992):

a. *Kidney Cancer, Bladder Cancer, and NHL Reports*: The reports state a "WEAKNESS" of the study was that "All women excluded (4.8% of total) due too few cases." Goodman Rep. (Kidney) at C-3 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Bladder) at C-5 (JA Ex. 75, D.E. 463-14); Goodman Rep. (NHL) at C-3 (JA Ex. 117, D.E. 466-11).

b. *Leukemia Report*: The report states there were "**No major weaknesses**" in the study population category of Dagg (1992). Goodman Rep. (Leukemia) at C-5 (JA Ex. 102, D.E. 465-7) (emphasis added).

(6) Sinks (1992):

a. *Kidney Cancer Report*: The report states as a "STRENGTH" of the study that there was a "**10% loss** to follow-up." Goodman Rep. (Kidney) at C-3 (JA Ex. 94, D.E. 464-15) (emphasis added).

b. *Bladder Cancer Report*: The report states for the same study as a "WEAKNESS" that there was "**Unknown loss** to follow-up." Goodman Rep. (Bladder) at C-6 (JA Ex. 75, D.E. 463-14) (emphasis added).

C. <u>The Only Plausible Explanation for the Contradictions and Inconsistencies in Dr. Goodman's Reports Is That Other Gradient Employees Were, at a Minimum, Co-Authors and Should Have Been Disclosed.</u>

The obvious truth from the above citations and testimony is that Dr. Goodman's reports do not reflect the opinions of one person—Dr. Goodman—but rather the opinions of other Gradient employees as well. Importantly, Dr. Goodman admitted she would not have told two different people writing these sections to write opposite facts or conclusions in her report. Goodman Dep. Tr. at 252:9-253:5 (JA Ex. 172, D.E. 471-1). Dr. Goodman testified:

> Q: There may be different reasons why there was this inconsistency in your charts, right? There's different explanations for it, but can we take off the table one of the explanations, which is that you would have told two different people to write two different things?
>
> A: That is correct.

Id. at 252:9-253:5.

PLG's position is further supported by the fact that Dr. Goodman's Parkinson's report is written ***in a different format*** than her kidney cancer, bladder cancer, and NHL reports.[22]

D. <u>Dr. Goodman's Explanations Support Plaintiffs' Position.</u>

Dr. Goodman attempts to explain the internal inconsistencies by insisting they were the result of an editing error made by someone else, testifying:

> A. So when you were asking what's most likely to have occurred across reports, what I believe happened is that when QCing a study, someone might have found a mistake in terms of saying loss to follow-up versus no weaknesses and then that - - that correction didn't get corrected across all reports, which is still a mistake, but I believe that is most likely why that happened."

Goodman Dep. Tr. at 256:22-257:5 (JA Ex. 172, D.E. 471-1).

[22] For example, in Dr. Goodman's kidney cancer, bladder cancer, and leukemia reports, her discussion of the Camp Lejeune studies was organized into five subsections: "5.1 Study Overview," "5.2 Study Results," "5.3 Toxicology," "5.4 Exposure," and a "Conclusions" section. Goodman Rep. (Kidney) at 42-50 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Bladder) at 44-51 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Leukemia) at 46-55 (JA Ex. 102, D.E. 465-7). By contrast, the Camp Lejeune section of Dr. Goodman's Parkinson's report was organized by the following subsections: "5.1 Bove et al. (2014a)," "5.2 ATSDR (2018b)," "5.3 Goldman et al. (2023)," "5.4 Bove et al. (2024a)," "5.5 Toxicology," "5.6 Exposure," and "5.7 Conclusions." Goodman Rep. (PD) at 33-45 (JA Ex. 134, D.E. 467-17).

Dr. Goodman admits to internal inconsistencies, proving Plaintiffs' position. That she tries to blame "QC" (presumably, "quality-control") is just more evidence that Dr. Goodman has no idea why there are internal inconsistencies, because she does not understand the reports that have her name on them.

IV. Dr. Goodman's Analysis Is "Result-Driven" Such That Not a Single Plaintiff Could Potentially Recover Under the CLJA.

"Result-driven analysis, or cherry-picking, undermines principles of the scientific method and is a quintessential example of applying methodologies (valid or otherwise) in an unreliable fashion. Courts have consistently excluded expert testimony that cherry-picks relevant data, because such an approach does not reflect scientific knowledge, is not derived by the scientific method, and is not good science." *In re Lipitor (Atorvastatin Calcium) Mktg., Sales Pracs. & Prods. Liab. Litig.*, 892 F.3d 624, 634 (4th Cir. 2018) (brackets and internal quotations omitted); *see also EEOC v. Freeman*, 778 F.3d 463, 469-70 (4th Cir. 2015) (Agee, J., concurring).

The five diseases at issue in Track 1 are amongst the diseases with **the strongest scientific evidence** of a connection to Camp Lejeune. For example, ATSDR concluded that each one of the five Track 1 Diseases had a sufficient causal connection to the chemicals in the contaminated water at Camp Lejeune. ATSDR 2017 Assessment at 13-14 (JA Ex. 182, D.E. 472-3). Many other governmental entities, including the EPA, the NTP, and IARC have concluded that chemicals in the water at Camp Lejeune have a sufficient causal connection to the diseases at issue. *See* Goodman Dep. Tr. at 276:10-277:10, 279:7-287:5, 287:20-293:9, 320:11-342:13 (JA Ex. 172, D.E. 471-1). For example, the following governmental entities have found significant associations and relationships between the following chemicals and Track 1 diseases: (1) EPA 2011: kidney cancer and NHL with TCE; (2) ATSDR 2017a: TCE and all leukemias, (3) ATSDR 2017a: Parkinson's disease and TCE is equipoise and above; (4) EPA 2012: bladder cancer and

NHL and PCE; (5) IARC 2014: bladder cancer and PCE; (6) ATSDR 2024a: leukemias and benzene; (6) IARC 2018: leukemias and benzene.[23]

There are hundreds of studies showing increased risks, causal connections, and associations between the chemicals at issue and the five Track 1 diseases. These studies span exposure ranges from very high to very low. Dr. Goodman's opinions are that not a single one of the five Track 1 Diseases can show a causal relationship to exposures at Camp Lejeune. *See* Goodman Dep. Tr. at 207:7-208:1, 228:10-229:10 (JA Ex. 172, D.E. 471-1). The only possible explanation for this extreme and unsupported conclusion is that she has engaged in a "result-driven" analysis that has cherry-picked and distorted evidence to fit a predetermined conclusion.

A. Dr. Goodman's "Result-Driven" Analysis Resulted in Dr. Goodman Rejecting the Most Relevant Epidemiology Relating to Camp Lejeune.

There is an entire body of epidemiology literature relating specifically to Camp Lejeune. These studies have been utilized by multiple agencies of the United States government in their official duties. These studies formed the foundation of the Camp Lejeune Justice Act.

The studies performed by ATSDR and Dr. Bove have many strengths that are not given adequate weight by Dr. Goodman. For example, some of the key strengths in the Camp Lejeune studies are the study population, the size of the cohorts in the studies, and the fact that the studies performed so many different analyses of the different populations. It is exceedingly unusual to have such strong ***comparable*** epidemiology in a litigation of this kind. Often, there are far greater differences between the study population, control group, and other individuals involved.

[23] EPA 2011 TCE at 4-676 (JA Ex. 196, D.E. 473-4); ATSDR 2017 Assessment at 54-55, 99 (JA Ex. 182, D.E. 472-3); EPA 2012 PCE at 6-13 (JA Ex. 197, D.E. 473-5); IARC 2014 Monograph 106 at 329 (JA Ex. 201, D.E. 473-9); ATSDR 2024 Benzene at 98 (JA Ex. 187, D.E. 472-8); IARC 2018 Monograph 120 at 297 (JA Ex. 202, D.E. 475-3). These are only a small set of governmental reviews supporting PLG's claims. Dr. Goodman was asked about many more governmental reviews on pages 276 to 342 of her deposition. *See* Goodman Dep. Tr. at 276:15-277:10, 279:7-287:5, 287:20-293:9, 320:11-342:13 (JA Ex. 172, D.E. 471-1).

Despite the obvious relevance of using the Camp Lejeune epidemiology to the facts of this case, Dr. Goodman's reports state the studies are of such low quality that the data should not be used as the basis for any analysis of causation and the evidence does not support a causal association. Goodman Rep. (Kidney) at 49-50 (JA Ex. 94, D.E. 464-15).[24] This is not an objective and methodologically sound view of this evidence. It is a "result-driven" interpretation of this epidemiology.

Dr. Goodman's opinions as to the Camp Lejeune studies are contradictory to the United States own governmental agency reviews. For example, in the EPA's 2020 toxicological review of TCE, the EPA used the two Bove (2014) studies in its meta-analysis of relevant literature. EPA 2020 TCE Risk Eval. at 679-680 (JA Ex. 199, D.E. 473-7). In doing so, the EPA specifically went through and analyzed the strengths and weaknesses of every study being contemplated. *Id.* at 679. The EPA specifically detailed that the two Bove (2014) studies were of a sufficient quality and reliability to be used in their analysis. *Id.* at 680.

Dr. Bove, the author of the studies relating to Camp Lejeune, was deposed in this case. He testified to the extensive review each of the Camp Lejeune studies underwent before being published or otherwise released to the public. Ex. AA at 82:1-19 (Deposition Transcript of Dr. Frank Bove, (Oct. 17, 2024), attached hereto). He further explained that when ATSDR studies are published they go through a *second* peer-review process: "when it goes to a journal, it goes through another peer-review process." *Id.* at 83:5-7. His 2024 Cancer Incidence study was subject to even further rigorous review. *Id.* at 82:20-25. He testified that he "stood by" his findings in the 2017 Assessment of the Evidence relating to Camp Lejeune. Ex. BB at 110:3-16

[24] Dr. Goodman uses similar language in her other reports. *See* Goodman Rep. (Bladder) at 51 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Leukemia) at 55 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at 49 (JA Ex. 117, D.E. 466-11); Goodman Rep. (PD) at 45 (JA Ex. 134, D.E. 467-17).

(Deposition Transcript of Dr. Frank Bove (Oct. 18, 2024), attached hereto); ATSDR 2017 Assessment at 13-14 (JA Ex. 182, D.E. 472-3). He further testified that *all* his epidemiology studies employed well-established data gathering and statistical methods to minimize each studies' limitations. Ex. BB at 103:6-10.

In addition to finding flaws in the limitations of these studies, Dr. Goodman is also critical of the data from the studies. She states that, for kidney cancer for example, "Almost all risk estimates were statistically null and close to 1." Goodman Rep. (Kidney) at 4 (JA Ex. 94, D.E. 464-15). This is simply untrue. The overwhelming majority of the different analyses performed in the five Camp Lejeune studies relating to kidney cancer show significant increases in risk relating to exposures at Camp Lejeune. The Camp Lejeune epidemiology for kidney cancer has been summarized in the attached Exhibit CC, Lejeune Epi Kidney Cancer RRs.[25] These are overwhelmingly positive findings and can in no way be thought of to be caused by "chance" or "bias." However, that is exactly what Dr. Goodman attempts to do:

[25] For example, the Camp Lejeune epidemiology compared the kidney cancer mortality rates to the general U.S. population and found elevated risks among the Camp Lejeune population on multiple occasions. *See* Bove 2014 Mort. Study – Mil at 7 (JA Ex. 190, D.E. 472-11); Bove 2014 Mort. Study – Civ at 7 (JA Ex. 189, D.E. 472-10); *see also* Ex. CC (Lejeune Epi. Kidney Cancer RRs, attached hereto). The Camp Lejeune epidemiology also compared kidney cancer mortality and incidence rates to the Camp Pendleton population many times and found elevated risks among the Camp Lejeune population in almost every instance. Bove 2014 Mort. Study – Mil at 8 (JA Ex. 190, D.E. 472-11); Bove 2014 Mort. Study – Civ at 8 (JA Ex. 189, D.E. 472-10); ATSDR 2018 Morbidity Study at 74, 84 (JA Ex. 184, D.E. 472-5); Bove 2024 Mort. Study at 6-7 (JA Ex. 193, D.E. 472-14); Bove 2024 Cancer Incid. Study at 7, 9 (JA Ex. 191, D.E. 472-12); *see also* Ex. CC. The Camp Lejeune epidemiology conducted approximately twenty analyses for kidney cancer mortality/morbidity stratified by dose/ duration of exposure to the contaminants at Camp Lejeune. In the high majority of these analyses, the risk of kidney cancer mortality/morbidity increased with the dose or duration of exposure at Camp Lejeune. Ex. DD at Table S3 (Bove 2014 Mort. Study – Mil. Additional file 1, attached hereto); Ex. EE at Table S1 (Bove 2014 Mort. Study – Mil. Additional file 2, attached hereto); Bove 2014 Mort. Study – Civ at 10 (JA Ex. 189, D.E. 472-10); ATSDR 2018 Morbidity Study at 76, 78, 80, 82, 86, 88 (JA Ex. 184, D.E. 472-5); Bove 2024 Cancer Incid. Study at 12 (JA Ex. 191, D.E. 472-12); *see also* Ex. CC. In the remaining analyses performed, elevated risks of kidney cancer mortality were still found. Ex. EE at Table S1; Bove 2024 Cancer Incid. Study at 10 (JA Ex. 191, D.E. 472-12); *see also* Ex. CC. The above-described findings show overwhelmingly positive associations between kidney cancer and the exposures that marines and civilians experienced at Camp Lejeune.

> Q. So is your explanation that each one of any of the positive associations that exist in those five Camp Lejeune studies just happen to be because of chance and/or because of some other issue with the study?
>
> . . .
>
> THE WITNESS: Yes, because these associations were not seen consistently across studies.

Goodman Dep. Tr. at 401:13-22 (JA Ex. 172, D.E. 471-1).

Further, Dr. Goodman's statements are at odds with DOJ's specific causation expert for kidney cancer. Dr. Walter Stadler, M.D., who wrote the DOJ's causation reports for all five kidney cancer bellwether plaintiffs, stated in his deposition that the Bove (2014a) study was a "reliable and reputable source." Stadler Dep. Tr. at 47:2-5 (JA Ex. 600, D.E. 508-9). In fact, Dr. Stadler testified that the five Camp Lejeune studies were **the only epidemiology studies he reviewed** because they provided the "best data." *Id.* at 164:13-18, 165:2-15. Indeed, Dr. Stadler conceded that exposures at Camp Lejeune can increase the risk of kidney cancer, thus admitting such a relationship can be causal:

> Q. So let me see if I understand what you're saying. There are some people who were at Camp Lejeune who were exposed to the water there that do have an increased risk of cancer if they were there for a sufficient duration, time, exposure; but there are some people that wouldn't have met that duration, time, and exposure that wouldn't have an increased risk, fair?"
>
> A. I think that that's fair.

Id. at 24:3-11.

This testimony directly contradicts Dr. Goodman's opinions that not a single person exposed at Camp Lejeune's exposures caused their kidney cancer.

B. Dr. Goodman's "Result-Driven" Analysis Resulted in Dr. Goodman Discounting Virtually Every Study That Supports Plaintiffs' Positions.

In each of the five Track 1 diseases, Dr. Goodman opines that virtually every one of the

hundreds of studies that exist are so unreliable they should not be used for an assessment of causation. For example, in her Bladder Cancer, NHL, and Parkinson's disease reports, she found every single study and governmental review to be insufficient as a basis for causation.[26] She concludes that there is no level of TCE, PCE, Benzene, or Vinyl Chloride that can cause any of these diseases. For Kidney Cancer, she claims that every one of over a hundred studies, **except for one**, are insufficient to use as a basis for causation.[27] Of course, her opinion is that the one study she relies on happens to have an exposure level that is higher than the exposures at Camp Lejeune.[28] For Leukemia, Dr. Goodman discounts every one of over a hundred studies, except for three, claiming all are insufficient to be used as a basis for causation.[29] *See* Goodman Rep.

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[26] In her Bladder Cancer report, Dr. Goodman reviewed 5 Camp Lejeune epidemiology studies, 43 TCE epidemiology studies, 47 PCE epidemiology studies, 52 Benzene epidemiology studies, and 7 Vinyl Chloride epidemiology studies. Goodman Rep. (Bladder) at 44, 51-52, 62-63, 73-74, 81-82, 88 (JA Ex. 75, D.E. 463-14). In her NHL report, she reviewed 4 Camp Lejeune epidemiology studies, 41 TCE epidemiology studies, 39 PCE epidemiology studies, 75 Benzene epidemiology studies, and 10 Vinyl Chloride epidemiology studies. Goodman Rep. (NHL) at 44, 49-50, 59, 64-65, 76-77, 94-96, 103 (JA Ex. 117, D.E. 466-11). In her Parkinson's Report, she reviewed 4 Camp Lejeune studies, 7 TCE epidemiology studies, 7 PCE epidemiology studies, and 5 Benzene epidemiology studies (these numbers do not include the case reports and/or case series that Dr. Goodman briefly reviewed). Goodman Rep. (PD) at 1, 45-46, 68-69, 81-82, 89 (JA Ex. 134, D.E. 467-17). In each report, she claims that none of the epidemiology studies are of a sufficient quality to prove causation.

[27] In her Kidney Cancer report, Dr. Goodman reviewed 5 Camp Lejeune epidemiology studies, 64 TCE epidemiology studies, 40 PCE epidemiology studies, 55 Benzene epidemiology studies, and 8 vinyl chloride epidemiology studies. *See* Goodman Rep. (Kidney) at 42, 50-51, 64-65, 74-75, 82-83, 90 (JA Ex. 94, D.E. 464-15). She concluded only one study—Charbotel (2006)—was of sufficient quality for her to conclude there is a causal association between any of the chemicals at issue and kidney cancer. *Id.* at 64.

[28] In her analysis of the relationship between TCE and kidney cancer, Dr. Goodman reviewed seven epidemiology studies that analyzed the risk of kidney cancer at different levels of TCE exposure expressed in ppm-years, ug/L, or ug/L-months. *See* Goodman Rep. (Kidney) at D-6–D-14, D-20–D-30 (JA Ex. 94, D.E. 464-15). Four of these studies found statistically significant, increased risks of kidney cancer at exposure to levels of TCE comparable to, or representative of, the levels at Camp Lejeune. *See* ATSDR 2018 Morbidity Study at 66, 80 (JA Ex. 184, D.E. 472-5); Moore 2010 at 6531 (JA Ex. 278, D.E. 482-11); Ex. FF at 16 (Mark Purdue et al., *Differences in risk factors for molecular subtypes of clear cell renal cell carcinoma,* Int. J. Cancer (2021), attached hereto); Andrew 2022 at 5 (JA Ex. 213, D.E. 478-4).

[29] In her Leukemia report, Dr. Goodman reviewed 5 Camp Lejeune epidemiology studies, 28 TCE epidemiology studies, 25 PCE epidemiology studies, 102 Benzene epidemiology studies, and 16 Vinyl Chloride epidemiology studies. *See* Goodman Rep. (Leukemia) at 46, 55-56, 66-67, 77-78, 92, 94, 101-103, 111 (JA Ex. 102, D.E. 465-7). She concluded that only three studies— Ex. GG (Lorenz Rhomberg, et al., *Evaluation of Acute Nonlymphocytic Leukemia and Its Subtypes With Updated Benzene Exposure and Mortality Estimates*, JOEM (2016), attached hereto), Ex. HH (Martha Linet, et al., *Benzene Exposure*

(Leukemia) at 94, 101-102 (JA Ex. 102, D.E. 465-7). Here, one of the studies she finds reliable as a basis for causation is Rhomberg (2016), a study that Dr. Goodman authored, where she concludes that benzene can only have a causal relationship to leukemia at levels much higher than humans are usually exposed. Ex. GG at 414, 419 (Rhomberg 2016, attached hereto). The other two studies are at exposure levels higher than were seen at Camp Lejeune, according to Dr. Goodman.[30]

Selecting "one study to focus on from the dozens of reported studies" to support a threshold level of exposure has been cited as a fact tending to show an expert's unreliability. *See In re Methyl Tertiary Butyl Ether (MTBE) Prod. Liab. Litig.*, 593 F. Supp. 2d 549, 557 & n. 48 (S.D.N.Y. 2008). The same is true here, and her reports should be excluded.

C. Dr. Goodman Cherry-Picks Epidemiology Studies and Risk Ratios.

Dr. Goodman cherry-picks studies and data. *First*, Dr. Goodman ignores important data collected in the Camp Lejeune studies. *Second*, she reports non-statistically significant results from certain studies while omitting statistically significant results from those same studies. *Third*, she ignores studies showing statistically significant relationships between the chemicals at issue and the relevant disease groups. Each of these failings is itself a reason to exclude opinions.

Response and Risk of Myeloid Neoplasms in Chinese Workers, JNCI J. Natl Cancer Inst (2019), attached hereto), and Ex. II (Richard Hayes, et al., *Benzene and the Dose-Related Incidence of Hematologic Neoplasms in China*, Journal of National Cancer Institute (1997), attached hereto)—were of sufficient quality for her to conclude there was a causal relationship between any of the chemicals and two leukemia subtypes. *Id.* at 94, 101-102.

[30] For example, in concluding benzene exposures above 40 ppm-years could cause MDS, Dr. Goodman relied upon a single study—Ex. HH—even though Linet et al. analyzed MDS and AML together. Goodman Rep. (Leukemia) at 94 (JA Ex. 102, D.E. 465-7). Further, there were three other studies that found statistically significant and increased risks of MDS at lower levels of benzene exposure. *See* Goodman Rep. (Leukemia) at H-70, H-73, H-76 (JA Ex. 102, D.E. 465-7); Ex. JJ at 167 (Ling Lv, et al., *Case-Control Study of risk factors of myelodysplastic syndromes*, American Journal of Hematology (2010), attached hereto); Ex. KK at 352 (G. Bruce Copley, *Hospital-Based Case-Control Study of MDS Subtypes and Benzene Exposure in Shanghai*, JOEM (2017), attached hereto); Ex. LL at 1727 (A. Robert Schnatter, *Myelodysplastic Syndrome and Benzene Exposure Among Petroleum Workers*, J. Natl Cancer Inst. (2012), attached hereto).

1. Dr. Goodman Ignored Relevant Data for Exposure to All of the Chemicals at Camp Lejeune and Kidney Cancer, Leukemia, Bladder Cancer and NHL.

In Bove (2014a),[31] the study authors chose to highlight monotonic and non-monotonic exposure-response relationships. Bove 2014 Mort. Study – Mil at 8 (JA Ex. 190, D.E. 472-11). The authors observed "a monotonic exposure-response relationship for kidney cancer and the categorized cumulative exposure variable for TVOC[32] (HR for high exposure category = 1.54, 95% CI: 0.63, 3.75) (Table 7a)." *Id.* at 9. This was omitted from her kidney cancer report.

The authors also observed non-monotonic exposure response relationships for leukemias, bladder cancer, and NHL and TVOC. *Id.* at 10-11. Dr. Goodman omitted these non-monotonic exposure-response relationships—and the associated hazard ratios—from her tables and from the body of her reports for those diseases. Goodman Rep. (Bladder) at 44-51, B-4–B-13 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Kidney) at 42-50, B-4–B-13 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Leukemia) at 46-55, B-4–B-19 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at 44-49, B-3–B-10 (JA Ex. 117, D.E. 466-11). Dr. Goodman similarly omits key data, such as this, from the other Camp Lejeune studies from 2014, 2018 and 2024.

2. Dr. Goodman Reported Non-Statistically Significant Results From Studies While Omitting the Statistically Significant Results From Those Same Studies.

In many instances, Dr. Goodman reported one or more non-statistically significant results from a study and ignored the statistically significant results from that same study. For example:

(1) *Pesch (2000a)*: Dr. Goodman reported *twelve* non-statistically significant odds ratios measuring the association between kidney cancer and TCE. Goodman Rep. (Kidney) at D-23 (JA Ex. 94, D.E. 464-15). However, she omitted Pesch et al.'s

[31] When Dr. Goodman refers to the Bove (2014b) study in her bladder cancer and Parkinson's reports, she is actually referring to the Bove (2014a) study relating to Marines.

[32] Bove et al. defined TVOC as total volatile organic compounds which was the sum of all the contaminants—TCE, PCE, DCE, vinyl chloride, and benzene—in the drinking water at Camp Lejeune. Bove 2014 Mort. Study – Mil at 10 (JA Ex. 190, D.E. 472-11).

statistically significant finding regarding the elevated risk of kidney cancer among female electrical and electronic equipment assemblers. Pesch 2000a at 1017 (JA Ex. 283, D.E. 483-2).

(2) *Sciannameo (2019)*: Dr. Goodman reported three non-statistically significant odds ratios calculated for the association between bladder cancer and TCE reported in the pooled analysis. Goodman Rep. (Bladder) at D-18 (JA Ex. 75, D.E. 463-14). However, she omitted two statistically significant increased risks of developing low grade bladder tumors that the authors found were associated with ever exposure to TCE and low cumulative exposure to TCE. Sciannameo 2019 at 355 (JA Ex. 295, D.E. 484-6).

(3) *Travier (2002)*: Dr. Goodman reported four non-statistically significant risk ratios calculated for the association between dry-cleaners (as a proxy for PCE exposure) and kidney cancer. Goodman Rep. (Kidney) at F-4 (JA Ex. 94, D.E. 464-15). However, she omitted a statistically significant, elevated risk for kidney cancer among female dry cleaners, launderers, and pressers employed in industries other than laundry, ironing or dyeing. Travier 2002 at 345 (JA Ex. 312, D.E. 485-7).

(4) *Bruning (2003)*: Dr. Goodman reported three non-statistically significant odds ratios calculated for the association between PCE and kidney cancer. Goodman Rep. (Kidney) at F-14 (JA Ex. 94, D.E. 464-15). However, she omits a statistically significant elevated risk of kidney cancer that Bruning et al. found among those engaged in all industries with TCE/PCE exposure. Ex. MM at 279 (Thomas Bruning, et al., *Renal Cell Cancer Risk and Occupational Exposure to Trichloroethylene*, Am. J. Indus. Med. 43:274 (2003), attached hereto).

These are only some examples of these types of omissions.

3. Dr. Goodman Omitted Studies That Show Significant, Increased Risks of the Relevant Disease Groups.

Dr. Goodman omitted the following studies that showed significant relationships:

(1) *Dr. Goodman omitted Partanen (1991) from the benzene section of her kidney cancer report*. Dr. Goodman *did* cite Partanen (1991) in the TCE section of her kidney cancer report. Goodman Rep. (Kidney) at C-36 (JA Ex. 94, D.E. 464-15). Partanen et al. found a statistically significant, monotonic exposure response relationship between benzene exposure and kidney cancer. Ex. NN at 236 (T. Partanen, et al., *Renal cell cancer and occupational exposure to chemical agents*, Scand J Work Environ Health (1991), attached hereto).[33]

(2) *Dr. Goodman omitted Schlehofer (1995) from the PCE section of her kidney*

[33] When asked about Partanen (1991) at her deposition, Dr. Goodman acknowledged that the study found a statistically significant result and testified "It appears that **I missed this study**." Goodman Dep. Tr. at 372:20-21 (JA Ex. 172, D.E. 471-1) (emphasis added).

cancer report. Dr. Goodman *did* cite Schlehofer (1995) in the TCE section of her kidney cancer report. Goodman Rep. (Kidney) at C-40 (JA Ex. 94, D.E. 464-15). Schlehofer et al. found a statistically significant, elevated risk of renal cell carcinoma among males exposed to PCE/tetrachlorocarbonate. Ex. OO at 55 (Brigitte Schlehofer, et al., *Occupation, Smoking and Demographic Factors and Renal Cell Carcinoma*, International Journal of Epidemiology (1995), attached hereto).

(3) *Dr. Goodman omitted Yin (1996) from her NHL report*. Dr. Goodman stated in her report that she identified relevant studies from ATSDR (2007), but she neglected to include Yin (1996) despite it being reported in ATSDR (2007). Goodman Rep. (NHL) at A-7 (JA Ex. 117, D.E. 466-11); Ex. Ex. PP at 223 (ATSDR, Toxicological Profile for Benzene (2007), attached hereto). Yin et al. determined that risk among benzene-exposed workers was "significantly increased for malignant lymphoma and for non-Hodgkin's lymphoma, but not for multiple myeloma." Ex. QQ at 1341 (Song-Nian Yin, et al., *An Expanded Cohort Study of Cancer Amount Benzene-exposed Workers in China*, Environmental Health Perspectives (1996), attached hereto).

(4) *Dr. Goodman omitted McLaughlin (1987) from her kidney cancer report*. McLaughlin et al. found statistically significant risks of RCC and/or renal pelvic cancer among men in the "Machinery and electronics" industry. Ex. RR at 120-21 (J.K. McLaughlin, et al., *Occupational Risks for renal cancer in Sweden*, British Journal of Industrial Medicine (1987), attached hereto). Dr. Goodman did not report this elevated risk despite reporting risk estimates among those in the "Machine and Electronics Industry" elsewhere in her report. Goodman Rep. (Kidney) at D-10 (JA Ex. 94, D.E. 464-15).

D. <u>Dr. Goodman Used Other Flawed Methodologies.</u>

Dr. Goodman uses the following additional flawed methodologies in her reports: (1) she opines that animal studies cited are not relevant to humans; (2) she finds "null" associations in studies where the study authors themselves found positive associations; and (3) she disagrees with scientific and governmental agencies such as the EPA, IARC, and ATSDR.

First, in each of her reports, Dr. Goodman criticizes animal studies as essentially not being helpful evidence to determine causation in humans, which is at odds with the literature. She states: "When animal studies are used to evaluate toxicity, study results must be extrapolated across species and often from relatively higher doses to the much lower concentrations to which

humans may be exposed (US EPA, 2005[a]).” Goodman Rep. (Bladder) at 14 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Kidney) at 14 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Leukemia) at 15 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at 14 (JA Ex. 117, D.E. 466-11); Goodman Rep. (PD) at 15 (JA Ex. 134, D.E. 467-17). She uses this as a basis to downplay the results from these animal studies. Dr. Goodman has used this flawed logic before when claiming that an exposure does not cause a disease of interest. Ex. SS at 34 (Robyn Prueitt et al., *Systematic review of the potential carcinogenicity of bisphenol A in humans*, Regulatory Toxicol. & Pharm. (2020), attached hereto).

Dr. Goodman’s comments as to the animal literature are not supported by other relevant literature which has noted **“[a]nimal studies have supported a causal association of TCE with PD.**” Goldman 2023 at 678 (JA Ex. 253, D.E. 480-13) (emphasis added). Goldman (2023) is a key study linking exposure at Camp Lejeune, including to TCE, and Parkinson’s disease.

Additionally, when Dr. Goodman reviewed the relevant animal studies, she concluded that *all* animal studies for all five disease groups were either of “Limited” human relevance, or “No”/“None” human relevance. *See* Goodman Rep. (Bladder) at E-8–E-9, G-5, I-5, K-6 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Kidney) at E-8–E-9, G-4. I-4–I-5, K-8–K-9 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Leukemia) at E-8–E-9, G-4, I-6–I-7, K-7–K-8 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at E-10–E-11, G-5, I-4–I-5, K-7–K-9 (JA Ex. 117, D.E. 466-11); Goodman Rep. (PD) at E-8–E-10 (JA Ex. 134, D.E. 467-17). In addition to the generally absurd nature of her conclusion that *not a single one* of the cited animal studies offered evidence of causation in humans, her opinion contradicts several governmental reviews. EPA 2012 PCE at 6-13 (JA Ex. 197, D.E. 473-5); NTP 2021 PCE at 1 (JA Ex. 208, D.E. 477-1).

Second, she misidentifies many positive associations between the five disease groups and

the chemicals as statistically "null." This appears to be part of a pattern in Dr. Goodman's work whereby she identifies non-statistically significant, positive associations as "null" when she wants to find no causal association. In her reports, she defined the null hypothesis as "the supposition that there is no relationship between groups being measured." Goodman Rep. (Bladder) at 9 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Kidney) at 9 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Leukemia) at 10 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at 9 (JA Ex. 117, D.E. 466-11); Goodman Rep. (PD) at 10 (JA Ex. 134, D.E. 467-17). Contrary to this definition, in her reports she consistently described positive, but not statistically significant, risk ratios as being "null" results. For example, in her kidney cancer report she states that in the five Camp Lejeune studies "Almost all risk estimates were **statistically null** and close to 1." Goodman Rep. (Kidney) at 49 (JA Ex. 94, D.E. 464-15) (emphasis added). But the Camp Lejeune studies reported across the board elevated risks of kidney cancer incidence and death.[34] Further, the authors found a relationship between the chemicals and the diseases. *See, e.g.*, Bove 2014 Mort. Study – Mil. at 13 (JA Ex. 190, D.E., 472-11).

Third, Dr. Goodman criticizes the chemical carcinogenicity evaluations performed by well-respected government and scientific agencies including ATSDR, the National Academy of Sciences, Engineering, and Medicine (NASEM), the EPA, the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP). In each of her reports, Dr. Goodman claims that these governmental/agency review programs are not rigorous enough, stating:

> Despite the goal of being systematic and objective, **all** of their reviews involve **some degree of subjectivity**. In many instances, their reviews do not fully take study quality into account and **therefore conclude that the strength of the evidence is stronger**

[34] Ex. CC.

than it truly is.

Goodman Rep. (Bladder) at 4 (JA Ex. 75, D.E. 463-14); Goodman Rep. (Kidney) at 5 (JA Ex. 94, D.E. 464-15); Goodman Rep. (Leukemia) at 5 (JA Ex. 102, D.E. 465-7); Goodman Rep. (NHL) at 4 (JA Ex. 117, D.E. 466-11); Goodman Rep. (PD) at 4 (JA Ex. 134, D.E. 467-17) (emphasis added to all).

Dr. Goodman's broad criticism of well-respected governmental and agency review programs is an unfortunate continuation of her prior literature, funded by the American Chemistry Council, criticizing IARC's monograph program. Ex. TT at 5 (JE Goodman, *Recommendations for further revisions to improve the International Agency for Research on Cancer (IARC) Monograph program*, Regulatory Toxicol. & Pharm. (2020), attached hereto). Dr. Goodman testified she wrote her paper because "[w]e felt that IARC could be doing a better job of being systematic and objective in reviewing evidence on chemicals or on – on agents that it evaluates." Goodman Dep. Tr. at 25:3-9 (JA Ex. 172, D.E. 471-1). Rather than specifically attacking the individual agency conclusions, Dr. Goodman broadly criticizes agency reviews, asserting they are *all* subjective and make false conclusions about the strength of the evidence.

CONCLUSION

For the reasons stated herein, PLG requests that this Court exclude the reports of Dr. Julie Goodman. PLG further requests this Court strike the opinions of the Defendant's other experts to the extent they rely upon the opinions of Dr. Goodman.

RELIEF REQUESTED

(1) Exclude the opinions of Dr. Goodman.

(2) Exclude the opinions of other experts relying on Dr. Goodman.

(3) Alternatively, permit PLG to notice the depositions of the epidemiologists and toxicologists who drafted the Goodman reports including Dr. Denali Boon and Dr.

Andrew Yeh.[35]

(4) Alternatively, permit PLG to re-notice the deposition of Dr. Julie Goodman.

[35] Courts regularly order such relief. *See, e.g., Herman v. Marine Midland Bank*, 207 F.R.D. 26, 31 (W.D.N.Y. 2002) (permitting deposition of expert's assistant who had done "extensive work" preparing the report); *Derrickson v. Circuit City Stores, Inc*. 1999 WL 1456538 at *7 n.1 (D. Md. Mar. 19, 1999) (indicating that deposing the expert's assistants would be appropriate where the expert and assistants worked "hand-in-glove" to produce the report).

DATED this 28th day of October 2025.

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CERTIFICATE OF SERVICE

I, J. Edward Bell, III, hereby certify that the foregoing document was electronically filed on the Court's CM/ECF system on this date, and that all counsel of record will be served with notice of the said filing via the CM/ECF system.

Dated: October 28, 2025.

/s/ J. Edward Bell, III
J. Edward Bell, III