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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

In re Flint Water Cases.

Judith E. Levy
United States District Judge

_____/

This Order Relates To:

Carthan, et al. v. Snyder et al.
Case No. 16-10444
_____/

OPINION AND ORDER DENYING DEFENDANTS VEOLIA NORTH AMERICA, LLC, VEOLIA NORTH AMERICA, INC., AND VEOLIA WATER NORTH AMERICA OPERATING SERVICES, LLC'S MOTION TO EXCLUDE THE TESTIMONY AND REPORT OF DR. LARRY RUSSELL [2454]

This opinion is one in a series of opinions addressing the admissibility of the testimony and reports of nine experts retained by Plaintiffs[1] in anticipation of the issues class trial, set to begin on

[1] *See* ECF No. 2454 (VNA's motion to exclude opinions and testimony of Dr. Larry Russell); ECF No. 2455 (VNA's motion to exclude opinions and testimony of Dr. Clifford P. Weisel); ECF No. 2456 VNA's motion to exclude testimony and reports of Robert A. Michaels); ECF No. 2458 (VNA's motion to exclude opinions and testimony of Dr. David Keiser); ECF No. 2459 (VNA's motion to exclude opinions and testimony of Dr. Daryn Reicherter); ECF No. 2460 (VNA's motion to exclude opinions and testimony of Dr. Paolo Gardoni); ECF No. 2461 (VNA's motion to exclude opinions and testimony of Dr. Howard Hu); and ECF No. 2483 VNA's motion to exclude opinions and testimony of Dr. Panagiotis (Panos) G. Georgopoulos).

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February 13, 2024. (ECF No. 2435.) Defendants argue that these experts cannot meet the standards set by Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

Currently before the Court is the motion by Veolia North America, LLC, Veolia North America, Inc., and Veolia Water North America Operating Services, LLC (collectively "VNA") to exclude portions of the testimony and supplemental report of Dr. Larry Russell (ECF No. 2454.) For the reasons set forth below, VNA's motion to exclude is denied.

I. Background

Dr. Larry L. Russell, P.E. is an expert in water quality assessments, corrosion mitigation, and the behavior of materials exposed to drinking water. (ECF No. 1177-57, PageID.29865.) Dr. Russell received a BS, an MS, and a Ph.D. from the University of California at Berkeley in Civil/Environmental engineering and is a registered Professional Engineer in the State of Michigan and in approximately 30 other states. (*Id.*) He is also a licensed water treatment operator in multiple states and has over 40 years of experience in water quality assessments, corrosion, and materials performance evaluation. (*Id.*) Dr. Russell is an elected director of the Marin Municipal Water District in California, which

serves 190,000 people. He is familiar with the standards of care applicable to professional engineers in the water field and has previously testified as an expert on whether engineers have satisfied the applicable standard of care. (*Id*.)

Plaintiffs retained Dr. Russell to opine on: (1) whether the professional engineering and consulting services provided by VNA satisfied the applicable standards of care, (2) the ethical standards applicable to the engineering profession, and (3) whether and how VNA's conduct contributed to the Flint Water Crisis and the resulting injuries to members of the class. (*Id*. at PageID.29862.) Dr. Russell issued a report on June 30, 2020. (*See* ECF No. 1177-57.)

In preparation for his report on these topics, Dr. Russell reviewed the materials listed in the "Materials Reviewed" section of his report. (ECF No. 1177-57, PageID.29865 (citing *id*. at PageID.29938–29943.) Dr. Russell also reviewed documents and materials prepared by "Veolia, LAN, the Environmental Protection Agency (EPA), the Michigan Department of Environmental Quality (MDEQ), Professor Susan Masten, Professor Marc Edwards, and numerous depositions of witnesses

involved in the water quality issues experienced during the Flint Water Crisis." (*Id*.)

In his supplemental report, Dr. Russell set forth additional opinions based on his "assessment of the Corrosion Control Optimization study conducted for the City of Detroit and on additional sampling and observations made at two homes in Flint." (ECF No. 2454-3, PageID.77676.)

On May 19, 2023, VNA filed this motion to exclude Dr. Russell's opinions relating to pipe sampling he performed in February 2022, but did not move to exclude his opinions about engineering standards of care. (ECF No. 2454.)

II. Legal Standard

Federal Rule of Evidence 702 governs the admissibility of expert testimony and requires that: (1) the witness must be qualified, (2) the testimony must be relevant, and (3) the testimony must be reliable. Fed. R. Evid. 702; *In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 528–29 (6th Cir. 2008). As the Supreme Court explained in *Daubert*, Rule 702 imposes a "gatekeeping" obligation on the courts to ensure that scientific

testimony "is not only relevant, but reliable." *Daubert*, 509 U.S. at 589; *See also Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 147 (1999).

In *Daubert*, the Supreme Court provided a non-exclusive list of factors courts may consider when evaluating reliability: (1) whether the theory or technique at the basis of the opinion is testable or has been tested, (2) whether it has been published and subjected to peer review, (3) what the known error rates are, and (4) whether the theory or technique is generally accepted. *Daubert*, 509 U.S. at 593; *see also In re Scrap Metal*, 527 F.3d at 529 (listing same factors). Not every factor needs to be present in every instance, and courts may adapt them as appropriate for the facts of an individual case. *Kumho* 526 U.S. at 150.

"Rejection of expert testimony is the exception, rather than the rule." *United States v. LaVictor,* 848 F.3d 428, 442 (6th Cir. 2017) (quoting *In re Scrap Metal*, 527 F.3d at 529–30)). But the burden is on Plaintiffs to show by a "preponderance of proof" that the proffered expert meets the standards of Rule 702 as interpreted by *Daubert*. *Pride v. BIC Corp.*, 218 F.3d 566, 578 (6th Cir. 2000) (quoting *Daubert*, 509 U.S. at 592).

III. Analysis

The parties agree that Dr. Russell is qualified to provide expert testimony regarding engineering ethics and whether VNA met the standard of care. Fed. R. Evid. 702. VNA's motion argues that Dr. Russell's opinions related to pipe sampling he conducted in February 2022 should be excluded. (ECF No. 2454, PageID.77615.)

First, VNA argues that Dr. Russell's conclusion that copper pipe samples lost wall thickness due to the water source switch in Flint during the Flint Water Crisis is unreliable. Second, VNA argues that Dr. Russell's conclusion that the galvanized steel pipes at the Davis residence experienced "through-wall pitting" and "failed" as a result of the Flint Water Crisis is unreliable. And third, VNA argues that Dr. Russell's conclusions regarding City-wide pipe damage (drawn from pipe samples at the Kelso and Davis residences) are unreliable and irrelevant.

A. Reliability of Dr. Russell's Opinion on Copper Pipe Wall Thickness

VNA first challenges Dr. Russell's opinions about the loss of wall thickness of copper pipe samples removed from the Kelso and Davis residences as unreliable. Dr. Russell's opinions in this regard are as follows: (1) "The copper pipes at [one of the individual's residences] were

reportedly installed in 2008[2] during a plumbing remodel and, as such, they were assembled without leaded solder. These pipes were however impacted by the corrosive water served during the Flint Water Crisis losing approximately 0.002 inches of their wall thickness" (ECF No. 2454-3, PageID.77637); and (2) "The copper pipes at [one of the individual's residences] were impacted by the corrosive water served during the Flint Water Crisis losing approximately 0.006 inches of the wall thickness of the pipe most likely during that period when orthophosphate was not added." (*Id*. at PageID.77638).

VNA argues that Dr. Russell's "assumption that the copper pipes were originally 0.028-inches thick is not reliable." (ECF No. 2454, PageID.77620.) And VNA argues that his measurements of the copper pipe samples taken from the Kelso and Davis residences meet industry standards for thickness. (*Id*. at PageID.77620.) The industry standard is

[2] VNA notes that Russell's report states 2008 in error. (ECF No. 2454, PageID.77616.) Plaintiffs did not respond to this issue, making it appropriate to remain an issue for cross examination at trial.

set forth in an ASTM[3] specification. Table 1 of that specification indicates that "wall thickness" for "Type M" ½ inch copper pipe is 0.028 inches and has a "Tolerance" of 0.003 inches. (ECF No. 2454-6.) VNA explains that this means that the wall thickness of this type of copper pipe, "plus or minus 0.003 inches—i.e., from 0.025 to 0.031 inches thick" is within the standard range. (*Id*.) Therefore, when Dr. Russell measured samples at 0.026 inches, they had not necessarily "lost" any thickness from when they were newly installed. VNA's expert, Dr. Crowe, opined that he measured Type M copper pipe off-the-shelf from Home Depot at 0.026 to

[3] ASTM International is "one of the world's largest international standard developing organizations." www.astm.org, *What is ASTM?* (https://perma.cc/5JTK-ZAVY) Its website indicates that it has:

> 30,000 members, who hail from more than 150 countries. They use good science, good engineering and good judgment to improve performance in manufacturing and materials, products and processes, systems and services. Businesses, governments and individuals collaborate openly and transparently in our technical committees, ensuring our standards combine market relevance with the highest technical quality. Many global industries and institutions choose our trusted standards. ASTM standards are used and accepted worldwide and cover areas such as metals, paints, plastics, textiles, petroleum, construction, energy, the environment, consumer products, medical services, devices and electronics, advanced materials and much more.

Id.

0.027 inches, which is also within the ASTM standard. (ECF No. 2454, PageID.77621.)

In Dr. Russell's deposition, he explained that he based his assumption of the copper pipe's original thickness on the ASTM standard, which is the same standard Dr. Crowe relies upon. (ECF No. 2454-4, PageID.77687; *see* ECF No. 2454-6, PageID.77747–77753.) But Plaintiffs argue that VNA and its expert have misinterpreted what the "Tolerance" of 0.003 inches means. "Tolerance," Plaintiffs explain, means "thickness ***at any one point***"—not the pipe's entire baseline wall thickness." (ECF No. 2508, PageID.83003–83004 (emphasis in original).) Plaintiffs explain that:

> [ ] pipes are manufactured to the standard (0.028 inches thick), and deviations are measured (and allowable) in relation to the thickness of the pipe's baseline thickness due to the method of manufacturing. A uniformly 0.026-inch-thick pipe does not have deviation[s]" from its standard thickness; it is simply below the standard manufacturing requirement.

(*Id.*) Plaintiffs also argue that Dr. Crowe's measurements of off-the-shelf Home Depot piping at 0.026 is inaccurate because Dr. Crowe used "improper tools" for measuring, specifically, "inaccurate plastic calipers

designed for hobbyists rather than a point micrometer." (ECF No. 2508, PageID.83005.)

Dr. Russell's conclusion about the minimum thickness and tolerance of standard Type-M copper pipe, and its loss of wall thickness, is supported by: (1) his observations of and experience using these types of copper pipes in his professional work (*see e.g.*, ECF No. 2454-8, PageID.77798), (2) the ASTM specification standard (ECF No. 2454-8, PageID.77805), and (3) information set forth in the Copper Development Association's 50-year warranty related to regular wear (ECF No. 2454-9, PageID.77819). In sum, Dr. Russell supports his conclusions using reliable methods. The fact that Dr. Crowe comes to a different conclusion and disagrees with Dr. Russell does not make Dr. Russell's methodology in arriving at his conclusions unreliable.

B. Dr. Russell's "Through-Wall Pitting" and "Failure" Opinions

VNA next challenges Dr. Russell's opinion that the galvanized steel pipes at the Davis residence experienced "through-wall pitting" and "failed" as a result of water conditions in 2014 and 2015. (ECF No. 2454-4, PageID.77622.) Dr. Russell based his opinions on his 2022 pipe inspection and on other grounds, such as the work of Marc Edwards in

2015, as set forth in Dr. Russell's reports.[4] (*See* ECF No. 1208-67; ECF No. 2454-5.) VNA argues that Dr. Russell relies on "nothing besides his own say-so" to support this conclusion. (ECF No. 2454, PageID.77622.) This is plainly an inaccurate characterization of Dr. Russell's report.

VNA's expert Dr. Crowe opines that the galvanized piping in the Davis home is likely 84 years old and, at that age, the pipes have "already long-surpassed their expected service life," so it cannot be said with certainty that the Flint Water Crisis is the reason for the pitting. (ECF No. 2454, PageID.77623.) Dr. Crowe opines that the condition of the sample pipes is "entirely typical of galvanized steel piping after 84 years of service." (*Id*. at PageID.77623.)

VNA points to portions of Dr. Russell's deposition testimony where Dr. Russell "admits that he does not know when" in the 84 potential years the pitting and wear failure occurred. (*Id*. at PageID.77622–77623.) For example, Dr. Russell acknowledged that Flint had corrosive water at times other than the 2014–2015 water crisis, such as when it drew water

[4] VNA states in its reply brief that its motion for exclusion "focuses on Dr. Russell's pipe inspection," and not on any other bases for his conclusions. VNA states that it "will address" other bases at the trial. (ECF No. 2528, PageID.83819.) The Court interprets this to mean that VNA does not, at least at this stage, challenge Dr. Russell's reliance on Dr. Edwards' research.

from the Flint River before 1967, so the wearing on the galvanized pipes could have occurred then.[5] (*Id.* at PageID.77623.) He also admitted that he did not measure samples of pipes before and right after the Flint Water Crisis occurred, which would have provided a more exact measurement of the Water Crisis' impact on the pipes. (ECF No. 2454-4, PageID.77694.) But who would have guessed that the Water Crisis was about to take place and gathered samples of pipes to measure just in case? VNA's selected deposition excerpts are not an accurate picture of Dr. Russell's full opinion in this regard. And in any event, they go to a disputed factual issue, which is not appropriate for a *Daubert* motion.[6]

VNA's motion boils down to a question of expert witness credibility. "Indeed, competing expert opinions present the 'classic battle of the

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[5] VNA argues that Dr. Russell's testimony regarding the loss of wall thickness in the copper piping "suffer[s] from the same flaw." (*Id.* at PageID.77623 at fn. 4.) The Court rejects these arguments related to copper piping under the *Daubert* standard for the same reasons set forth regarding galvanized pipes.

[6] VNA argues that, when it asked Dr. Russell if he could "tell what damage occurred before the 2014 switch in water source" and "what damage . . . occurred from April of 2014 to October of 2015," Dr. Russell testified that it was an "interesting question" and that it was "conceivable that that question could be addressed, but I don't know." (*Id.* at PageID.77624 (citing 2020 Dep. 329:4-330:17).) However, a review of the deposition transcript excerpt indicates that VNA mischaracterizes both its question to Dr. Russell and his answer, which it included, but was not so limited as VNA characterizes it now.

experts' and it [is] up to a jury to evaluate what weight and credibility each expert opinion deserves." *Phillips v. Cohen*, 400 F.3d 388, 399 (6th Cir. 2005) (citations omitted). VNA's argument that the Court should exclude Dr. Russell's galvanized pipe pitting causation opinions is therefore denied.

C. Applicability of Kelso and Davis Residence Observations and Opinions to City-Wide Pipe Conditions

VNA argues that Dr. Russell should not be permitted to opine on City-wide pipe conditions based on his observations from only the Kelso and Davis residences. (ECF No. 2454, PageID.77625–77626.) However, as Dr. Russell explains in his report, it was VNA that originally chose the Kelso and Davis residences for its expert to collect data. Dr. Russell states in his report that:

> Defendant[] artificially narrowed the useful data collected during [its] field work. To be consistent with the defense focus, I chose to remove pipe sections from those same houses to avoid adding even more variables into the data being collected. Reviewing the pipes from two homes provides infinitely more information/data than was collected during the defense review of these homes, as the interior of the pipes can be observed, analytically measured, and the wall thickness measured.

(ECF No. 2454-3, PageID.77671.)[7] What matters to the Court is whether Dr. Russell's opinions regarding pipe damage in the City are reliable and relevant under the principles set forth the Federal Rules of Evidence and *Daubert* standard.

Section 3 of Dr. Russell's supplemental report is entitled "Flint Homes." (ECF No. 2454-3, PageID.77640.) It discusses the time periods when homes were constructed and a map of Flint that shows ages and locations of homes. Next, it discusses the type of pipes that were typically used in homes constructed during different time periods and discusses that many of "these homes either contain steel pipes with lead in their scales or copper pipes connected with high lead solder." (*Id.*) Dr. Russell supports this conclusion by relying on Pierre Goovaerts' publication in the peer-reviewed journal *Science of the Total Environment* entitled "How Geostatistics Can Help You Find Lead and Galvanized Water Service Lines: The Case of Flint, MI." See P. Goovaerts, *Science of the Total*

[7] VNA, for its part, disagrees that it was responsible for Dr. Russell's inspection of only two homes because the lawyers who retained Dr. Russell represent thousands of Plaintiffs in Flint and could have accessed "however many residences he wanted to visit." (ECF No. 2528, PageID.83820.) Because Dr. Russell's findings are not based exclusively on the results of testing at these two homes, this squabble need not be resolved.

Environment, 599–600 (2017). In sum, Dr. Russell supports his conclusions regarding the typical piping used in Flint through reliable methods including scientific literature.

Dr. Russell's report explains that the Davis and Kelso homes "although a very minimal sample of the 37,000 homes in Flint are good examples of homes impacted by the Flint Water Crisis as these homes had lead service laterals and were impacted with poor water quality and corrosive water during the Flint Water Crisis." (*Id*.)

In determining the reliability of Dr. Russell's opinion that the Davis and Kelso homes are a good sample of the homes impacted by the Flint Water Crisis, the Court is not tasked with determining "whether [the opinion] is correct, but rather [with determining] whether it rests upon a reliable foundation, as opposed to, say, unsupported speculation." *In re Scrap Metal Antitrust Litig.*, 527 F.3d 517, 529–30 (6th Cir. 2008). Here, Dr. Russell bases his location analysis on the Goovaert's peer-reviewed map analysis, which he correlates with the information he personally gathered from the Davis and Kelso homes. Other than disagreeing with the sample size, VNA has not provided any information that calls into

question the reliability of Dr. Russell's methods. Therefore, Dr. Russell's opinion is reliable.

Second, VNA argues that Dr. Russell's opinion that full replumbing at "similarly plumbed homes" to the Kelso and Davis residences is the "only" way to address the risk, is irrelevant. VNA argues that the "extent of damage, if any, and the appropriate remedy are not at issue at this stage." (ECF No. 2454, PageID.77626.)

The jury in the class trial will determine whether the water conditions in Flint were capable of causing "harm." Some of that harm, in Dr. Russell's opinion, is the cost associated with a full replumbing of a home. This description of potential harm is different from the "damages" that Plaintiffs will have to show in a phase two trial if they prevail at this stage of the trial. Dr. Russell has not offered an opinion on the extent of damage to any class member's home; rather, he opines only what "the harm" maybe is, in his otherwise supported opinion. Accordingly, Dr. Russell's opinion is relevant and admissible.

IV. Conclusion

For the reasons set forth above, VNA's motion to exclude certain of Dr. Russell's opinions and testimony is denied.

IT IS SO ORDERED.

Dated: September 11, 2023
Ann Arbor, Michigan

s/Judith E. Levy
JUDITH E. LEVY
United States District Judge

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was served upon counsel of record and any unrepresented parties via the Court's ECF System to their respective email or first-class U.S. mail addresses disclosed on the Notice of Electronic Filing on September 11, 2023.

s/William Barkholz
WILLIAM BARKHOLZ
Case Manager