IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

SLOAN VALVE COMPANY,	)	
	)	
	)	
Plaintiff,	)	
	)	Case No. 10-cv-00204
v.	)	
	)	
	)	
ZURN INDUSTRIES, INC., and ZURN INDUSTRIES, LLC,	)	
	)	
	)	
	)	
Defendants.	)	

MEMORANDUM OPINION AND ORDER

AMY J. ST. EVE, District Court Judge:

Plaintiff Sloan Valve Company ("Sloan") filed the present civil action against Defendant Zurn Industries, Inc. and Zurn Industries, LLC (collectively "Zurn") alleging various patent infringement claims regarding U.S. Patent No. 7,607,635 ("the *Wilson* patent") -- entitled "Flush Valve Handle Assembly Providing Dual Mode Operation" -- including willful infringement. Sloan has disclosed Edward M. Caulfield, Ph.D., P.E., as a technical expert in this case. Zurn has moved to exclude the expert testimony of Dr. Caulfield pursuant to Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993). For the reasons discussed below, the Court grants Zurn's motion in part, denies it in part, and denies it in part as moot.

BACKGROUND

Sloan alleges that Zurn willfully infringed the *Wilson* patent, which relates to flush valves for use with plumbing fixtures such as toilets, and more specifically to improvements in the

bushing of the actuating handle assembly that will provide for user-selectable, dual mode operation of the flush valve." (R. 314-1, '635 Patent, col. 1, ll. 6-10.) In its defense, Zurn claims that it reasonably relied on the advice of its counsel, namely an opinion of its patent counsel, Mr. Paul Reznick. Mr. Reznick opined that the *Wilson* patent claims were invalid, and therefore, Zurn did not willfully infringe the patent. (R.592, Ex. 17 at 2; Hearing, Ex. 7). Mr. Reznick based his opinion, in part, on the results of life cycle testing conducted by Zurn on its standard flush valve handles having brass bushings. Zurn created "life cycle testing" to simulate actuation of a flush valve handle under allegedly normal operating conditions during the course of a typical valve lifetime. As part of the testing, Zurn created a worn valve handle that Mr. Reznick used as part of the basis for his advice. According to Sloan, Zurn represented to Mr. Reznick that the life cycle test results and worn valve fairly reflected what actually would have happened to prior art brass bushings used in the real world. Zurn conducted the life cycle testing on a test stand that Zurn has maintained at its Commercial Brass Division.

Sloan has identified Dr. Caulfield to challenge the adequacy of Zurn's life cycle testing procedures. Sloan seeks to establish that Mr. Reznick premised his opinion on unreliable information that Zurn had supplied to him based on an inadequate life cycle test, and that doing so was unreasonable on Zurn's part. (R. 590, Pl.'s Resp at 4). Sloan intends to prove the inadequacy of the life cycle test through Dr. Caulfield's expert testimony. Specifically, Dr. Caulfield will opine that the life cycle test was flawed and that any reasonable engineer with an understanding of manual flush valves would not have relied on the results of the life cycle test. (R. 571, Ex. 1, Caulfield Expert Report at ¶¶ 40-41).

Zurn has moved to strike Dr. Caulfield's opinions. It contends that Dr. Caulfield is not qualified to offer opinions on life cycle testing or the behavior of flush valve handles, that he

based his opinions on unreliable methods and procedures from his general experience as a mechanical engineer, and that some of his opinions amount to conclusory legal opinions. The Court held a *Daubert* hearing on August 8, 2013. During the hearing, Dr. Caulfield testified and the parties also introduced several exhibits. Sloan also stipulated that Dr. Caulfield would not testify regarding the following: 1) the legal standard for proving willful infringement; 2) that Zurn's conduct in failing to disclose facts to its opinion counsel and/or affirmatively informing its opinion counsel that the conditions under which the life cycle testing was conducted reasonably reflected real world conditions was reckless; 3) that it was reckless for Zurn to have provided the results of its life cycle testing to its outside counsel to demonstrate that prior art valves had developed the characteristics of the *Wilson* invention when used in real word conditions; and 4) that no reasonable company in the business of making plumbing flush valves would have relied on an opinion of counsel that it knew was based on such life cycle testing. Specifically, Sloan withdrew paragraphs 13, 14, and 42 of Dr. Caulfield's expert report in their entirety, and the following sentence from paragraph 41: "For Mr. Funari to have hidden those facts from his opinion counsel and for Zurn to have affirmatively told its counsel that the conditions under which the 'life cycle testing' was conducted reasonably reflected real world conditions was reckless." (Transcript from Aug. 8, 2013 Daubert hearing ("Hearing Trans.") at 3-5.) As such, the motion challenging these withdrawn opinions is denied as moot.

LEGAL STANDARD

"The admissibility of expert testimony is governed by Federal Rule of Evidence 702 and the Supreme Court's opinion in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993)." *Lewis v. Citgo Petroleum Corp.*, 561 F.3d 698, 705 (7th Cir. 2009). Rule 702 provides, in relevant part, that "[i]f scientific, technical or other

specialized knowledge will assist the trier of fact[,] . . . a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion. . . ." *Id.*; *see also Happel v. Walmart Stores, Inc.*, 602 F.3d 820, 824 (7th Cir. 2010).

Under the expert-testimony framework, courts perform the gatekeeping function of determining whether the expert testimony is both relevant and reliable prior to its admission at trial. *See id.*; *Power Integrations, Inc. v. Fairchild Semiconductor Intern., Inc.*, 711 F.3d 1348, 1373 (Fed. Cir. 2013); *United States v. Pansier*, 576 F.3d 726, 737 (7th Cir. 2009) ("To determine reliability, the court should consider the proposed expert's full range of experience and training, as well as the methodology used to arrive [at] a particular conclusion."). In doing so, courts "make the following inquiries before admitting expert testimony: First, the expert must be qualified as an expert by knowledge, skill, experience, training, or education; second, the proposed expert must assist the trier of fact in determining a relevant fact at issue in the case; third, the expert's testimony must be based on sufficient facts or data and reliable principles and methods; and fourth, the expert must have reliably applied the principles and methods to the facts of the case." *Lees v. Carthage Coll.*, 714 F.3d 516, 521-22 (7th Cir. 2013); *see also Power Integrations*, 711 F.3d at 1373; *Pansier*, 576 F.3d at 737.

In *Daubert*, the Supreme Court offered the following non-exclusive factors to aid courts in determining whether a particular expert opinion is grounded in a reliable scientific methodology: (1) whether the proffered theory can be and has been tested; (2) whether the theory has been subjected to peer review and publication; (3) whether the theory has a known or potential rate of error; and (4) whether the relevant scientific community has accepted the theory. *See Happel*, 602 F.3d at 824; *Winters v. Fru-Con Inc.*, 498 F.3d 734, 742 (7th Cir. 2007). Further, the 2000 Advisory Committee's Notes to Rule 702 list the following additional factors

for gauging an expert's reliability: (1) whether the testimony relates to "matters growing naturally and directly out of research . . . conducted independent of the litigation"; (2) "[w]hether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion"; (3) "[w]hether the expert has adequately accounted for obvious alternative explanations"; (4) "[w]hether the expert is being as careful as he would be in his regular professional work outside paid litigation consulting"; and (5) "[w]hether the field of expertise claimed by the expert is known to reach reliable results for the type of opinion the expert would give." *Id.* (internal quotations omitted); *see also Am. Honda Motor Co. v. Allen*, 600 F.3d 813, 817 (7th Cir. 2010). "[B]ecause there are 'many different kinds of experts, and many different kinds of expertise,' the reliability analysis should be geared toward the precise sort of testimony at issue and not any fixed evaluative factors." *Lees*, 714 F.3d at 521 (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 150, 119 S. Ct. 1167 (1999)); *see also Deputy v. Lehman Bros., Inc.*, 345 F.3d 494, 505 (7th Cir. 2003) (noting that the *Daubert* analysis is flexible); *Goodwin v. MTD Prods., Inc.*, 232 F.3d 600, 608 n.4 (7th Cir. 2000) (noting that "the *Daubert* Court emphasized that it did not presume to set out a definitive checklist or test, and that the district judge's inquiry should be flexible") (quotations omitted).

In assessing the admissibility of an expert's testimony, the Court's focus "must be solely on principles and methodology, not on the conclusions they generate.'" *Winters*, 498 F.3d at 742 (quoting *Chapman v. Maytag Corp.*, 297 F.3d 682, 687 (7th Cir. 2002)). "The goal of *Daubert* is to assure that experts employ the same 'intellectual rigor' in their courtroom testimony as would be employed by an expert in the relevant field." *Jenkins v. Bartlett*, 487 F.3d 482, 489 (7th Cir. 2007) (quoting *Kumho Tire*, 526 U.S. at 152). "A *Daubert* inquiry is not designed to have the district judge take the place of the jury to decide ultimate issues of credibility and accuracy."

Lapsley v. Xtek, Inc., 689 F.3d 802, 805 (7th Cir. 2012).

ANALYSIS

Zurn seeks to exclude the expert testimony of Dr. Caulfield pursuant to Rule 702 and *Daubert*. *See* Fed. R. Evid. 702; *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993). Dr. Caulfield gave the following opinions:

> I believe the 'life cycle testing" is not an accurate simulation of a flush valve handle actuated under real world operating conditions during the course of a typical valve lifetime. In addition, the lack of documentation of this "life cycle testing" renders it unrepeatable and thus the testing does not follow sound scientific methodology. It is not reasonable to rely on data from testing that is not repeatable.
>
> No reasonable engineer who was familiar with the usage of plumbing valves in the real world (including Mr. Funari) would have reasonably believed that the conditions under which the "life cycle testing" was conducted reasonably reflected real world conditions. For this reason, no reasonable engineer who was familiar with the usage of plumbing valves in the real world (including Mr. Funari) would have reasonably believed that the results of that testing fairly reflected what actually happens to prior art brass bushings in the real world . . . . For the same reasons, no reasonable engineer who was familiar with the usage of plumbing valves in the real world (including Mr. Funari) would have relied upon an opinion of legal counsel that assumed that Mr. Funari's testing fairly reflected what actually happens to prior art brass bushing in the real world.

(Expert Report at ¶¶ 40, 41.) Zurn argues that Dr. Caulfield is not qualified to offer these expert opinions on life cycle testing for manual flush valves, that his opinions are unreliable and irrelevant, and that he makes conclusory legal assertions.

I. Dr. Caulfield's Qualifications

Zurn initially challenges the qualifications of Dr. Caulfield to offer expert opinions on the life cycle testing of manual flush valves. *See* Fed. R. Evid. 702 (requiring that an expert be qualified "by knowledge, skill, experience, training, or education"). Zurn argues that Dr. Caulfield is a mechanical engineer without any plumbing expertise, including in the area of manual flush valve handles, which makes him unqualified to give expert testimony on the matter.

The Court rejects Zurn's challenge to Dr. Caulfield's qualifications to offer expert

opinions on life cycle testing of the brass bushing on the valve handle. Dr. Caulfield has a Bachelor of Science in Mechanical Engineering and a Masters of Science and Doctor of Philosophy in Theoretical and Applied Mechanics, all from the University of Illinois (Expert Report ¶ 3). (Hearing, Exhibit 11.) He is a registered Professional Engineer in Illinois and Florida, a former professor of engineering at the University of Illinois, and is a member of the American Society of Testing and Materials, Society of Mechanical Engineers, Society for Experimental Mechanics, and the Illinois Society of Professional Engineers. (R. 571-1, Expert Report, ¶ 4) He was an assistant professor in the department of mechanical engineering at the University of Illinois (*Id.* ¶ 6), and since then, he has worked for over three decades consulting on a wide range of mechanical engineering matters, including design review and evaluation, failure analysis, accident investigation and reconstruction, and testing. (*Id.* ¶ 5) In 2010, he formed Caulfield Engineering. Dr. Caulfield has analyzed product designs regarding patent infringement issues, and has been qualified to testify as a technical expert in state and federal courts. (*Id.* ¶ 5) Dr. Caulfield has also worked on the wear of products with brass, including brass faucets. (Hearing Trans. at 26-28.) While Dr. Caulfield may not have significant experience with manual flush valves, his extensive experience as a mechanical engineer qualifies him to testify on the mechanics and results of Zurn's life cycle test.

II. Reliability

Zurn also challenges the reliability of Dr. Caulfield's diagnosis of the life cycle test. *See* Fed. R. Evid. 702 (stating that expert testimony must be the "product of reliable principles and methods"). Zurn argues that Dr. Caulfield's opinions are merely based on "general scientific principles" and previous experience, that he has no idea how those principles apply in the relevant field of art, and are not of use to the fact-finder. (R. 559, Defs.' Mem. at 10) To

support this argument, Zurn points to *Neale v. Volvo Cars of N. Am., LLC*, 2:10-CV-04407 DMC MF, 2013 WL 785059 (D.N.J. Mar. 1, 2013), where the court barred Dr. Caulfield from providing expert testimony regarding the cause of flooding due to the design of the vehicles. (*Id.*) Zurn claims that Dr. Caulfield's "routine" is similar here as it was in *Neale*, and therefore his testimony is unreliable and should be excluded. (*Id.* at 10-11) Zurn's challenge fails.

Dr. Caulfield's current examination and analysis of Zurn's life cycle test is distinguishable from his work done in *Neale*. There, the court barred Dr. Caulfield from testifying because he had "admitted that there was 'not too much work done so far' on the case prior to rendering his opinions, and that he had spent less than five total hours working on the case prior to his deposition." *Neale,* 2013 WL 785059 at *3. The court also found that "Caulfield admit[ed] that although he discussed the location of the yaw sensor in three different vehicles, he only reviewed photographs from one 2004 XC90, and didn't know the location of the sensor in the other vehicles." (*Id.*) Here on the other hand, Dr. Caulfield has spent extensive time analyzing all of the materials, processes, and results of Zurn's life cycle test in order to give his expert opinion on the accuracy of the test. He also examined the test stand on which Zurn conducted the tests.

Dr. Caulfield also had a second declaration barred in *Neale*. (*Id.* at *4). The court also barred that testimony because Dr. Caulfield had relied on statistical facts given to him by the party retaining him without double checking or verifying the numbers, he made claims regarding what was included in owner's manuals without actually reviewing them, and contradicted himself. (*Id.* at *5). In addition, the court in *Neale* specifically noted that Dr. Caulfield had admitted that he did not use the scientific method in reaching his opinions. (*Id.*) Again, Dr. Caulfield's methodology in this case is distinguishable from *Neale*. Here, Dr. Caulfield

reviewed all information provided to him by Zurn regarding the life cycle test, he made a personal inspection of Zurn's Commercial Brass Division facilities and test stand, and he has not based his opinions on materials that he has not reviewed.

Furthermore, an expert may be qualified to render opinions based on experience alone. *See* Fed. R. Evid. 702 advisory committee note (2000). "In certain fields, experience is the predominant, if not the sole basis for a great deal of reliable expert testimony." *Id.* Indeed, "genuine expertise may be based on experience or training." *United States v. Conn*, 297 F.3d 548, 556 (7th Cir. 2002) (quoting *Tyus v. Urban Search Mgmt.*, 102 F.3d 256, 263 (7th Cir. 1996)). "[W]hile extensive academic and practical expertise in an area is certainly sufficient to qualify a potential witness as an expert, Rule 702 specifically contemplates the admission of testimony by experts whose knowledge is based on experience." *Trustees of Chicago Painters & Decorators Pension, Health & Welfare, & Deferred Sav. Plan Trust Funds v. Royal Int'l Drywall & Decorating, Inc*., 493 F.3d 782, 787-88 (7th Cir. 2007) (citations and quotations omitted). As such, courts "consider a proposed expert's full range of practical experience, as well as academic or technical training, when determining whether that expert is qualified to render an opinion in a given area." *Id.* (quoting *Smith v. Ford Motor Co.*, 215 F.3d 713, 718 (7th Cir. 2000)).

Soan seeks to have Dr. Caulfield opine on whether Zurn's life cycle test of the brass bushing was consistent with the conditions to which a real world bushing are subjected based on sound mechanical engineering principals. Zurn admits that there is no guidebook or written industry standard regarding life cycle testing for the brass bushing. Counsel further admits that the standard is one based on experience. Given the lack of a written industry standard, Dr. Caulfield's extensive understanding and application of general mechanical engineering

principals and his review of the test stand and existing analysis from the testing renders his opinions reliable and admissible under Rule 702 and *Daubert*. Indeed, Dr. Caulfield applies his previous education and vast experience to give his expert opinion on whether Zurn's life cycle test was adequate from a mechanical engineering point of view, thereby aiding the fact-finder in determining the ultimate question of willfulness. "[A]nother expert might disagree with this opinion, but the disagreement does not render the opinion inadmissible." *United States v. Brumley*, 217 F.3d 905, 911-12 (7th Cir. 2000). Zurn's remaining challenges – including that Dr. Caulfield does not quantify the impact of certain factors on the testing -- go to the weight of Dr. Caulfield's testimony, not its admissibility. Zurn's attorneys are free to cross examine Dr. Caulfield regarding the accuracy of his opinions.

III. Conclusory Statements

Finally, Zurn challenges Dr. Caulfield's testimony as far as it contains conclusory allegations regarding whether it is permissible to rely on the life cycle testing, and whether Zurn created the testing to defeat the patent. (R. 559, Defs' Mem. at 12). In Dr. Caulfield's testimony he opines that (1) Zurn's life cycle test was not an accurate simulation of real world conditions and no reasonable engineer would have relied on it (*Id.* at 11-12), and (2) Zurn created and designed the life cycle tests to defeat the patent at issue. The Court denies Zurn's challenge as it pertains to (1), and grants Zurn's challenge as it pertains to (2).

1. Zurn's Life Cycle Test and A Reasonable Engineer

Dr. Caulfield is able to apply his knowledge of mechanical engineering to Zurn's life cycle test. In doing so, he is able to aid the fact-finder in understanding how the life cycle test compares to what happens to brass bushings in the real world. Similarly, he is also in a position to aid the fact-finder in deciding how a reasonable engineer would view the life cycle test's data

as a reflection of real world brass bushings. These are not mere conclusory statements but are instead Dr. Caulfield's opinions based on his role as a mechanical engineer, his review of the life cycle test materials and procedures, and his extensive expertise in the field of mechanical engineering. The Court denies this aspect of Zurn's motion.

2. Opinion Regarding the Purpose of the Life Cycle Test Stand

During his deposition in this case, Dr. Caulfield testified as follows regarding the test stand: "I think that wear simulator was set up to defeat this patent which is the willful infringement." (Dep. Trans at 82.) Zurn seeks to exclude this testimony as speculative and conclusory. The Court agrees. At the hearing, even Sloan's counsel conceded that this was not proper expert testimony from Dr. Caulfield. (Hearing Trans. at 17-18.) This testimony amounts to speculation regarding Zurn's motivation for creating the life cycle test. Dr. Caulfield is not qualified to render such an opinion. As such, the Court grants this aspect of Zurn's motion.

Conclusion

For the reasons discussed above, the Court grants in part, denies in part, and denies in part as moot Zurn's motion to exclude the testimony of Dr. Caulfield.

Dated: August 12, 2013

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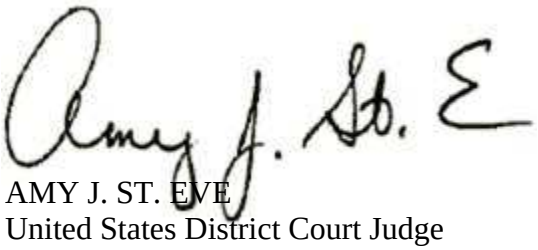

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