

United States Court of Appeals
For the Eighth Circuit

No. 14-1783

American Automobile Insurance Company

Plaintiff - Appellant

v.

Omega Flex, Inc.

Defendant - Appellee

Appeal from United States District Court
for the Eastern District of Missouri - St. Louis

Submitted: January 15, 2015

Filed: April 15, 2015

Before LOKEN, MELLOY, and GRUENDER, Circuit Judges.

LOKEN, Circuit Judge.

A fire destroyed the home of Fred and Adrienne Kostecki in High Ridge, Missouri. Their insurer, American Automobile Insurance Company (“AAIC”), reimbursed the Kosteckis for their loss, received an assignment of their rights, and filed this diversity products liability action against Omega Flex, Inc. (“Omega”), the manufacturer of TracPipe, a product made of corrugated stainless steel tubing (“CSST”) that brought propane gas from an underground storage tank into the

Kosteckis' home. After a four-day trial and three and one-half hours deliberating, a jury returned a verdict for Omega, finding that it did not fail to use ordinary care in designing the product or sell the product in an unreasonably dangerous and defective condition. The district court¹ denied AAIC's motion for a new trial. AAIC appeals, arguing the court abused its discretion when it excluded the opinion of AAIC's metallurgical expert, Dr. Thomas Eagar, that the product was defectively designed, and admitted testimony by a defense expert, Dr. Harri Kytomaa, criticizing Dr. Eagar's fire causation theory. Reviewing these evidentiary rulings for clear and prejudicial abuse of discretion, we affirm. See Boehm v. Eli Lilly & Co., 747 F.3d 501, 507 (8th Cir. 2014) (standard of review).

I.

Prior to trial, the district court granted Omega summary judgment on AAIC's claims of breach of warranty and failure to warn. The case proceeded to trial on claims of negligent design and strict liability for an unreasonably dangerous product. At trial, the cause of the fire was a major contested issue. All experts agreed that the fire started when lightning struck a tree near the underground propane tank, causing electric energy to enter the Kostecki home and ignite combustible materials in the space between the basement and the first floor. The fire investigators found two holes in the TracPipe running through that space. Dr. Eagar and AAIC's other experts opined that lightning traveled along the TracPipe, caused the two holes by melting the CSST, and ignited escaping propane, starting the fire. Dr. Kytomaa opined that the lightning strike generated insufficient energy either to create holes in the TracPipe or to ignite propane escaping from the TracPipe. He theorized that the fire started when lightning entered the home and ignited other combustibles in the space between two floors. The fire then energized a nearby aluminum feeder wire,

¹The Honorable Audrey G. Fleissig, United States District Judge for the Eastern District of Missouri.

which arced to the TracPipe, creating the holes in its CSST. Another significant issue at trial was whether the TracPipe was adequately bonded (grounded) inside the home.

Prior to trial, after the parties exchanged expert reports, Omega moved to exclude Dr. Eagar's opinion testimony, and AAIC moved to exclude Dr. Kytomaa's opinion testimony. Both motions invoked the court's gate-keeping function to ensure that an expert's opinion is "supported by the kind of scientific theory, practical knowledge and experience, or empirical research and testing that permit 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 in issue.'" Robertson v. Norton Co., 148 F.3d 905, 907 (8th Cir. 1998), quoting Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 592-93 (1993).

The district court granted in part Omega's motion to exclude Dr. Eagar's testimony and denied AAIC's motion to exclude Dr. Kytomaa's testimony. AAIC appeals both rulings. The objective of the Daubert inquiry "is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 152 (1999). As the district court recognized, this is a flexible, case-specific inquiry. "The trial court ha[s] to decide whether this particular expert had sufficient specialized knowledge to assist the jurors in deciding the particular issues in the case." Id. at 156 (quotation omitted); see Fed. R. Evid. 702 and Advisory Committee Notes. Thus, although the two Daubert motions were simultaneously filed, we must separately analyze the court's ruling on each.

A. Dr. Eagar's Opinion Testimony.

Dr. Eagar is a professor of materials engineering and engineering systems at the Massachusetts Institute of Technology. During a thirty-year academic career, he

has published hundreds of articles on metallurgy and arc physics; his expertise in those fields is undisputed. In its motion to exclude, Omega argued that this expertise did not make Dr. Eagar qualified to opine that TracPipe caused the fire in the Kosteckis' home, or that the product was defectively designed. In its Memorandum opposing Omega's motion, AAIC advised that Dr. Eagar has "four sets" of opinions:

- (1) Metal conductors, such as CSST, can be damaged in one of two ways: resistive heating and arcing. From a design perspective, CSST is vulnerable to perforation caused by both resistive heating and arcing;
- (2) Metallurgical review of the Kostecki CSST holes confirm they were caused by an arcing event generated by lightning between the CSST and an aluminum object;
- (3) When there is an arcing event and the thin wall of the CSST is compromised, gas will escape and can be ignited by the arcing event . . .;
- (4) Bonding will not protect CSST from lightning induced failure as is suggested by Omega Flex.

The district court ruled that Dr. Eagar may testify as to the matters within his areas of expertise -- metallurgy and arc physics; it therefore denied Omega's motion to exclude opinion testimony as to fire causation and the efficacy of bonding. The court granted the motion to exclude opinion testimony regarding "product design and warnings" because "Eagar has specifically disavowed such expertise and his areas of expertise bear no more than a remote relationship to product design and warnings." The ruling as to product warnings is not at issue on appeal.

At trial, Dr. Eagar testified at length. Based on our review, that testimony included all four of the above-quoted "sets" of opinions. Dr. Eagar testified that TracPipe is "too thin" -- "almost exactly 10 percent of the thickness of [traditional]

black iron pipe” -- and therefore vulnerable to perforation by arcing because the energy required to melt metal is proportional to the metal’s thickness. Based on his examination of the TracPipe in the Kostecki home, Dr. Eagar opined that the two holes in the TracPipe were caused by lightning-generated arcing; that the fire started when lightning ignited propane gas escaping from the holes; and that the bonding recommended by Omega will not protect CSST from such lightning-induced failures.

1. On appeal, AAIC argues the district court nonetheless committed clear and prejudicial abuse of discretion by barring Dr. Eagar “from offering at trial his expert opinions concerning material selection and the design of . . . TracPipe.” In response, Omega notes that “AAIC never identifies for this Court precisely what opinions Dr. Eagar was allegedly erroneously precluded from offering at trial.” We agree.

To preserve a claim that the district court erred in excluding evidence, “a party informs the court of its substance by an offer of proof, unless the substance was apparent from the context.” Fed. R. Evid. 103(a)(2). If the court “rules definitively” before trial, “a party need not renew an objection or offer of proof to preserve a claim of error for appeal.” Rule 103(b). Here, the district court’s only “definitive” pretrial ruling was that Dr. Eagar may not offer opinion testimony “relating to product design.” As we have noted, he did offer such an opinion, testifying to the thickness of the CSST in TracPipe and opining that it was “too thin.” So what was excluded?

When Omega raised this issue at the hearing on AAIC’s motion for new trial, counsel admitted that, during trial, AAIC waived an offer of proof on the issue of “black iron pipe compared to the CSST,” but argued it preserved the claim of error in excluding “No. 6, that’s Dr. Eagar’s testimony referring to a defect in the CSST.” That reference was sufficient for the district court to deny AAIC’s motion on the merits. But on appeal, AAIC neither identified nor explained “No. 6” to this court. Indeed, AAIC made no attempt to explain what opinion testimony was excluded until pages 5-6 of its Reply Brief, where *counsel* articulated what Dr. Eagar would have

opined, without citation to the trial or appellate record. For this reason alone, the district court's evidentiary ruling must be affirmed. As in Potts v. Benjamin, 882 F.2d 1320, 1325 (8th Cir. 1989), where the district court also allowed an expert to testify on a number of topics, "[w]e have no basis upon which to conclude that the District Court's ruling affected a substantial right . . . because [AAIC] made no offer of proof at trial, nor is it contextually apparent, what [its] expert's testimony would have been . . . had he been permitted to testify on the [excluded] subject." Accord Cavataio v. City of Bella Villa, 570 F.3d 1015, 1021 (8th Cir. 2009) ("This failure to make an offer of proof constitutes a failure to preserve the issue for our review.").

2. Despite this failure to preserve, we have combed AAIC's 1124-page Appendix looking for excluded opinions by Dr. Eagar "relating to product design." The nearest we found was in the Conclusion to his lengthy supplemental report to AAIC counsel: "In my opinion, CSST is so thin that it is unreasonably dangerous unless all joints contain electrical jumpers and the CSST is grounded every few feet to a suitable lightning ground strap." Even if properly preserved, we conclude the district court did not abuse its discretion in excluding this conclusory opinion. First, in deposition testimony, Dr. Eagar denied expertise in the design and installation of CSST systems. As the district court noted, we have repeatedly upheld the exclusion or reversed the admission of expert design testimony that went beyond the expert's expertise. See Weisgram v. Marley Co., 169 F.3d 514, 520-21 (8th Cir. 1999) (affirming the exclusion of a metallurgist's design defect opinion because he had no personal experience and "no metallurgic reason for his conclusion"), aff'd, 528 U.S. 440 (2000);² accord Wheeling Pittsburgh Steel Corp. v. Beelman River Terminals, Inc., 254 F.3d 706, 715 (8th Cir. 2001); Khoury v. Philips Med. Sys., 614 F.3d 888, 893 (8th Cir. 2010); Anderson v. Raymond Corp., 340 F.3d 520, 523 (8th Cir. 2003);

²Our ruling on this Daubert issue was among the questions presented for review, but the Supreme Court granted certiorari only on a procedural issue. See Joint Pet. Writ Cert., 1999 WL 33611408 (U.S. Jul. 23, 1999); 527 U.S. 1069 (1999).

Dancy v. Hyster Co., 127 F.3d 649, 651-52 (8th Cir. 1997), cert. denied, 523 U.S. 1004 (1998); Krueger v. Johnson & Johnson Prof., Inc., 66 F. App'x 661, 662 (8th Cir. 2003); see also Smith v. Rasmussen, 249 F.3d 755, 758-59 (8th Cir. 2001).

Second, Dr. Eagar opines that TracPipe is unreasonably dangerous unless grounded differently. This opinion does not address the product's design. Rather, it squarely addresses the ultimate issue of whether TracPipe was an unreasonably dangerous product. While such expert testimony is permissible, see Fed. R. Evid. 704(a), "courts must guard against invading the province of the jury on a question which the jury was entirely capable of answering without the benefit of expert opinion." Robertson, 148 F.3d at 908 (quotation omitted). The district court concluded that, in the absence of specific design expertise, Dr. Eagar's conclusory opinion "will provide little assistance to the jury," as Rule 702(a) requires, and "may run afoul" of Rule 403 if the jury affords it more weight than warranted because of Dr. Eagar's expertise in other areas.³

Third, in light of the detailed scientific and causation opinions that Dr. Eagar did express to the jury, including that CSST is "too thin" to resist indirect lightning strikes, the exclusion of his ultimate opinion was not a prejudicial abuse of discretion. See Shelton v. Kennedy Funding, Inc., 622 F.3d 943, 959 (8th Cir. 2010). AAIC no doubt wanted the prestigious Dr. Eagar to opine that TracPipe was unreasonably dangerous *because* his scientific testimony based on metallurgy and arc physics established it was too thin. But any equally prestigious academic "expert" provided

³However, despite excluding Dr. Eagar's ultimate opinion on defective design, the district court denied Omega summary judgment and judgment as a matter of law, because Dr. Eagar's testimony as to causation based on the vulnerability of thin CSST to lightning, combined with the testimony of other experts regarding the cause of the fire, provided "evidence from which the jury could have determined that the product design was defective." Thus, AAIC was able to submit its design defect and unreasonably dangerous claims to the jury.

with Dr. Eagar’s scientific testimony could have expressed the same ultimate opinion. “[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert.” Gen. Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997). The district court’s careful parsing of the expert opinions that Dr. Eagar could reliably provide for the jury was a proper exercise of its gate-keeping function “to ensure the reliability and relevancy of expert testimony.” Kumho Tire, 526 U.S. at 152.

B. Dr. Kytomaa’s Opinion Testimony.

Dr. Kytomaa is a Vice President and Director of the Thermal Sciences practice at Exponent, an engineering and scientific consultant firm. He has held academic and research positions at various universities, has published many articles on topics such as fire origins and liquified natural gas transportation, and has been involved in hundreds of fire investigations. He is a Certified Fire Investigator and a Certified Fire and Explosion Investigator but has not published on CSST and could not recall working on any fires that involved lightning. He is not a metallurgist but has studied the strength of materials and the characteristics of metals. The district court qualified Kytomaa as an expert in materials, mechanical engineering, fire, cause and origin, code reviews, and electrical causation.

Dr. Kytomaa’s testimony primarily addressed fire causation, disagreeing with Dr. Eagar and AAIC’s other experts as to the cause of the fire. In developing his opinion, Dr. Kytomaa reviewed the depositions of expert and fact witnesses and the photographs taken of the Kostecki home, and he personally inspected the “subject TracPipe, the CSST in this matter.” He also conducted some general scientific tests that he used to challenge Dr. Eagar’s opinions that arcing from the indirect lightning could have caused the holes in the TracPipe and ignited escaping propane. The district court denied AAIC’s motion to exclude Dr. Kytomaa’s opinion testimony,

concluding that he had sufficient expertise in fire causation and that his opinions were sufficiently grounded in scientific literature and testing.

On appeal, AAIC primarily argues that the district court unevenly applied the law when it excluded part of Dr. Eagar's testimony yet allowed Dr. Kytomaa's testimony. We disagree. The district court's careful opinions properly applied Daubert's flexible standard to the distinct issues on which each expert would opine. Dr. Eagar testified at length regarding black iron pipe; Dr. Kytomaa did not. Neither testified on the ultimate issue of product defect. AAIC essentially argues that Dr. Eagar had more qualifications and therefore Dr. Kytomaa should not have been allowed to refute Dr. Eagar's opinions. But that contention is inconsistent with Daubert, which requires a "flexible" inquiry that "grants a district court the same broad latitude when it decides *how* to determine reliability as it enjoys in respect to its ultimate reliability determination." Kumho Tire, 526 U.S. at 141-42.

We have consistently upheld the admission of expert testimony as to the cause of a fire when the expert applied specialized knowledge to observations of a fire scene that had record support. See Shuck v. CNH Am., LLC, 498 F.3d 868, 875 (8th Cir. 2007); Hickerson v. Pride Mobility Prods. Corp., 470 F.3d 1252, 1256-57 (8th Cir. 2006). Dr. Kytomaa's extensive credentials qualified him as an expert in fire causation. He based his opinions on that experience and his examination of the fire scene and the TracPipe involved. While Dr. Kytomaa was not a metallurgist or lightning expert, his testimony only touched upon those fields as relevant to the subject of fire causation, his area of expertise. "Gaps in an expert witness's qualifications or knowledge generally go to the weight of the witness's testimony, not its admissibility." Robinson v. GEICO Gen. Ins. Co., 447 F.3d 1096, 1100 (8th Cir. 2006) (quotation omitted).

After careful review of the district court's rulings and Dr. Kytomaa's trial testimony, we conclude that, as in Cincinnati Ins. Co. v. Bluewood, Inc., 560 F.3d

798, 808 (8th Cir. 2009), AAIC “has failed to identify any deficiency in either the district court’s application of Rule 702 or its discharge of the ‘gatekeeping function’ under *Daubert* and *Kumho Tire*.” The district court committed no clear and prejudicial abuse of discretion in permitting the jury to consider testimony from well-qualified experts who presented conflicting theories as to the cause of the unusual and unfortunate fire that destroyed the Kosteckis’ home.

II.

Finally, AAIC argues that the district court abused its discretion in denying AAIC’s motion for a new trial, because Dr. Eagar’s design opinion was critical to the jury’s ability to evaluate the complex testimony and therefore crucial to the outcome of the case. Like the district court, we conclude the largely unarticulated design defect opinions were not improperly excluded and were not necessary to assist the jury in evaluating AAIC’s claims. As this alleged evidentiary error does not require reversal, a new trial is not warranted. See *WWP, Inc. v. Wounded Warriors Family Support, Inc.*, 628 F.3d 1032, 1043 (8th Cir. 2011).
