

COLORADO COURT OF APPEALS

Court of Appeals No.: 06CA0402
Weld County District Court No. 03CV1288
Honorable Roger A. Klein, Judge

Farmland Mutual Insurance Companies,

Plaintiff-Appellee,

v.

Chief Industries, Inc.,

Defendant-Appellant.

JUDGMENT AFFIRMED

Division I

Opinion by: JUDGE TAUBMAN
Márquez and J. Jones, JJ., concur

Announced: September 20, 2007

Cozen O'Connor, Thomas M. Dunford, Denver, Colorado, for Plaintiff-Appellee

Witwer Oldenburg Barry & Johnson, LLP, Patrick Groom, Keynen J. Wall, Jr.,
Greeley, Colorado, for Defendant-Appellant

Defendant, Chief Industries, Inc., appeals the judgment entered upon a jury verdict in favor of plaintiff, Farmland Mutual Insurance Companies, finding Chief was negligent in the manufacturing of a crop drying heater which caused a fire. We affirm.

Farmland's insured, Onion Growers, Inc., operated a crop storage and drying facility and hired a contractor to install a crop drying heater manufactured by Chief. In September 2003, a fire occurred at the facility, causing extensive damage. Farmland paid Onion Growers \$617,625.77 pursuant to its insurance policy and filed suit for subrogation against Chief and the installer (not a party to this appeal), alleging the drying unit was negligently designed, manufactured, and installed.

In support of its claims, Farmland introduced the testimony of four expert witnesses, including Toby Nelson, a forensic mechanical engineer. Chief objected to Nelson's testimony, arguing it was not reliable. After a midtrial hearing pursuant to *People v. Shreck*, 22 P.3d 68 (Colo. 2001), the court admitted Nelson's expert testimony.

Nelson testified that the fire would not have occurred if a fuel line strainer to prevent debris buildup had been installed in the dryer. Because there was no strainer, according to Nelson, debris prevented a gas shutoff valve from closing completely, thereby allowing natural gas to continue to enter the unit and cause the fire.

He found debris in a mesh screen and part of the fuel line. Although Nelson did not find any debris in the portion of the fuel line that would have obstructed the valve, he postulated that any debris was likely expelled when the fire department and gas company energized the system during their respective investigations.

He further testified that Chief always installed a strainer in a propane model of the same drying unit, that Chief had included two valves in prior models of the natural gas drying unit, and that, in his opinion, Chief should have included a strainer before shipping the drying unit because the manufacturer was in the best position to prevent accidents and to protect life and property.

Farmland also presented evidence that Chief's instruction manual accompanying the heater advised that an installer should acquire and attach a strainer. Chief presented evidence that it did not include a strainer in the manufacturing of the natural gas dryer because the strainer required was dependent on which of four sizes of intake valve was used.

At the conclusion of trial, a jury found Chief was negligent and Farmland's insured was comparatively at fault, allocating 57.5% fault to Chief and 42.5% fault to Farmland's insured. Based upon stipulated damages of \$617,625.77, the trial court awarded Farmland \$355,134.81.

I. Expert Witness Testimony

Chief argues the trial court abused its discretion in admitting the expert witness testimony of Nelson because it was not reliable in that (1) his testimony was not based upon reliable scientific principles and (2) he had never worked in the crop drying industry and therefore was not qualified to testify as to the standard of care of a crop dryer manufacturer. We disagree.

Trial courts are vested with broad discretion to determine the admissibility of expert testimony, and the exercise of that discretion will not be overturned unless manifestly erroneous. *People v. Martinez*, 74 P.3d 316, 322 (Colo. 2003). This is so because a trial court has a superior opportunity to determine the competence of the expert as well as to assess whether the expert's opinion will be helpful to the jury. *Id.*

Pursuant to CRE 702:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

For expert testimony to be admissible under CRE 702, it must be both reliable and relevant. *People v. Ramirez*, 155 P.3d 371, 378 (Colo. 2007); *Shreck*, 22 P.3d at 77. Expert testimony is reliable if the scientific principles used by the witness are reasonably reliable and the witness is qualified to opine on such matters. *Shreck*, 22 P.3d at 77. However, "speculative testimony that would be unreliable and therefore inadmissible under CRE 702 is opinion testimony that has no analytically sound basis." *Ramirez*, 155 P.3d

at 378. The liberal standard of admissibility adopted by the supreme court in *Shreck* is balanced against “[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof.” *Shreck*, 22 P.3d at 78 (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596, 113 S.Ct. 2786, 2798, 125 L.Ed.2d 469 (1993)).

A. Scientific Method

Chief asserts Nelson’s methodology was not reasonably reliable because (1) he used a process of elimination to determine the cause of the fire and this was not a reliable scientific method; (2) his opinion was not supported by any evidence; and (3) he did not confirm his conclusions through testing. We disagree.

Expert witness testimony must be grounded in “the methods and procedures of science rather than subjective belief or unsupported speculation.” *Ramirez*, 155 P.3d at 378 (quoting *Gallegos v. Swift & Co.*, 237 F.R.D. 633, 639 (D. Colo. 2006)). A court determines the reliability of a scientific method based upon consideration of the totality of the circumstances that may, *but*

need not, include consideration of whether the technique can be and has been tested. *Shreck*, 22 P.3d at 77-78.

1. Process of Elimination

Chief contends the process of elimination is not a reliable scientific method. We are not persuaded.

The vast majority of courts that have addressed the issue have concluded that the process of elimination can be a reliable scientific method. For example, in *Bitler v. A.O. Smith Corp.*, 400 F.3d 1227, 1236 (10th Cir. 2004), the court concluded that the process of elimination, or “differential diagnosis,” “is a valid scientific technique to establish causation.” Noting the method’s roots in the medical context, the court observed that federal courts have regularly found differential diagnosis reliable. *Id.* Other courts have reached similar conclusions. *See, e.g., Allstate Ins. Co. v. Hamilton Beach/Proctor Silex, Inc.*, 473 F.3d 450, 459 (2d Cir. 2007); *Hickerson v. Pride Mobility Prods. Corp.*, 470 F.3d 1252, 1257 (8th Cir. 2006); *Superior Aluminum Alloys, LLC. v. U.S. Fire Ins. Co.*, (N.D. Ind. No. 1:05-CV-207, June 25, 2007)(unpublished order); *see also U.S. Aviation Underwriters, Inc. v. Pilatus Bus. Aircraft, Ltd.*, (D.

Colo. No. 01-CV-02056-JLK, Sept. 29, 2006)(unpublished order)(process of elimination accepted methodology to determine causation in accident investigations); *Thirsk v. Ethicon, Inc.*, 687 P.2d 1315, 1318 (Colo. App. 1983)(in products liability case, generally discussing use of testimony by medical expert based on process of elimination); *Rivers v. State*, 903 A.2d 908, 916 (Md. 2006)(the process of elimination, if properly conducted, is a reliable scientific methodology).

Although the federal district court in *Stibbs v. Mapco, Inc.*, 945 F. Supp. 1220, 1224 (S.D. Iowa 1996), relied on by Chief, found the expert testimony based upon a process of elimination was not reliable, it did not rule out the possibility that such a technique could be reliable in some cases. *Id.* (“[I]t may be that this sort of reasoning could pass muster in some cases where the obvious result explains the etiology.” (quoting *Sorensen v. Shaklee Corp.*, 31 F.3d 638, 649 (8th Cir. 1994))).

Furthermore, a number of courts have held that the Guide for Fire and Explosion Investigations published by the National Fire Protection Association (NFPA 921), relied on by both Nelson and

Chief's experts, is an accepted reference for fire investigators. See *Fireman's Fund Ins. Co. v. Canon U.S.A., Inc.*, 394 F.3d 1054, 1057-58 (8th Cir. 2005)(holding NFPA 921 qualifies as a reliable scientific method endorsed by a professional organization); see also *Nationwide Mut. Ins. Co. v. Nat'l RV Holdings, Inc.*, (M.D. Pa. No. CIV A 105-CV-2509, Mar. 28, 2007)(unpublished memorandum)(collecting cases).

Pursuant to NFPA 921, the process of elimination is an acceptable investigative technique:

Process of Elimination. Any determination of fire cause should be based on evidence rather than on the absence of evidence; however, when the origin of a fire is clearly defined, it is occasionally possible to make a credible determination regarding the cause of the fire, even when there is no physical evidence of that cause available. This finding may be accomplished through the credible elimination of all other potential causes, provided that the remaining cause is consistent with all the known facts.

Therefore, not only have the vast majority of courts addressing the issue accepted the process of elimination as a reliable scientific methodology, NFPA 921 relied on by both parties explicitly accepts it as well. In addition, other courts have approved use of the process of elimination in fire causation cases based upon the NFPA

standards. *See United States v. Santiago*, 202 Fed. Appx. 399, 401 n.2 (11th Cir. 2006)(unpublished per curiam opinion)(expert's use of process of elimination consistent with NFPA Guide); *see also Allstate Ins. Co.*, 473 F.3d at 459 (expert testimony using process of elimination to identify ignition source based upon burn pattern constitutes circumstantial evidence of probable cause of fire).

Here, two expert fire investigators testified that based upon symmetrical burn patterns in the two buildings attached to the fan room containing the crop drying heater, the fire likely originated in the fan room and that the burner was the source of ignition.

An electrical engineering expert tested the electrical power system and safety switches. He testified that the electrical wiring did not fail and that the facility's lights were off when the fire occurred. He also identified the fan room as the source of the fire and the burner as the likely source of ignition.

Nelson considered the other experts' opinions in performing his investigation. He discovered debris on a mesh screen and in part of the fuel line. He tested the gas control valve, determined it worked properly, and therefore ruled out the design of the valve as a

cause of the fire. He noted that the post-fire energizing of the system by the fire department and gas company could have expelled any debris that might have prevented proper closure of the valve.

Based upon all this evidence, and ruling out causes such as arson, the electrical system, and the valve design, Nelson determined that the presence of debris on the valve resulting from the lack of a strainer likely caused the fire.

We conclude he properly used a process of elimination to determine the cause of the fire.

2. Sufficiency of the Evidence

Chief also asserts that because Nelson did not find any debris that could have obstructed the shutoff valve in the fuel line, his testimony failed to prove the cause of the fire by a preponderance of the evidence. Insofar as this argument questions the sufficiency of the evidence, it is irrelevant to a determination of the admissibility of Nelson's expert testimony. *See Ramirez*, 155 P.3d at 377 ("Whether the evidence is sufficient to support a judgment is a separate question from whether the evidence should be admitted in the first place."). Therefore, we find no error.

3. Need for Experimental Testing

Finally, in admitting Nelson's testimony, the trial court acknowledged that the evidence might have been stronger if Nelson had conducted experimental testing. However, we agree with the trial court that the process of elimination was sufficiently reliable to admit the testimony. Testing was not a prerequisite to admissibility. *See Shreck*, 22 P.3d at 77-78. Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof were sufficient to safeguard the reliability of the evidence. *Id.* at 78.

We conclude, therefore, that the scientific methodology employed by Nelson was sufficiently reliable to permit his testimony to be admitted.

B. Qualifications

Chief argues that Nelson was not qualified to testify as to the standard of care appropriate to the crop drying industry because he had never worked for a crop dryer manufacturer and was not a design engineer. Again, we disagree.

A witness may be qualified by virtue of knowledge, skill, experience, training, or education. *Huntoon v. TCI Cablevision, Inc.*, 969 P.2d 681, 689 (Colo. 1998). The basis for admissibility under CRE 702 is not that the witness possesses skill in a particular field, but that “the witness can offer assistance on a matter not within the knowledge or common experience of people of ordinary intelligence.” *Scognamillo v. Olsen*, 795 P.2d 1357, 1361-62 (Colo. App. 1990)(quoting *McNelley v. Smith*, 149 Colo. 177, 180, 368 P.2d 555, 557 (1962)). An expert need not have worked in the industry in question to provide an expert opinion, so long as he or she is familiar with industry standards. *Klein v. State Farm Mut. Auto. Ins. Co.*, 948 P.2d 43, 50 (Colo. App. 1997)(attorney qualified to testify as expert as to insurance industry standards).

Nelson has bachelors and masters degrees in mechanical engineering and testified that he had worked in the area of forensic mechanical engineering for twenty years. He testified that a forensic engineer’s occupation includes the determination of causation. He also testified in the *Shreck* hearing:

[I]f there [are] some safety features that should have been there or that were there and did not work, or other design

problems, then it's up to the forensic engineer to point this out. Or if there [are] code violations that may have played a role, it's important to point those out.

Chief did not challenge Nelson's testimony to this effect. Further, Chief acknowledged Nelson's expertise in the area of fire causation and origin. Although Nelson had not worked for a manufacturer in the crop drying industry, he had extensive knowledge of mechanical engineering, including the natural gas shutoff valve that he testified likely caused the fire here. Under these circumstances, it was not manifestly erroneous for the trial court to determine that Nelson's testimony would be helpful to the jury, and, therefore, the trial court did not abuse its discretion in allowing him to testify as an expert as to the standard of care in the crop drying industry.

Chief further argues that Nelson testified as to an improper standard of care as to design defects. We disagree.

Chief contends that (1) a design is not defective unless "the magnitude of the danger outweighs the utility of the design," see *Camacho v. Honda Motor Co.*, 741 P.2d 1240, 1246 (Colo. 1987), and (2) a manufacturer may assume that its warnings will be read and heeded, and because Onion Growers did not heed its warning

to procure a strainer, it could not have breached the standard of care. *See Uptain v. Huntington Lab, Inc.*, 723 P.2d 1322, 1326 (Colo. 1986).

Although the source of a standard of care may be a statute or case law, expert witness testimony is generally used to supplement the jury's understanding of the standard of care. *United Blood Servs. v. Quintana*, 827 P.2d 509, 519-20 (Colo. 1992).

Here, Chief had an opportunity to cross-examine Nelson as to his understanding of the proper standard of care. *See Shreck*, 22 P.3d at 78. Furthermore, Chief had an opportunity to incorporate its understanding of the proper standard of care into jury instructions submitted to the court. Accordingly, we conclude that the trial court's decision to allow Nelson to testify regarding the standard of care was not manifestly erroneous.

II. Directed Verdict

Chief next asserts the trial court erred in denying its motion for a directed verdict because Nelson's testimony did not establish that Chief's failure to include a strainer or shutoff valve in its design caused the facility fire. We disagree.

We review de novo a court's ruling on a motion for directed verdict, viewing the evidence in the light most favorable to the nonmoving party. *Brossia v. Rick Constr., L.T.D. Liab. Co.*, 81 P.3d 1126, 1131 (Colo. App. 2003).

Here, Farmland's experts testified that the fire was not set intentionally, that the fire originated in the fan room, and that the fire was ignited by the burner in the crop dryer. Based in part on this testimony, Nelson testified that there was debris upstream from the valve, that certain debris may have prevented the shutoff valve from closing properly, and that, if this were the case, the burner flame would have caused the fire. He also testified that it was the manufacturer's responsibility to include safety equipment in its designs, that Chief had, in fact, included two valves in prior designs, and that it still included a strainer in its propane gas dryer model.

Viewing this evidence in the light most favorable to Farmland, there was sufficient evidence to present the case to the jury, and the trial court did not err in denying Chief's motion for a directed verdict.

We also reject Chief's contention that, as a matter of law, it had a right to expect that the professional installer would heed its warnings and instructions concerning the installation of a strainer, and that the installer's failure to do so is the proximate cause of Farmland's damages.

In making this argument, Chief relies on *Uptain v. Huntington Lab, Inc.*, 723 P.2d at 1326, in which the supreme court adopted Restatement (Second) of Torts section 402(a) comment j, which recognizes that where a warning is given, the seller may reasonably assume that it will be read and heeded. We conclude that Chief's reliance on *Uptain* is misplaced. There, the plaintiff argued that her failure to read certain warnings printed on a label was foreseeable as a matter of law. Rejecting this contention, the supreme court concluded that whether it was foreseeable that a user of a product in question would disregard warnings "was properly reserved for jury determination in this case." *Id.* Similarly, here, the jury heard evidence of Onion Growers' failure to follow the warnings regarding installation of a fuel line strainer and reached the verdict attributing substantial responsibility to Onion Growers.

Contrary to Chief's contention, we conclude that the trial court did not err in denying a directed verdict in its favor based on *Uptain*.

III. Intervening Cause

Chief contends the trial court erred in denying its motion for judgment notwithstanding the verdict because Chief's failure to include a strainer in the produce dryer was not the proximate cause of the fire. It asserts Onion Growers' and the installer's failure to install a strainer as provided by its instruction manual was an intervening cause, precluding Chief's liability. We conclude that Chief waived this issue by failing to raise it in the trial court.

Questions of negligence and proximate cause are issues of fact to be determined by the jury, and we are bound by the jury's findings when there is competent evidence in the record supporting those findings. *City of Aurora v. Loveless*, 639 P.2d 1061, 1063 (Colo. 1981); *see also Morales v. Golston*, 141 P.3d 901, 906 (Colo. App. 2005).

Here, as we noted in part II, there was sufficient evidence that Chief was negligent in failing to include a strainer in its dryer unit.

In addition, the jury was instructed on negligence, causation, and comparative fault.

As proposed by Chief, the instructions included a pattern jury instruction for causation which stated in part:

If more than one act or failure to act contributed to the claimed injury, then each act or failure to act may have been a cause of the injury. A cause does not have to be the only cause or the last or nearest cause. It is enough if the act or failure to act joins in a natural and probable way with some other act or failure to act to cause some or all of the claimed injury.

CJI-Civ. 4th 9:20 (1998). Chief did not request that the optional intervening cause jury instruction be given to the jury. That instruction states:

One's conduct is not a cause of another's injuries, however, if, in order to bring about such injuries, it was necessary that his or her conduct combine or join with an intervening cause that also contributed to cause the injuries. An intervening cause is a cause that would not have been reasonably foreseen by a reasonably careful person under the same or similar circumstances.

Id.

Insofar as Chief now claims that Onion Grower's and the installer's failure to follow the instruction manual and attach a strainer was an intervening cause of the fire, Chief waived this error

by failing to request an instruction as to intervening cause. *See Silverview at Overlook, LLC v. Overlook at Mt. Crested Butte Ltd.*, 97 P.3d 252 (Colo. App. 2004)(argument not presented to trial court will not be considered for the first time on appeal).

The judgment is affirmed.

JUDGE MÁRQUEZ and JUDGE J. JONES concur.