

# IN THE SUPREME COURT OF TEXAS

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No. 03-0526  
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MACK TRUCKS, INC., PETITIONER,

v.

ELIZABETH TAMEZ ET. AL., RESPONDENT

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ON PETITION FOR REVIEW FROM THE  
COURT OF APPEALS FOR THE THIRTEENTH DISTRICT OF TEXAS  
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**Argued October 20, 2004**

JUSTICE JOHNSON delivered the opinion of the Court.

In this truck accident case the trial court excluded expert testimony as to what caused a post-accident fire that burned the truck and the driver. After excluding the expert testimony because it was not reliable, the trial court granted summary judgment. The court of appeals reversed. We hold that the trial court did not err, reverse the court of appeals' judgment, and render judgment that the plaintiffs take nothing.

## **I. Background**

On October 19, 1996, Abram Tamez was operating a Mack Truck tractor hauling a trailer of crude oil. Tamez was rounding a curve in the road when the tractor and trailer overturned. A fire

erupted and burned the trailer, its cargo, and the tractor. Tamez was able to climb out of the tractor, but he was badly burned and died as a result of his injuries.

As a result of Tamez's death, suit was filed<sup>1</sup> against the tractor's manufacturer, Mack Trucks, Inc., and others.<sup>2</sup> The Tamezes alleged that Mack defectively designed, manufactured and marketed the tractor. They claimed that Mack was liable for negligence, gross negligence, strict products liability, breach of warranty, and misrepresentation. All five theories were based on the same complaint: diesel fuel from the truck's fuel system originated the fire that burned Abram Tamez. Specifically, the Tamezes alleged that the tractor had design and manufacturing defects because (1) the fuel system was unreasonably prone to fail and release diesel fuel in an environment conducive to ignition and fire; and (2) the tractor had ignition sources such as hot manifolds and electric batteries in areas likely to contain released flammable fluids. The Tamezes also alleged that Mack failed to provide warnings about the defects.

In connection with its claims against Mack, the Tamezes identified Ronald Elwell as an expert on post-collision, fuel-fed fires. Mack moved to exclude his testimony as unreliable and moved for summary judgment. Mack asserted multiple grounds for seeking summary judgment. Some grounds for its motion were directed at particular plaintiffs, while some grounds were directed at all the Tamezes. One part of Mack's motion directed at all the Tamezes was a Rule 166a(i)

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<sup>1</sup> Elizabeth Tamez filed suit. Elsa Guerrero, Rosendo Tamez, Sr., Dora Tamez, Rosa Elvia Gonzales, Donna Kim Cantu, and Terrie L. Zay intervened. Rosa subsequently nonsuited. For ease of reference all the claimants will be referred to collectively as "the Tamezes" or "the plaintiffs."

<sup>2</sup> Other defendants were Fruehauf Trailer Corporation, Norco Crude Gathering, Inc., Glitsch Canada, Ltd., and Snyder Tank Corp. The claims against those defendants were either nonsuited or settled and were severed from the claims against Mack.

motion urging that the Tamezes could present no evidence that any alleged defects caused the fire. The Tamezes responded to the no-evidence part of Mack's motion, in part, by filing Elwell's deposition and his expert report. They also later submitted Elwell's testimony from a bill of exceptions.

Pretrial matters, including a *Robinson*<sup>3</sup> hearing pursuant to Mack's motion to exclude Elwell's testimony, were scheduled and heard. During the *Robinson* hearing Elwell testified. He expressed the opinion that the fire was started by the tractor's battery, which was located too near the fuel tanks, igniting the tractor's diesel fuel, which in turn ignited the trailer's cargo of crude oil.

The trial court granted Mack's motion to exclude Elwell's testimony as to causation. The Tamezes later moved the trial court to reconsider its decision. The court denied the motion but allowed the Tamezes to have Elwell testify again to create a bill of exceptions.<sup>4</sup> The court signed an order excluding the causation portion of Elwell's testimony from being considered as evidence at any trial or hearing because it was not sufficiently reliable. Mack's motion for summary judgment was granted.

The court of appeals reversed the summary judgment, concluding that the trial court abused its discretion in excluding Elwell's causation testimony,<sup>5</sup> and also concluding that Elwell's testimony

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<sup>3</sup> *E.I. du Pont de Nemours & Co. v. Robinson*, 923 S.W.2d 549 (Tex. 1995).

<sup>4</sup> An offer of proof is sometimes referred to as a bill of exceptions. See TEX. R. EVID. 103(a)(2); TEX. R. APP. P. 33 (comment to 1997 change). As the court of appeals and the parties refer to the offer of proof in this case as a bill of exceptions, we will, also.

<sup>5</sup> After Elwell's expert testimony was excluded by the trial court, the Tamezes obtained testimony from another expert witness, Douglas Holmes. Mack moved to exclude Holmes's testimony, and the trial court orally granted the motion. The court of appeals upheld the exclusion of Holmes's testimony. 100 S.W.3d 549, 559. The Tamezes do not challenge the court of appeals' ruling as to Holmes.

provided some evidence of causation. The court of appeals' opinion indicates that in reaching its decision it considered Elwell's testimony from both the *Robinson* hearing and the bill of exceptions. *See* 100 S.W.3d 549, 556, 559, 561.

Mack urges that the trial court correctly excluded Elwell's testimony on causation, did not abuse its discretion in refusing to reconsider that ruling, and properly granted summary judgment because the Tamezes presented no evidence of causation. Mack asserts, among other matters, that the court of appeals erred by (1) considering Elwell's causation testimony from both the *Robinson* hearing and the bill of exceptions; (2) reversing the trial court's ruling as to admissibility of Elwell's causation testimony; and (3) reversing the summary judgment.

We conclude that the trial court did not abuse its discretion in excluding Elwell's testimony on causation and that the court of appeals erred in considering testimony from the bill of exceptions in evaluating the trial court's exclusion of Elwell's causation testimony. We further conclude that the Tamezes presented no summary judgment evidence of causation and summary judgment was properly granted.

## **II. Elwell's Bill of Exceptions Testimony**

Mack argues that the court of appeals erred by considering testimony admitted only for the bill when it reviewed the trial court's exclusion of Elwell's causation testimony. The Tamezes claim that whether Elwell's bill of exceptions testimony is considered is not relevant because his bill testimony added nothing to his *Robinson* hearing testimony. Further, in their brief and at oral argument the Tamezes disclaim having urged in the court of appeals that the trial court erred in (1) holding a *Robinson* hearing, (2) the manner in which the hearing was conducted, (3) the timing

of the hearing, or (4) denying their motion for reconsideration. Our review of their briefs in the court of appeals confirms the Tamezes' position. They do not contend here either that the bill of exceptions testimony was improperly excluded or that the trial court erred in denying their motion to reconsider.

The purpose of a bill of exceptions is to allow a party to make a record for appellate review of matters that do not otherwise appear in the record, such as evidence that was excluded. TEX. R. APP. P. 33.2; TEX. R. EVID. 103(a)(2); *see also In re Ford Motor Co.*, 988 S.W.2d 714, 721 (Tex. 1998). The court of appeals' opinion indicates that it considered Elwell's bill of exceptions testimony in evaluating the admissibility of his opinions even though the trial court did not. *See* 100 S.W.3d at 556, 559. As one example, the court of appeals referenced Elwell's opinion that at least one of the tractor's side fuel tanks became displaced during the rollover and separated the balance line connecting the two fuel tanks. *Id.* at 557. The court pointed to Elwell's testimony interpreting photographic evidence of steel straps which held the tanks as support for his opinion. *Id.* The referenced testimony as to Elwell's opinion and interpretation of photographic evidence was given as part of his bill of exceptions testimony, but he did not give similar testimony during the *Robinson* hearing.

Except for fundamental error, appellate courts are not authorized to consider issues not properly raised by the parties. *See In the Interest of B.L.D.*, 113 S.W.3d 340, 350-52 (Tex. 2003). We have described fundamental error as those instances in which error directly and adversely affects the interest of the public generally, as that interest is declared by the statutes or Constitution of our State, or instances in which the record affirmatively and conclusively shows that the court rendering

the judgment was without jurisdiction of the subject matter. *See McCauley v. Consol. Underwriters*, 304 S.W.2d 265, 266 (Tex. 1957). The court of appeals did not classify the trial court's refusal to allow the Tamezes to present further evidence and to then reconsider its ruling to exclude Elwell's causation testimony as fundamental error, and neither do we. The court of appeals erred in considering Elwell's causation testimony from the bill of exceptions without having first determined, pursuant to properly assigned error, that the trial court erred in refusing to admit the testimony and reconsider its decision to exclude Elwell's causation opinions. Under the record and issues presented to us, we may not consider Elwell's testimony from the bill of exceptions in determining whether the trial court erred in excluding Elwell's causation testimony. *See Exito Elecs. Co. v. Trejo*, 142 S.W.3d 302, 304 n.1 (Tex. 2004).

### **III. Reliability of Elwell's Testimony**

#### **A. Standard of Review**

An expert witness may testify regarding "scientific, technical, or other specialized" matters if the expert is qualified and if the expert's opinion is relevant and based on a reliable foundation. TEX. R. EVID. 702; *Helena Chem. Co. v. Wilkins*, 47 S.W.3d 486, 499 (Tex. 2001); *Robinson*, 923 S.W.2d at 556. In determining whether expert testimony is reliable, a court should examine "the principles, research, and methodology underlying an expert's conclusions." *Exxon Pipeline Co. v. Zwahr*, 88 S.W.3d 623, 629 (Tex. 2002). When the testimony involves scientific knowledge, the expert's conclusions must be "grounded 'in the methods and procedures of science.'" *Robinson*, 923 S.W.2d at 557 (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 590 (1993)). Otherwise, the testimony is "no more than 'subjective belief or unsupported speculation.'" *Id.*

(quoting *Daubert*, 509 U.S. at 590). We have identified several non-exclusive factors that trial courts should consider when determining the reliability of expert testimony involving scientific knowledge.<sup>6</sup> We recognize that these factors may not apply when testimony is not scientific, but, rather, involves technical or other specialized knowledge. *Gammill v. Jack Williams Chevrolet*, 972 S.W.2d 713, 726 (Tex. 1998). Even then, however, there must be some basis for the opinion to show its reliability. *Id.* An expert’s bare opinion will not suffice. *Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 711 (Tex. 1997). And, there cannot be “too great an analytical gap between the data and the opinion proffered.” *Gammill*, 972 S.W.2d at 726 (quoting *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997)).

A trial court has broad discretion in determining whether expert testimony is admissible. *Zwahr*, 88 S.W.3d at 629. Its ruling will be reversed only if that discretion is abused. *K-Mart Corp. v. Honeycutt*, 24 S.W.3d 357, 360 (Tex. 2000). Because the party sponsoring the expert bears the burden of showing that the expert’s testimony is admissible, the burden of presenting understandable evidence that will persuade the trial court is on the presenting party. *See Robinson*, 923 S.W.2d at 557. When an expert’s “processes” or “methodologies” are obscured or concealed by testimony that is excessively internally contradictory, non-responsive or evasive, a trial court will not have abused its discretion in determining that the expert’s testimony is not admissible. *See GMC v. Iracheta*, 161 S.W.3d 462, 470-72 (Tex. 2005).

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<sup>6</sup> *Id.* (identifying the following considerations regarding reliability of scientific testimony: (1) the extent to which the theory has been or can be tested; (2) the extent to which the technique relies upon the subjective interpretation of the expert; (3) whether the theory has been subjected to peer review and/or publication; (4) the technique’s potential rate of error; (5) whether the underlying theory or technique has been generally accepted as valid by the relevant scientific community; and (6) the non-judicial uses that have been made of the theory or technique).

## B. Reliability Factors

The court of appeals noted that Elwell's testimony largely applied his knowledge, training, and experience to the underlying data and that his methodology was not easily tested by objective criteria such as identifiable scientific formulas. The court of appeals concluded that under such circumstances the reliability of Elwell's opinion is not properly measured by a *Robinson*-factor analysis, but that the "analytical gap" test should be applied. 100 S.W.3d at 555-56.

Mack argues that the court of appeals' analysis is flawed. Mack urges that Elwell's inability to demonstrate at least one of the *Robinson* factors, coupled with his inability to eliminate the crude oil tanker as the source of the fire, rendered Elwell's testimony unreliable. The Tamezes, on the other hand, argue that because Elwell's testimony was based on his training and experience, and not science, application of the analytical gap test, as opposed to use of *Robinson* factors, was appropriate. They contend that Elwell's opinion was reliable because there were no analytical gaps in his testimony. *See Gammill*, 972 S.W.2d at 726.

In *Gammill* we clarified that the list of non-exclusive factors listed in *Robinson* may not be applicable when assessing certain kinds of expert testimony. 972 S.W.2d at 720. We held that *Robinson* factors did not apply to the mechanical engineer expert under consideration in *Gammill*, even though his claimed expertise was scientific in nature. *Id.* at 727. In so holding, however, we did not mean to imply that a trial court should never consider the *Robinson* factors when evaluating the reliability of expert testimony that is based on knowledge, training or experience, or that the factors can only be applied when evaluating scientific expert testimony. We recognized that the criteria for assessing reliability must vary depending on the nature of the evidence. *Id.* at 726.

The United States Supreme Court has noted that it is not possible to “rule out, nor rule in, for all cases and for all time the applicability of the factors mentioned in *Daubert*.” *Kumho Tire v. Carmichael*, 526 U.S. 137, 150 (1999). Nor can the Court “now do so for subsets of cases categorized by category of expert or by kind of evidence,” as “[t]oo much depends upon the particular circumstances of the particular case at issue.” *Id.* In *Robinson* we likewise explained that the factors mentioned do not constitute an exclusive list and that the trial court’s gatekeeping inquiry will differ with each particular case depending on the “[t]he factors a trial court will find helpful in determining whether the underlying theories and techniques . . . are scientifically reliable.” *Robinson*, 923 S.W.2d at 557. Thus, a trial court should consider the factors mentioned in *Robinson* when doing so will be helpful in determining reliability of an expert’s testimony, regardless of whether the testimony is scientific in nature or experience-based. *See Kumho Tire*, 526 U.S. at 139; *Gammill*, 972 S.W.2d at 726.

In determining reliability, the trial court “should undertake a rigorous examination of the facts on which the expert relies, the method by which the expert draws an opinion from those facts, and how the expert applies the facts and methods to the case at hand.” *See Amorgianos v. Amtrak*, 303 F.3d 256, 267 (2d Cir. 2002). A significant part of the trial court’s gatekeeper function is to evaluate the expert’s qualifications, listen to the testimony, view the evidence, and determine which factors and evaluation methodology are most appropriate to apply. For example, in the present case the trial court would have been within its discretion to measure the reliability of Elwell’s testimony, at least in part, by considering (1) the extent to which Elwell’s theory had been or could be tested; (2) the extent to which his methodology relied upon his subjective interpretation; (3) the

methodology's potential rate of error; (4) whether the underlying theory or methodology has been generally accepted as valid by the accident reconstruction and post-collision fire investigation community; and (5) the non-judicial uses that have been made of his methodology. These are similar to factors 1, 2, 4, 5 and 6 of those enumerated in *Robinson*. But, as we have said above, that is not to imply that the trial court was precluded from measuring Elwell's methodology by *Gammill's* analytical gap analysis.

### **C. Elwell's Causation Testimony**

At the *Robinson* hearing, Elwell testified that the fuel and battery system on the tractor were designed improperly, and suggested safer designs. He criticized the placement of the fuel tanks and also of the batteries'<sup>7</sup> proximity to the fuel tanks. He criticized certain parts of the fuel system such as the crossover or "balance line" hose between the two fuel tanks and the spigots by which the hose was attached to each of the tanks. He referenced a particular report, which was not introduced, which he asserted supported his design critiques and his suggested safer designs.

Elwell's analysis and conclusion that the fire began with the fuel system and the battery system were based on the "fire triangle" theory. He explained that under the fire triangle theory, a post-collision fuel-fed fire such as the one under consideration must be analyzed with an eye toward the ignition, fuel, and oxygen sources that were available. Because the air provided oxygen, his analysis centered on the other parts required to complete the triangle, "the source of fluids that could

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<sup>7</sup> The record is not clear whether the tractor had one battery or two.

be ignited and what would it take to ignite those fluids and fuel, of course, is the primary suspect, either fuel or crude oil in this particular case.”

He did not testify that he inspected the remnants of the burned tractor and trailer or that he performed or reviewed any accident reconstruction analysis as to how the rollover occurred and how different parts of the vehicle would have been affected or harmed thereby. His *Robinson* hearing testimony did not identify a particular alleged defect of the tractor’s fuel system that he concluded was the source of a diesel fuel leak that initiated the fire.

On cross-examination he testified that he had read and relied on “over 5,000” studies on the subject of the causes of post-collision fuel-fed fires. He did not specify any studies that supported his conclusion as to the specifics involved in the accident, and none were offered as evidence for the trial court to consider in evaluating his testimony.

In coming to his conclusion that the fire began with the fuel system and battery system of the tractor, Elwell asserted that he relied on several specific factors and facts. Each of the factors and facts he enumerated supported conclusions that Tamez was burned by diesel and that the diesel ignited so quickly that Tamez could not escape.

Even assuming that what Elwell relied on and classified as “factors” and “facts” were true, however, which Mack denies, the factors and facts are merely consistent with diesel fuel having been released during the rollover and Tamez having been burned by part of the fire fed by the tractor’s diesel fuel. They are not probative evidence that diesel fuel was released because of one of the asserted defects in the fuel system or that it was ignited by the battery system. He did not testify to having analyzed, tested, or investigated the characteristics of batteries like the battery in the wrecked

tractor to support his opinion that the battery system was involved in causing the fire. He failed to set out any process by which he excluded other sources for ignition of the diesel fuel such as mechanical sparks which could be generated when parts of a truck make contact with the pavement, or ignition of the cargo fuel which in turn could have ignited the diesel fuel. *See Gammill*, 972 S.W.2d at 728; *see also Robinson*, 923 S.W.2d at 559 (noting that an expert who is trying to find a cause of something should carefully consider alternative causes). For example, when Elwell was asked during the *Robinson* hearing why he concluded that the fire originated with the fuel and battery systems instead of with the crude oil cargo, his response was that “if [crude oil] remains to be burned, that after five or ten or fifteen minutes, then that’s not the fuel that started the fire.” He did not explain any investigation or research that supported such a conclusion. He did not elaborate on the amount of crude that was in the trailer when the wreck occurred, calculate the amount of time it would take the cargo to burn, or discuss or compare the relative ease of ignition or flash points of the crude and diesel fuel. He did not address any analysis or process by which he concluded that some part of a trailer of crude oil would continue to burn for several minutes only if it was ignited by, rather than being the ignitor of, diesel fuel from the tractor’s fuel system.

In sum, Elwell did not testify at the *Robinson* hearing to a methodology by which he reached the conclusions as to the fire having been caused by defects in the tractor’s fuel and battery systems. In order for Elwell’s testimony on causation to be reliable, he was required to present some methodology that reliably supported his opinions that the “fuel” and “ignition” parts of the fire triangle were supplied, respectively, by the tractor’s alleged fuel system defects and battery system.

He did not do so. The mere fact that the fuel system had a design that could cause the hoses to separate is not evidence that the hoses separated in this case.

Elwell's testimony did no more than set out "factors" and "facts" which were consistent with his opinions, then conclude that the fire began with diesel fuel from the tractor. The reliability inquiry as to expert testimony does not ask whether the expert's conclusions appear to be correct; it asks whether the methodology and analysis used to reach those conclusions is reliable. *Kerr-McGee Corp. v. Helton*, 133 S.W.3d 245, 254 (Tex. 2004). The trial court was not required to accept his opinions at face value just because Elwell was experienced in examining post-collision fuel-fed fires. *See Gammill*, 972 S.W.2d at 726 (holding that a court should not admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert).

We conclude that the trial court did not abuse its discretion when it excluded Elwell's testimony on causation. The court of appeals erred when it determined otherwise.

#### **IV. The Summary Judgment**

Mack moved for summary judgment on multiple grounds, including the ground that there was no evidence Mack's fuel system design was a producing or proximate cause of Tamez's injuries. The Tamezes contend that even without Elwell's testimony as to causation, they presented sufficient evidence to survive summary judgment.

##### **A. Standard of Review**

A summary judgment motion pursuant to TEX. R. CIV. P. 166a(i) is essentially a motion for a pretrial directed verdict. *See Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 711 (Tex. 1997). Once such a motion is filed, the burden shifts to the nonmoving party to present evidence

raising an issue of material fact as to the elements specified in the motion. *Id.*; *W. Invs., Inc. v. Urena*, 162 S.W.3d 547, 550 (Tex. 2005). We review the evidence presented by the motion and response in the light most favorable to the party against whom the summary judgment was rendered, crediting evidence favorable to that party if reasonable jurors could, and disregarding contrary evidence unless reasonable jurors could not. *See City of Keller v. Wilson*, 168 S.W.3d 802, 827 (Tex. 2005); *Johnson v. Brewer & Pritchard, P.C.*, 73 S.W.3d 193, 208 (Tex. 2002).

### **B. Causation**

Producing or proximate cause is an element of all of the Tamezes' claims, which included negligence, misrepresentation, breach of warranty, and design, manufacturing, and marketing defects. Causation-in-fact is common to both proximate and producing cause, including the requirement that the defendant's conduct or product be a substantial factor in bringing about the injuries in question. *See Union Pump Co. v. Allbritton*, 898 S.W.2d 773, 775 (Tex. 1995).

All the Tamezes' theories regarding the fire's cause were based on allegations that the tractor's fuel system was defectively designed and manufactured so as to be unreasonably prone to fail and release flammable fluids in an environment conducive to ignition and fire; that such defects caused the release of diesel fuel; and that a defectively designed and placed ignition source then caused ignition of the released diesel.

To survive summary judgment on their theory that a defect in the tractor's fuel system was the cause of the fire, the Tamezes were required to present more than evidence of a fuel leak. *See Ford Motor Co. v. Ridgway*, 135 S.W.3d 598, 600-01 (Tex. 2004) (affirming summary judgment because the plaintiffs' evidence "establishe[d] only that a fire occurred, and [the plaintiffs' expert]

could say no more than that he ‘suspects’ the electrical system caused the fire”). They had to present evidence that (1) the diesel fuel leaked because of one or more of the alleged defects, and (2) the leak caused by the defect was the ignition point for the fire. *See Iracheta*, 161 S.W.3d at 470 (holding that the possibility that the fire occurred in the manner the plaintiff suggested is not enough to support the jury’s findings); *Nissan Motor Co. v. Armstrong*, 145 S.W.3d 131, 137 (Tex. 2004).

The Tamezes point to several parts of their summary judgment evidence that they say are sufficient, individually or collectively, to defeat summary judgment: (1) an accident witness’s “personal assumption,” based on his averred experience with and ability to recognize the smell of diesel fuel, that Tamez was burned by diesel fuel because Tamez was coated with a shiny, oily substance and did not smell like crude oil; (2) a notation by Mack’s accident reconstruction expert noting a diesel fuel spill on the road; (3) a statement by Elwell that the design of the system was such that if there was any significant dislodgement of the fuel tanks, the fuel line would separate;<sup>8</sup> (4) a statement by Mack’s expert witness that it was possible that a battery cable found in the tractor had arced and ignited the fire, although the witness ultimately concluded that the crude-oil cargo caused the fire; and (5) an eyewitness’s statement implying that it took the fire a short period of time to reach Tamez, who exited and crawled away from the tractor after the accident.

Proof other than expert testimony will constitute some evidence of causation only when a layperson’s general experience and common understanding would enable the layperson to determine from the evidence, with reasonable probability, the causal relationship between the event and the

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<sup>8</sup> Elwell’s testimony on design defect, as opposed to his testimony on causation, was not excluded.

condition. Expert testimony is required when an issue involves matters beyond jurors' common understanding. *See Alexander v. Turtur & Assocs.*, 146 S.W.3d 113, 119-20 (Tex. 2004). Whether expert testimony is necessary to prove a matter or theory is a question of law. *See FFE Transp. Servs., Inc. v. Fulgham*, 154 S.W.3d 84, 89 (Tex. 2004). In *Fulgham* we held that expert testimony was necessary to establish the standard of care for connecting refrigerated trailers to tractors and for the frequency and type of inspection and maintenance of such connectors, because those matters were not within the general experience and common understanding of laypersons. *Id.* at 91; *See also Turbines, Inc. v. Dardis*, 1 S.W.3d 726, 738 (Tex. App.—Amarillo 1999, pet. denied) (holding that performance of mechanical work on turbine aircraft engines is not within the experience of a layperson).

A lay juror's general experience and common knowledge do not extend to whether design defects such as those alleged in this case caused releases of diesel fuel during a rollover accident. *See Nissan Motor Co.*, 145 S.W.3d at 137 (stating that we have consistently required competent expert testimony and objective proof that a defect caused the condition complained of). Nor would a lay juror's general experience and common knowledge extend to determining which of the fire triangle's fuel sources, diesel from the tractor or crude from the tanker, would have first ignited, or the source for the first ignition. That part of Elwell's testimony that was properly before the trial court and the testimony of other experts as to the amount of time they spent in studying, investigating, and working in the field of post-collision, fuel-fed fires demonstrated the intricacies of such subject matter. Issues such as those regarding the fire's cause(s) present matters beyond the

general understanding and common knowledge of lay jurors. Proof of causation in this case also required expert testimony.

The summary judgment evidence presented by the Tamezes did not contain proof that any of the possible sources of diesel fuel was more likely than any other, or more likely than the crude oil cargo, to have been the source of liquids that first caught fire. Accordingly, there is no evidence that the source was one of the alleged fuel system defects. *Kindred v. Con/Chem, Inc.*, 650 S.W.2d 61, 63 (Tex. 1983).

The Tamezes also alleged that several ignition sources were located in areas likely to contain diesel that would be released in a wreck. The Tamezes point to expert testimony that an arced battery cable found in the tractor could possibly have ignited the fire. But, testimony that the battery or its cable could possibly have ignited the fire is not evidence that it probably did so. The expert who provided this testimony could not determine whether the cable arced before the fire was ignited or as it was being burned by an otherwise-ignited fire. As proof of what caused the fire, such evidence is speculative and is insufficient to prevent summary judgment. *See Wal-Mart Stores, Inc. v. Gonzalez*, 968 S.W.2d 934, 936 (Tex. 1998).

The plaintiffs also rely on circumstantial evidence suggesting that the fire quickly reached Tamez. That evidence is consistent with the Tamezes' theory that the fire originated with fuel from the tractor's diesel fuel system. But, such evidence does not make it more likely than not that the battery or some other allegedly improperly located ignition source ignited diesel from the tractor, as opposed to other possible sources of ignition such as the cargo of crude oil. Accordingly, the circumstantial evidence is not sufficient to prevent summary judgment. *Id.*

## V. Conclusion

The plaintiffs produced no evidence that the alleged defects of the Mack tractor were a cause-in-fact of injuries to Abram Tamez. Because causation is a required element of each of the Tamezes' claims, the trial court properly granted summary judgment. Accordingly, we reverse the court of appeals' judgment and render judgment that the plaintiffs take nothing.

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Phil Johnson  
Justice

**OPINION DELIVERED:** October 27, 2006