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Consistent Evidence Involving Engineering Issues

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It goes without saying that an engineering expert can be instrumental in establishing the evidence necessary to prove a case where complex technical issues are involved. In many cases, the expert is not only helpful, but his or her testimony is legally required to meet the plaintiff's burden of proof. This is why it is so important to present experts who will survive scrutiny under the *Daubert* analysis. Without them, there is no case. Much has been written about the *Daubert* line of cases and all that is required to comply with the relevance and reliability standards stated therein. However, one of the most obvious components of the equation is rarely stated head on: the expert's opinion must be consistent with the rest of the evidence presented in the case. Not only must the expert's opinion be reasonably based upon the facts of the case as presented with factual evidence, but the opinions of various experts must be consistent with each other – both with respect to the conclusions reached, as well as the methods utilized to form the opinions. This goes to the heart of the credibility of all experts. And despite the fact that judges are not supposed to judge the credibility of experts, the reality is that credibility has become the heart of admissibility too.

A. The Opinion Must Fit the Facts

It is axiomatic that an expert's opinion cannot be based upon sheer speculation. While an expert's opinion may be based on certain assumptions, those assumptions must

be supported by the facts. For example, in *State Farm Fire and Casualty Co. v. Holmes Products*, 165 Fed. Appx. 182 (3rd Cir. 2006), the court refused to allow State Farm's expert to testify as to the cause of a fire because the evidence did not support the basis for his conclusions. Specifically, the expert opined that a defective halogen lamp came in contact with the draperies igniting them. However, because the draperies were located over a foot away from the lamp, the expert had to come up with an explanation for how they got close enough to the lamp to cause a fire. He hypothesized that the homeowners' dog might have accidentally pulled the draperies over the lamp or knocked or tilted the lamp into the draperies. Still, he conceded that the lamp might have remained standing, and another of State Farm's experts testified that in his opinion the lamp remained upright throughout the fire. The court found there was no factual support for the hypothesis that the dog caused the fire. Although he had eliminated all but the possible contact of the draperies with the lamp as a source of the fire, the jury could not conclude that *possibility* was the *probable* cause of the fire.

State Farm failed to present sufficient facts indicating how the defective halogen lamp, which could only ignite materials located within one or two inches of the lamp's bulb, could have ignited the living room draperies that were one and one half to two feet from the lamp. Because of the lack of evidence "bridging the gap" from the draperies to the defective halogen lamp, the Court concluded that "a jury could only speculate as to whether the fire was caused by the lamp.

Not only did the opinion fail to bridge the credibility gap, it was also inconsistent with State Farm's other expert. This combination was fatal to the admissibility of the opinion.

The *Holmes* case and the somewhat speculative nature of the expert's conclusions can be compared to the fire expert's admissible opinions in *Hickerson v. Pride Mobility Products Corp.*, 470 F.3d 1252 (8th Cir. 2006). The plaintiff's fire expert, Mr. Schoffstall, determined that a motorized scooter manufactured by the defendant could not be excluded as the source of a fire. The point of origin of the fire was not in dispute. In an effort to discredit Schoffstall's methodology and "speculative" conclusions, the defendant's experts had identified other "energized" appliances in the living room that could have been the source, and further pointed out that the plaintiff was a smoker. These facts did not preclude Schoffstall's conclusion, however, as the evidence was that the plaintiff tended to smoke in another room in the house, and none of the appliances were located in the area determined to be the origin of the fire. "Based on the identification of a point of origin and the elimination of other possible causes, it is permissible for Mr. Schoffstall to testify as to the point of origin and to explain that he inferred through process of elimination that the PowerChair was the cause of the fire." 470 F.3d at 1257-1258.

B. The Conclusions of All Supporting Experts Must Be Consistent

It is customary in a catastrophic injury case involving complex technical issues to present multiple experts to establish various aspects of the claim. A common example is in the seatbelt failure scenario. A materials expert may be able to testify that the belt fibers demonstrate stressing of the belt from abnormal loads. However, you would not be able to prove that a failure in the belt caused the plaintiff to be ejected unless there was also proof that the plaintiff was wearing his belt at the time of the accident. For that, a physician may testify regarding the "seatbelt burn" on the plaintiff's body. Or, a

biomechanics expert may testify that based upon his examination of the vehicle and the plaintiff, the injuries are most consistent with the plaintiff having been belted at the time of impact. The foundation for both of those opinions must similarly be consistent. For example, if the physician notes the burns on the patient's left collarbone, but the biomechanical engineer basis his opinion upon the fact that that the dermal injuries were on the victim's shoulder, one or the other of the opinions will likely be considered faulty because of the internal factual inconsistencies among the proponent's experts

Fortunately, each expert is evaluated on his own individual methodology and conclusions, as they relate to his own area of expertise, and the opinions of various experts can build upon each other, and a consistently interpreted set of facts, like pieces of a puzzle to establish a theory of liability. *Westfield Insurance Co. v. J.C. Penney Corp.*, 466 F.Supp.2d 1086 (W.D. Wisc. 2006) is another fire case, where three experts worked together to establish the cause of the fire. The first expert, Halverson, was retained to conduct a cause and origin investigation. He inspected the scene, interviewed the residents and the fire crew, and noted that evidence of flames was limited to one room. Based on this information, along with burn and heat patterns, he identified the couch and adjacent table on which a lamp was sitting as the area of origin. He testified that the cause of fire was a failure of either a lamp sitting on the table or its service cord. He did not conduct any testing of the lamp, cord or extension, or provide any opinion concerning a defect in the product. He deferred to Hansen, the electrical engineer, regarding the mechanical issues.

Hansen, in turn, testified regarding the electrical arcing in the lamp's power cord that was "consistent with it having failed in a manner causative of the fire." He further

testified that he had eliminated other potential causes. Hansen did not identify specifically why an electrical cord bending over a tabletop causes mechanical stress or why mechanical stress would be likely to cause arcing. Nor did he perform any “arc mapping” of the cord, because he saw only one arc on the cord and mapping is appropriate only where there is evidence of multiple arcs.

Finally, another electrical engineer, Korinek, was asked to review the evidence and determine whether Hansen’s report was consistent with that evidence. He prepared an arc map, which showed that arcing occurred in the same area of the cord that Hansen had identified as the problem. Korinek, too, identified the cord as the likely source of the fire, after excluding other possible sources. Korinek could not identify the precise defect in the lamp cord that caused the arcing, but he concluded the defect was either damage to the insulation or improper placement of the conductors.

The court accepted Halverson’s testimony on the origin of the fire, over the defendants’ objection that he was not an engineer and had conducted no testing. “Halverson need not be an expert about every aspect of this case in order to provide relevant expert testimony about a particular issue.” 466 F.Supp.2d at 1094. The defendants also objected to engineer Hansen’s failure to do sufficient testing; however, the court rejected the defendant’s claims that his opinion was too speculative. “[I]f defendants were correct, anytime there were several legitimate explanations for an occurrence, no expert would be able to testify about any of them. This cannot be the correct result.” Finally, with respect to Korinek, the court noted that he conducted precisely the tests that the defendants had faulted Hansen for not performing. Thus, these must be the correct tests. And, although Korinek was not able to specify which of two

possibilities actually caused the arc, this did not prevent him for testifying that the cord was defective.

Keep in mind, however, that while each expert's opinions may build upon the conclusions of another expert, the opinion of one expert cannot go beyond his area of expertise, or be based solely on the findings or theories of another witness. Each professional must evaluate the facts independently to come up with consistent findings. This, of course, was the primary problem with the plaintiff's experts in *Weisgram v. Marley*, 528 U.S. 440, 1205 S.Ct. 1011 (2000).¹ In *Weisgram*, the opinions of several of the plaintiff's fire experts who had been allowed to testify at trial, were found to be unreliable by the appellate court, and the verdict was reversed. The first expert was erroneously allowed to testify to matters not within his area of expertise, and give opinions unsupported by the facts.

While Freeman was qualified [as an expert in fire investigation] to testify that he thought the fire originated in the area of the baseboard heater, we think the court abused its discretion when it permitted Freeman to "run away" with his own unsubstantiated theories . . . Freeman's qualification as a fire investigator did not give him free rein to speculate before the jury as to the cause of the fire by relying on inferences that have absolutely no record support.

Weisgram, 169 F.3d 514, 519 (8th Cir. 1999). The second expert improperly based his opinions on the shaky conclusions of Freeman, and, not surprisingly, reached the same results. Within days of the fire, Freeman told Dolence that the fire appeared to have

¹ The facts of the case and the testimony of the experts is more fully set out in the Eight Circuit's Opinion. 169 F.3d 514 (8th Cir. 1999).

originated in and around the baseboard heater. Dolence himself never went to the scene, but based his conclusion on the observations of Freeman. The basis for his theory was that every other cause was ruled out -- by Captain Freeman. The last expert, a metallurgist, in turn based his opinions in large part on information related to him by Dolence. As such, his opinions were similarly faulty. *See also Firestone v. Florida Power & Light Co.*, 2006 WL 267330 (S.D. Fla. 2006). We therefore learn from *Weisgram* that even though there is consistency among the experts, the foundations for the subordinate opinions must be consistent with the facts of the event of the entirety of the opinions that build from that foundation falls like a house of cards.

Fortunately, because the reliability of each expert is evaluated independently, the exclusion of one expert is not necessarily fatal to others proffered in the case. In fact, a portion of an expert's opinions can be excluded without the entirety of the expert's testimony being barred. *E.g. Small v. General Motors Corp.*, 2006 WL 3332989 (D. Me. 2006) (defendant's challenges to two of plaintiff's experts denied, and as to the third, the court excluded only one of several opinions offered); *Ruminer v. General Motors Corp.*, 2006 WL 287945 (E.D. Ark. 2006)(biomechanics expert could testify regarding occupant kinematics and the fact that plaintiff's injuries were consistent with seatbelt use; however, she could not testify that the seatbelt system failed).

C. Follow the Paper Trail

It is also important for an expert to testify consistently from one case to another. Certainly, if an expert has testified previously in a factually similar case but has reached a contrary conclusion, this will not bode well for establishing that his or her opinions in the present case are reliable. However, simply because an expert has not been accepted in

one court should not mandate exclusion in another. Because various courts apply the standards for admitting expert testimony differently, and the facts in each case are different, an expert may be permitted to testify, or excluded, for reasons that do not justify universal application of that ruling. Nevertheless, it can be extremely helpful when the expert has been permitted to testify in prior similar cases, if for no other reason than to demonstrate his qualifications. *E.g. Lauzon v. Senco Products, Inc.* 169 F.3d 514 (8th Cir. 1999) (“Kelsey has also testified as an expert in numerous other cases involving injuries resulting from the use of pneumatic air guns. Instead of detracting from reliability, this fact, coupled with Kelsey's testing and subsequent analysis in the present case, provides more than sufficient evidence to find that this factor weighs heavily in favor of admitting the testimony of Kelsey as an expert witness.”)

Conversely, simply because an expert's testimony is admissible in one case regarding a particular theory does not protect the expert from exclusion in another case where that same theory is espoused. This is because the facts are never identical. For example, compare *Green v. General Motors Corp.*, 709 A.2d 205 (N.J. App. 1998)(expert permitted to offer alternative design for a T-Top Camaro), with *Zaremba v. General Motors Corp.*, 360 F.3d 355 (2nd Cir. 2004)(expert was not allowed to testify about an alternative design for a Trans Am). In the *Zaremba* case, the court emphasized that the situation involved a roll over and occupant ejection, where the *Green* case did not.

D. Internal Consistencies in Testimony

One of the simplest ways to criticize an expert's opinions is to demonstrate how they change in the course of the litigation. While opinions can evolve, and an expert can

expound upon opinions based on new and different evidence, an opinion on any given theory should not change full circle. For example, in *Comer v. American Elec. Power*, 63 F.Supp.2d 927 (N.D. Ind. 1999), the defendant challenged the plaintiff's expert on a number of grounds, including because of "glaring temporal discrepancies" between his deposition and trial testimony. The court concluded that the discrepancy revealed that he did not have any particular fact or observation on which to base his testimony, but instead was only told what to believe, and determined that his opinion was "generally lacking in factual support, sometimes inexplicably contradictory, and occasionally devoid of any plausible rationale." Nevertheless, the fact that an expert's theories have changed, alone, is not sufficient to challenge the opinions ultimately given. *See, e.g., Derienzo v. Trek Bicycle Corp.*, 376 F.Supp.2d 537 (S.D.N.Y. 2005)(defendant's criticisms of the expert's abandoned theories did not warrant exclusion of opinions proffered in report eventually submitted).

E. No Double Standard

In *Kumho Tire*, the Court emphasized that the expert's opinion must be formulated with "the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). This is a phrase that is often quoted in cases addressing the *Daubert* inquiry and is applied in very general terms. However, it has a specific meaning to the effect that an expert's opinions at trial must conform to the work he or she does in the classroom, lab, shop or wherever he or she works. Thus, an expert cannot apply a methodology in reaching an opinion in the context of litigation that is inconsistent with his or her general practice. Again, consistency is shown to be a critical factor in admissibility.

If the expert testifies as to what should be done in the analysis, by all means make sure the expert's work in your case is actually consistent with that methodology. Not surprisingly, in *Hammond v. Coleman*, 61 F.Supp.2d 533 (S.D. Miss. 1999), the court picked up on a lack of consistency where the engineering expert testified that the first thing he would do is check the air pump in his usual practice but then he agreed that he made no attempt to do so in this instance where he was serving as an expert in litigation. Although the expert was clearly qualified to conduct a proper engineering analysis, and knew how to do it; his testimony concerning a defect in the lantern at issue was completely unreliable because he had done none of the work necessary to establish a proper opinion. That is to say, if the expert's analytical technique for litigation is inconsistent with his professional habits, there will be an uphill battle to have that testimony admitted for consideration by the jury.

In conclusion, the necessity of consistency as a component of your Daubert analysis cannot be overemphasized. Consistency with the physical facts of the event, consistency among your experts, consistent opinions from case to similar case by your experts, and consistent application of methodology by the expert in his professional and litigation activities.