Admissibility of Fire Origin and Cause Opinions

2016 Year in Review

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2016 produced a variety of court decisions that emphasized the continuing adoption of NFPA 921 *Guide for Fire & Explosion Investigations* as the measure by which judges across the country decide the reliability and admissibility of origin and cause opinions of fire investigators in civil and criminal cases. Challenges to experts' opinions on both sides of a case, through motions *in limine* or motions to exclude, have now become routine in fire cases. Here, we report on those decisions handed down in 2016.

South Carolina – Origin and cause opinion allowed in severe burn case

In *Marshall v. Lowe's Home Centers, LLC*, No. 4:14-CV-04585-RBH, 2016 WL 4208090(D.S.C. Aug. 10, 2016), a products liability case, each side sought to exclude the opinions of the other's experts in a case involving severe burns allegedly caused by a propane tank top heater. The plaintiff had stopped briefly in front of the heater. Her clothes ignited causing 40% body burns. One of plaintiff's experts investigated the fire and a second expert conducted tests to determine whether temperatures in the vicinity of the heater were high enough to ignite clothing of the type worn by the Plaintiff. Defendants attacked the first expert's opinion arguing that it was based only on information obtained from the plaintiff who had no specific recollection of events. Citing NFPA 921, the court noted that an interview of an eye witness is a permissible and recommended methodology in fire investigation. It found that it was proper and necessary for the expert to interview the plaintiff—the sole witness to the fire—in order to form his conclusions as to the cause and origin of the fire. It also noted that the expert had inspected, photographed and diagramed the fire scene and inspected the plaintiff's clothing and the heater. Plaintiff's second experts' temperature testing was also attacked by the defendants. The court noted that the testing was conducted in accordance with NFPA 921 and enabled the expert to develop his hypothesis that the temperatures present at or near the heater were capable of rapidly igniting cloth materials. The court found that the proposed testimony satisfied the reliability prong of the *Daubert* test. It denied the defendants' motion to exclude both experts.

Louisiana – Appeals court upholds admission of investigator's opinion

The buyer of a used tractor and his insurer brought suit against the

manufacturer and servicer of the unit in *Ryan v. Case New Holland, Inc.*, Case No. 51,062, 2016 WL 7407418(La. App. 2 Cir. Dec. 22, 2016) when the tractor caught fire after being power washed and returned to a barn. The tractor had a history of electrical problems prior to sale and continued to need electrical repairs prior to the fire. The buyer's expert, a certified fire and explosion investigator, opined that the fire originated at the starter cables where the cables pass between the battery and the exhaust pipe on the lower right side of the tractor. He stated the probable cause of the fire was a manufacturing defect in which the routing of the starter cables was too close to a hot surface, which resulted in the melting of the insulation between the two conductors of the tractor. Before trial, defendants sought to exclude the opinion of the investigator but the trial court denied their motions. The jury returned a verdict in favor of the buyer and the manufacturer appealed, arguing that the investigator had no factual or scientific bases for his opinion. The court of appeals found no error in the admission of his testimony, noting that the expert detailed his methodology for determining the cause of the fire, specifically the NFPA 921 method.

Rhode Island – Investigator's methods found sound and reliable

In *United States v. Saad*, Case No. 16-035-M, 2016 WL 7031546(D.R.I. Dec. 1, 2016), Daniel Saad was charged with arson after a fire that destroyed his business. Prosecutors sought to introduce testimony from an investigator who had conducted an on-scene investigation and collaborated with an electrical engineer and state fire marshals. Samples taken at various points around the building revealed the presence of gasoline. The defendant argued that there had been one or more gasoline generators in or around the building and that the samples taken had been contaminated. One of the positive samples had been taken from inside a pellet stove. Noting the government's assertion that the investigator had followed NFPA procedures, the court found that his testimony was grounded on sound, reliable methods and denied the defendant's motion to exclude.

Texas – Negative corpus argument rejected

Raymond Johnson was convicted by a jury of setting a fire at the home of his ex-girlfriend. On appeal, in *Johnson v. State*, No. 14-15-00834-CR, 2016 WL 7018204 (Tex. App. Dec. 1, 2016), Johnson sought a new trial claiming that his conviction was based on "flawed science" and negative corpus methodology. At the time of the fire, responders noticed a heavy smell of gasoline along the side of the home. They believed there were multiple points of origin. A canine unit alerted at several locations at the scene. Of five samples taken at the scene, four tested positive for gasoline. A fire marshal's investigator examined the scene for accidental and natural causes and found none. She also detected gasoline odors and distinct separate, points of origin. The court reviewed the negative corpus provisions of NFPA 921 (2014 Ed.) and its requirement that a fire be classified as undetermined in the absence of supporting evidence for a cause. Johnson argued that he received ineffective assistance of counsel because his appointed attorney had not objected to the origin and cause opinion. The court disagreed, noting that there was affirmative evidence to support a conclusion that the fires were intentionally set, namely the smell of gasoline and separate points of origin.

Louisiana – Opinion disallowed in boat fire case – electrical cause not shown

When a fire erupted on a pleasure boat causing a total loss, the owner and his insurer brought suit against the boat's manufacturer alleging that the cause had been an electrical malfunction in corroded wiring. Plaintiffs offered the opinions of a fire investigator and an electrical engineer. The manufacturer attacked the engineer's opinion and argued that it did not comply with NFPA 921. In *Atl. Specialty Ins. Co. v. Porter, Inc.*, Case No. CV 15-570, 2016 WL 6126062(E.D. La. Oct. 20, 2016), the court endorsed NFPA 921 as the generally accepted methodology for fire investigation and described its discussion of electrical fires at length. The engineer hypothesized that due to water ingress, a pigtail electrical connector corroded to the point that it caused a short circuit, which energized circuits with no circuit breaker protection. He based his opinions on his analysis of the boat's electrical system and his personal observations of the pigtail connection, the wiring harness, and other conductors, which revealed evidence of electrical activity and damage. Nevertheless, the court found two fatal flaws in his conclusion – lack of critical data and lack of testing. The court found that the engineer's report never identified when the short circuit occurred, the magnitude and duration of the current generated by the short circuit, or the amount of energy created and the temperature generated. His report acknowledged that he never identified the specific connector or conductor that failed, the devices that "may have been involved," or "whether or not the ground circuit was involved." Nor did he determine the relationship between the pigtail connector and the wiring harnesses routed through the fire origin area. The court held that without this data, the engineer's theory was only a "possibility rooted in speculation." It found that the electrical activity observed was at best equally consistent with being the cause of the fire and an effect of the fire. The court went on to criticize the expert's failure to test his hypothesis, cite scientific research, or refer to any calculations or models he used to test his theory. [Ed. note – The court cited cases from Ohio, Indiana and Mississippi in which failure to test was a basis for exclusion of an expert's testimony. As will be seen, not all courts require that an opinion be supported by specific testing.]

Puerto Rico – Opinion allowed in explosion suit despite lack of testing

An apartment tenant died of injuries and burns when a 2010 explosion occurred in her unit. Her estate filed suit against the building owner and manager. Defendants sought to exclude the opinion of plaintiff's fire expert, an engineer, on the basis that he failed to follow his established practices in an explosion investigation. In *Situ v. O'Neill*, Case No. CV 11-1225, 2016 WL 3360489(D.P.R. June 16, 2016), the court reviewed the engineer's investigation and testing of the stove and gas cylinders from the kitchen. Noting that he was hampered in his investigation by overhaul, removal of gas lines, and renovation of the apartment, the engineer ultimately located the gas lines he felt were led to a gas leak underneath a bed. He excavated and found the gas line, but did not test it. Defendants argued that this failure to test rendered his opinion unreliable. The court disagreed. It found that the engineer's reports established his theory of causation in a sufficiently reliable manner. It held that any lack of testing would go to the weight, but not the admissibility, of his testimony.

Pennsylvania – Expert's careless smoking theory admissible

Allstate Insurance brought suit against the tenant of a rental home and her grandson after a fire originating in the basement caused extensive damage. The grandson, who lived in a basement room, acknowledged that he was smoking in the room and had put his cigarette out in a soda can before breakfast. The fire was discovered after breakfast. Allstate's expert examined the electrical items in the area of origin, including the electric baseboard heater next to the bed. He performed tests on an exemplar heater to determine whether nearby clothing items could have been ignited by the heater and concluded that the heater could not reach temperatures sufficient to ignite most clothing. After researching the ability of cigarettes to ignite cotton and other materials, he determined that the fire was likely caused by careless disposal of smoking materials. In *Allstate Ins. Co. v. Anderson*, Case No. CV 15-2651, 2016 WL 2939506(E.D. Pa. May 20, 2016), amended, No. CV 15-2651, 2016 WL 2997675(E.D. Pa. May 23, 2016), the defendants argued that the investigator failed to resolve inconsistent data by accepting the grandson's contention that he was smoking shortly before the fire but rejecting his statement that he disposed of the cigarette in a soda can. Defendants complained that the investigator had not tested his careless smoking scenario and had not properly eliminated possible mechanical failure of the heater. The court found that although the investigator failed to perform physical tests of his proposed ignition scenario, his process of elimination and his reliance on admitted smoking shortly before the fire were sufficient to support his conclusion. Further, the court found that while the investigator could have conducted a more thorough examination of the heater or performed research on the heater's components, these issues would go to the weight the jury gave his opinion, and could be challenged through vigorous cross-examination. In response to defendants' arguments that the exemplar used by the investigator was not the specific model found at the scene, although similar in type and appearance, the court found that this too would go to the weight of his opinion, not its admissibility. Experimental evidence, it noted, may be admitted even if conditions do not perfectly correspond to the conditions at issue in the litigation.

New Hampshire – Failure to test and "negative corpus" arguments rejected

In *Joseph v. Nexgrill Indus., Inc.*, Case No. 14-CV-215-JD, 2016 WL 1627611(D.N.H. Apr. 22, 2016), homeowners sued Nexgrill Industries after a Charmglow grill caught fire in 2012. Each side filed motions to exclude the other's fire experts. Nexgrill contended the homeowners' expert should be excluded because he did not test the burned grill or an exemplar or the burned propane hose which was damaged in the fire. The U.S. District Court found that the expert followed the procedure of NFPA 921. It found that the opinion was not unreliable and that Nexgrill could test the credibility and weight of those opinions under cross-examination. Nexgrill also claimed that the homeowners' experts used negative corpus methodology in violation of NFPA 921. The Court disagreed and found that regardless of whether the 2011 or 2014 version of NFPA 921 would apply, the experts identified sufficient evidence in support of their opinions to avoid the negative corpus issue.

Texas – Reliance on NFPA 921 helps qualify expert

In a subrogation action against an installer of internet antennas following a fire in a home, the installer moved to exclude the plaintiff's experts claiming they lackd sufficient qualifications. The court rejected the challenge to the plaintiff's fire investigator, noting that he had (1) twenty-five years' experience as a firefighter, senior fire and explosion investigator, and fire manager; (2) multiple certifications in fire investigation; (3) his comprehensive assessment of the facts and data in this case; and (4) his reliance on the scientific method and NFPA 921. *Allstate Ins. Co. v. Helmsco Inc.*, Case No. 6:15-CV-114, 2016 WL 3232726(W.D. Tex. Feb. 16, 2016).

Indiana – Experts' use of NFPA 921 lends reliability to their opinions

In *The Cincinnati Ins. Co. v. Lennox Indus., Inc.*, Case No. 3:14-CV-1731, 2016 WL 495600(N.D. Ind. Feb. 9, 2016), on reconsideration in part sub nom. *Cincinnati Ins. Co. v. Lennox Indus., Inc.*, No. 3:14-CV-1731, 2016 WL 1623209(N.D. Ind. Apr. 25, 2016), another fire subrogation case against the manufacturer of an air condensing unit that allegedly arced at the compressor connection and ignited surrounding combustibles, the manufacturer moved to strike the opinions of the insurer's fire investigator and electrical engineer. The court examined the reports and depositions of the experts and concluded that both had used the scientific method and had relied upon NFPA 921, including examining the scene, interviewing witnesses, researching the unit, identifying arcing, and conducting a laboratory examination. It found that the experts' opinions were reliable and relevant and therefore admissible under *Daubert.*

Arizona – Testimony on power tool as a competent ignition source allowed

In a subrogation case where the cause of a garage fire was hotly disputed, the insurer in *Philadelphia Indem. Ins. Co. v. BMW of N. Am. LLC*, Case No. CV-13-01228, 2016 WL 5340539(D. Ariz. Jan. 29, 2016) moved to exclude the opinion of the defendant car maker's expert that a Ryobi power drill's battery pack reportedly present but destroyed in the fire was a competent ignition source that could not be ruled out. The remains of the drill went missing after the fire, adding a spoliation argument to the case. The manufacturer argued that in the absence of the drill for examination, the fire must be ruled "undetermined." The court found the defense expert's opinion that the drill, the model of which was unknown, was a competent ignition source, was allowable in that it was present at the time of the fire and was not retained by the plaintiffs after the fire.

California – Court relies on NFPA 921 in "arcing through char" dispute

In a case involving allegedly defective wiring suspected as the cause of a fire, the court in *Mountain Club Owner's Ass'n v. Graybar Elec. Co., Inc.*, Case No. 2:13-1835 WBS KJN, 2016 WL 323805 (E.D. Cal. Jan. 27, 2016) relied on the discussion of Electrical Fires in Chapter 9 of NFPA 921 (2014

Ed.) as the basis for evaluating the parties' experts' theories as to how the fire may have started. It discussed the breakdown or inadequacy of insulation and whether "arcing through char" was a cause of fire or an effect. It reviewed the nature of high impedance faults and arc faults which had been found on conductors above the ceiling. Noting that the fire experts had based their opinions on the burn patterns found and examination of the wiring recovered from the scene, the court found their opinions admissible and sufficient to create a fact question precluding summary judgment in favor of the defendant manufacturer.

Washington – Departure from NFPA 921 held not grounds for exclusion

A fire broke out at a marina damaging a number of boats. Suspicion was focused on the shore power coupling of one of the boats. The boat owner brought suit in admiralty for exoneration from liability claiming that the cause of the fire could not be determined. In *Matter of: the Complaint of William & Myo Shears*, Case No. C14-1296, 2016 WL 30019(W.D. Wash. Jan. 4, 2016), the boat owner sought to exclude the opinion of an expert hired by the marina and other owners. He argued that the expert did not follow NFPA 921 in his investigation. The court pointed out that an expert's reliance on a different methodology does not render his opinions *per se* unreliable. The boat owner argued that the expert had departed from multiple provisions of the NFPA Guide and that, had he followed them, he would have concluded that the fire cause was undetermined. The court pointed out that the expert's report did not include reference to NFPA 921, but that in his deposition he had explained his partial reliance on the Guide and why he had departed from its methodologies. Because the shore power plug and receptacle were never recovered after the fire, they could not be tested. The court declined to exclude the expert's opinion on the basis of lack of testing, citing authority that the failure to test does not render an expert's opinions automatically inadmissible. It found that the boat owner's arguments "more properly go to the weight of his testimony, rather than providing the basis for disqualification."

Thus, in 2016, almost all of the courts deciding upon the admissibility of fire experts' opinions chose to allow the opinions offered. Key factors in these decisions were the expert's stated reliance on the methodology of NFPA 921 and an ability to detail steps taken in compliance with the Guide. Despite apparent compliance with NFPA 921, an expert was excluded in one case where he could not identify a specific failure in wiring to support his theory of causation or provide other "critical data" or research in support, rendering his opinion speculative.

About the Editor

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