
IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF UTAH

SCOTT K. MARLAND and JENNIFER D. MARLAND, as conservators for the minor child, J.S.M.,

Plaintiffs,

v.

ASPLUNDH TREE EXPERT CO., a Pennsylvania corporation,

Defendant.

MEMORANDUM DECISION AND ORDER GRANTING IN PART AND DENYING IN PART DEFENDANT'S MOTION TO EXCLUDE THE TESTIMONY OF PLAINTIFFS' ENGINEERING EXPERT

Case No. 1:14-cv-00040-TS

District Judge Ted Stewart

This matter is before the Court on Defendant Asplundh Tree Expert Co.'s Motion to Exclude the Testimony of Plaintiffs' Engineering Expert. For the reasons discussed below, the Court will grant Defendant's Motion in part. Specifically, Dr. Kimbrough will be allowed to testify regarding his "ground potential" theory, the physics of the accident, and the general types of injuries that can be inflicted by a downed power line. However, the Court will exclude Dr. Kimbrough's testimony regarding electrical current passing through J.S.M.'s head, as well as Dr. Kimbrough's opinion regarding how electricity can alter the brain.

I. BACKGROUND

The parties agree that on June 30, 2009, a tree limb broke in Bountiful City, fell on an electrical transmission line carrying 7200 volts, that the line severed and fell into the yard, and that the minor J.S.M. suffered injuries as a result. The parties disagree about the extent of J.S.M.'s injuries, and especially whether J.S.M. suffered any kind of brain or neuropsychological injury.

Plaintiffs retained Scott Kimbrough, Ph.D., to perform a forensic examination of the physics of the event. Dr. Kimbrough has a Ph.D. in Control Systems and has degrees in Thermal Sciences and Mechanics.

In his report, Dr. Kimbrough first opined that the tree limb caused the power line to fall, and offered an explanation of how the limb caused the wire to sever. Second, Dr. Kimbrough opined that the possible range of current passing through J.S.M.'s body was around 2.8 amps and the power absorbed by his body would be 3,920 watts, with about 1400 volts directly across J.S.M.'s body and the remaining 5600 volts across the ground. These estimations assume that the wire came in direct contact with J.S.M.'s body.

Third, Dr. Kimbrough opined that J.S.M. narrowly survived contact with a line that would typically cause a violent death, and theorized that the reason J.S.M. survived was because a relatively high ground resistance must have existed, or that J.S.M. was separated from the ground by a high resistance substance. Again, this opinion assumes that the line came in direct contact with J.S.M.'s body. Dr. Kimbrough went on to explain various ways that electricity can damage the human body.

In his deposition, Dr. Kimbrough provided new reference material and introduced an alternative explanation of how the event occurred; specifically, that the power line came into contact with the ground rather than J.S.M., and that electricity traveled through the ground to J.S.M. While Dr. Kimbrough stated in deposition that he believes his new theory may be more likely, he did not abandon his original theory.

Dr. Kimbrough also opined in his deposition that based on photographs he has seen, combined with testimony that J.S.M. was found lying on the ground, an electrical current path would have passed through aspects of J.S.M.'s head.

Defendant asks the Court to exclude Dr. Kimbrough's testimony at trial under Federal Rules of Evidence 401, 402, 403, and 702 and under Federal Rules of Civil Procedure 26 and 37.

II. DISCUSSION

A. FEDERAL RULES OF PROCEDURE 26 AND 37

Generally, any witness a party intends to use at trial to present expert testimony under Federal Rule of Evidence 702 must provide a written report.¹ This report must contain a complete statement of all opinions the witness will express and the basis and reasons for them, the facts or data considered by the witness in forming them, and any exhibits that will be used to summarize or support them, among other things.² One purpose for this rule is to allow opposing parties "a reasonable opportunity to prepare for effective cross examination and perhaps arrange for expert testimony from other expert witnesses."³

As a general rule, non-compliance with Rule 26(a) results in the exclusion of that expert's testimony at trial.⁴ However, Federal Rule of Civil Procedure 37(c)(1) "permits district courts to admit expert witness testimony despite a party's failure to comply with Rule 26(a), as long as the violation is 'justified or harmless.'"⁵ In making this determination, the Court weighs

¹ Fed. R. Civ. P. 26(a)(2).

² *Id.*

³ *ClearOne Commc'ns., Inc. v. Biamp Sys.*, 653 F.3d 1163, 1176 (10th Cir. 2011) (quoting Fed. R. Civ. P. 26(a)(2) Advisory Committee's Note (1993)).

⁴ *Id.*

⁵ *Id.* (quoting Fed. R. Civ. P. 37(c)(1)).

four factors: “(1) the prejudice or surprise to the party against whom the testimony is offered; (2) the ability of the party to cure the prejudice; (3) the extent to which introducing such testimony would disrupt the trial; and (4) the moving party’s bad faith or willfulness.”⁶

First, Dr. Kimbrough’s alternative theory regarding the line touching the ground rather than J.S.M. (the “ground potential theory”) should not cause much prejudice or surprise. Defendants agree that the power line fell into the backyard where J.S.M. was playing and that electricity from that wire caused injury to J.S.M. Dr. Kimbrough’s theory that the electricity may have passed through the ground into J.S.M. instead of from J.S.M. into the ground is not the type of additional opinion that would unfairly prejudice and surprise. However, Dr. Kimbrough’s additional opinion that an electrical current passed through aspects of J.S.M.’s head is both surprising and prejudicial to Defendant. Dr. Kimbrough’s original report only contained a general statement that electricity can alter the interaction of nerve cells, including the neurons in the brain.

Second, Dr. Kimbrough’s opinion that an electric current passed through J.S.M.’s head was unforeseen and came months after Defendant’s deadline for designating rebuttal experts had passed, giving Defendant no opportunity to retain an expert to rebut this new opinion. While Defendant may prepare a cross-examination of Dr. Kimbrough’s new opinion, without a rebuttal expert, Defendant can do little to cure the prejudice caused by the new opinion.

Third, there is no reason to believe that the admission of the ground potential theory would disrupt trial. However, the probability that the admission of Dr. Kimbrough’s recent opinion regarding the electrical current in J.S.M.’s head will disrupt trial is less clear. The issue

⁶ *Id.* (citing *Jacobsen v. Deseret Book Co.*, 287 F.3d 936, 953 (10th Cir. 2002)).

of whether J.S.M. suffered a brain injury has become an important dispute in this case, and Defendant has very little time before trial to address Dr. Kimbrough's new opinion through the coordination of expert testimony or by any other means. With trial less than one month away, it would be disruptive to allow Dr. Kimbrough to update his report and to allow Defendant to seek a rebuttal expert. Fourth, there is no indication that Dr. Kimbrough's late opinions were made in bad faith or that Plaintiffs willfully withheld these opinions until Dr. Kimbrough's deposition.

Weighing these factors, the Court finds that admission of Dr. Kimbrough's ground potential theory is harmless, but that Dr. Kimbrough's new opinion regarding the electrical current in J.S.M.'s head is neither justified nor harmless under Rule 37(c)(1). Therefore, Dr. Kimbrough will be precluded from opining that an electrical current passed through J.S.M.'s head.⁷

B. FEDERAL RULE OF EVIDENCE 702

Federal Rule of Evidence 702 states:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Rule 702 imposes a gatekeeping obligation on the Court to "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable."⁸ The Court must

⁷ See Fed. R. Civ. P. 37(c)(1) ("If a party fails to provide information . . . as required by Rule 26(a) or (e), the party is not allowed to use that information . . . at trial.").

⁸ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993).

fulfill its gatekeeping duty by making specific findings on the record.⁹ “Specifically, the court must first determine whether an expert is qualified by knowledge, skill, experience, training, or education to render an opinion.”¹⁰ Second, the court must determine whether the expert opinion is both relevant and reliable in the sense required by *Daubert* and its progeny.¹¹ An expert’s “‘methods and procedures of science’ . . . must be based on actual knowledge and not ‘subjective belief or unsupported speculation.’”¹² The trial court must ascertain whether the expert “employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.”¹³ “The inquiry envisioned by Rule 702 is . . . a flexible one”¹⁴ and “[t]he admission or exclusion of evidence lies within the sound discretion of the trial court.”¹⁵

1. Qualifications

Plaintiffs offer Dr. Kimbrough as a forensic engineer. Dr. Kimbrough’s curriculum vitae shows extensive experience and scholarship in mechanical engineering and control systems, with some experience in accident investigations related to electrical lines. In his deposition, Dr. Kimbrough described prior forensic analyses. In those analyses, Dr. Kimbrough was called to a scene where a person had been shocked or electrocuted. In those cases, Dr. Kimbrough would

⁹ *United States v. Yeley-Davis*, 632 F.3d 673, 684 (10th Cir. 2011).

¹⁰ *Id.* (quotation marks omitted).

¹¹ *Daubert*, 509 U.S. at 589.

¹² *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 780 (10th Cir. 1999) (quoting *Daubert*, 509 U.S. at 590).

¹³ *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999).

¹⁴ *Daubert*, 509 U.S. at 594.

¹⁵ *Wheeler v. John Deere Co.*, 935 F.2d 1090, 1099 (10th Cir. 1991).

investigate the cause of the shock and approximate the charge dealt. Through this experience, Dr. Kimbrough developed an expertise regarding the hazards presented by various levels of electricity that exceeds that possessed by laypersons.

In addition to the physics of the accident, Dr. Kimbrough intends to testify about how electrical currents can affect the heart, brain, skin, cells, tendons, and bones. Defendants specifically object to Dr. Kimbrough's testimony that an "[e]lectrical current can alter the interaction of nerve cells, including the neurons in the brain." Given Dr. Kimbrough's lack of expertise in medicine, Defendant argues that Dr. Kimbrough is unqualified to opine how an electrical current affects the brain. In his deposition, Dr. Kimbrough acknowledged that the support for his statement came from a book chapter on electroshock therapy and a PBS special on manic depressives.¹⁶

The Court finds that Dr. Kimbrough lacks the education, training, and experience necessary to testify regarding the specific ways electricity may affect biological structures within the human body. Dr. Kimbrough also lacks the expertise to make any opinion regarding the extent of J.S.M.'s injuries. The fact that Dr. Kimbrough read book chapters in preparation for this litigation does not make him an expert on medical issues.¹⁷ Therefore, Dr. Kimbrough's explanation of how electricity may affect the human brain falls outside his realm of expertise and will be excluded at trial.

On the other hand, Dr. Kimbrough is qualified by education and experience to testify concerning his investigation of how the power line in this case may have failed and how the

¹⁶ See Docket No. 89, Ex. C, at 83–85.

¹⁷ See, e.g., *In re Welding Fume Prods. Liab. Litig.*, No. 1:03-CV-17000, 2005 U.S. Dist. LEXIS 46164, at *35 (N.D. Ohio Aug. 8, 2005).

electricity may have been conveyed to J.S.M.'s body. Dr. Kimbrough is also qualified to testify generally about the hazards presented by a downed power line. Dr. Kimbrough is also qualified to estimate the levels of electricity presented by a downed power line and may explain what levels of electricity are associated with injury or death, as long as the testimony grows out of his education, experience, and training.

2. *Relevance and Reliability*

The Supreme Court has suggested factors that may assist the judiciary in assessing the scientific validity of proffered expert evidence, including testability, peer review, rates of error, and general acceptance.¹⁸ The Advisory Committee's notes to Rule 702 add additional considerations to aid in determining whether an expert "employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."¹⁹ Forensic analyses such as the one performed by Dr. Kimbrough do not always fit neatly within the *Daubert* framework because its "case-specific nature makes it rarely publication worthy, subject to error rate calculations, or even testable in practice."²⁰ However, some *Daubert* factors remain applicable.

Defendant argues that Dr. Kimbrough's investigation of the scene is unreliable because Dr. Kimbrough did not visit the scene of the accident, did not conduct witness interviews, did not take his own photographs, could not test the ground resistance at the scene, did not test the soil conditions, did not plot out the contours of the ground potential, and could not examine the tree,

¹⁸ *Daubert*, 509 U.S. at 593.

¹⁹ *Goebel v. Denver & Rio Grande W. R.R.*, 346 F.3d 987, 992 (10th Cir. 2003) (quoting *Kumho Tire*, 526 U.S. at 152).

²⁰ *Laugelle v. Bell Helicopter Textron, Inc.*, 2014 Del. Super. LEXIS 508, at *6 n.28 (Del. Super. Ct. Oct. 6, 2014) (quoting 5 Modern Sci. Evidence § 44:9 (2013-2014 Edition)).

the fallen limb, or the fallen line. Defendant further argues that Dr. Kimbrough did not take into account variables such as the species of the tree, the moisture content of the tree, and the way that particular tree grew.

Dr. Kimbrough acknowledged in deposition that the variables relating to the tree would affect how long it took for the tree branch to burn enough to sever the power line.²¹ However, the exact length of time was not critical to Dr. Kimbrough's conclusion, and given Dr. Kimbrough's reliance on witness accounts, accident reports, photographs, and physical evidence, Dr. Kimbrough's inability to examine the branch or tree does not render his opinions unreliable.

In addition, Dr. Kimbrough testified that he used a ground resistance variable that was reasonable and had some data to support it, and that he used a range of possible currents to compensate for unknown variables. Dr. Kimbrough's estimations of electrical current were based on mathematical formulas that are not challenged by Defendant.

It appears that Dr. Kimbrough's investigation in this case was similar to the investigations he performed in the employ of various power companies, and therefore grows directly out of his training and experience. The Court finds Dr. Kimbrough's analysis of the cause of the wire's failure sufficiently relevant and reliable under 702. To the extent that missing variables weaken Dr. Kimbrough's conclusions, "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence."²²

²¹ See Docket No. 89, Ex. C, at 46–47.

²² *Daubert*, 509 U.S. at 596.

However, Dr. Kimbrough's opinion that electric current passed through J.S.M.'s head through an entrance wound on his ear, even if timely, does not have sufficient indicia of reliability to pass *Daubert* muster. In support of his opinion, Dr. Kimbrough stated that it is "pretty much self-evident from just the pictures of his ear."²³ Dr. Kimbrough has provided no evidence that eyeballing photographs, without more, is an acceptable method for engineers to determine where electricity passed through a person's body, or how it may have affected an individual.²⁴

Dr. Kimbrough stated that he believed the photographs showed burn marks on J.S.M.'s ear. The medical records do not include the ear in a list of burn locations,²⁵ although they do mention burns to J.S.M.'s head and neck.²⁶ The medical records note "a raw bloody area on the oracle of his left ear."²⁷ However, there appears to be some uncertainty whether the pictures show a burn mark or dried blood on J.S.M.'s ear.²⁸ The uncertainty about what the photographs show undermines Dr. Kimbrough's statement that his conclusion is "self-evident." Dr. Kimbrough does not address potential alternatives to his theory that the mark evidences the entry of electrical current. In addition, Dr. Kimbrough's opinion is very nearly an opinion regarding

²³ Docket No. 89, Ex. C, at 78.

²⁴ *Compare Reali v. Mazda Motor of Am., Inc.*, 106 F. Supp. 2d 75, 78 (D. Me. 2000) (finding an engineer's calculation of delta-v unreliable where the engineer eyeballed accident photographs).

²⁵ Docket No. 88, Ex. H, at 2.

²⁶ *Id.*, Ex. I, at 6.

²⁷ *Id.*

²⁸ *See* Docket No. 50, Ex. E, at 52 (answering over an objection of speculation based on a photograph that the "black looks more like dried blood" and that he also believed there was "burned skin on the ear on the helix, the rim").

injury causation, which has traditionally been exclusively within the realm of medical experts.²⁹ In sum, Dr. Kimbrough has not put forward sufficient evidence of qualifications or a reliable methodology to support his opinion that an electric current passed through aspects of J.S.M.'s head or brain through his ear, and this opinion will therefore be excluded at trial.

C. FEDERAL RULES OF EVIDENCE 401, 402, AND 403

Rules 401, 402, and 403 of the Federal Rules of Evidence require the exclusion of irrelevant evidence, or of relevant evidence if its probative value is substantially outweighed by a danger of unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence.³⁰ “Even if an expert’s proffered evidence is scientifically valid and follows appropriately reliable methodologies, it might not have sufficient bearing on the issue at hand to warrant a determination that it has relevant ‘fit.’”³¹ “Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it. Because of this risk, the judge in weighing possible prejudice against probative force under Rule 403 of the present rules exercises more control over experts than over lay witnesses.”³²

Defendant argues that Dr. Kimbrough’s calculations of the shock received by J.S.M. are not compatible with the facts of this case and are therefore irrelevant, unhelpful, prejudicial,

²⁹ See, e.g., *Eskin v. Carden*, 842 A.2d 1222, 1231 (Del. 2004) (finding an engineer incompetent to properly review medical records or examine the plaintiff, and stating that no evidence suggested “that any expert in his field would be competent, or would have taken the opportunity to do so”).

³⁰ Fed. R. Evid. 403.

³¹ *In re Williams Sec. Litig.*, 496 F. Supp. 2d 1195, 1231 (N.D. Okla. 2007) (quoting *Bitler v. A.O. Smith Corp.*, 400 F.3d 1227, 1234 (10th Cir. 2004)).

³² *Daubert*, 509 U.S. at 595 (quoting Weinstein, *Rule 702 of the Federal Rules of Evidence is Sound; It Should Not Be Amended*, 138 F.R.D. 631, 632 (1991)).

misleading, and will confuse the issues. In addition, Defendant argues that Dr. Kimbrough's discussion of ways that electricity could damage a human body is irrelevant and prejudicial because J.S.M. did not suffer those types of injury.

As to the calculations, Dr. Kimbrough opined that that the possible range of current passing through J.S.M.'s body was around 2.8 amps and the power absorbed by his body would be 3,920 watts, with a direct voltage of about 1400 across J.S.M.'s body and the remaining 5600 volts across the ground. In his deposition, Dr. Kimbrough admitted that if this calculation were correct, J.S.M. should have been dead within fractions of a second, and that after just a few seconds J.S.M.'s body "would almost burn up."³³

Dr. Kimbrough's calculations were based on an assumption that J.S.M. came into direct contact with the downed wire. Although Dr. Kimbrough admitted that this assumption may not be the most likely explanation, Dr. Kimbrough maintains that it is possible that J.S.M. came into direct contact with the wire. The Court is not in a position to determine whether Dr. Kimbrough's calculations or the assumptions underlying them are correct. Because Dr. Kimbrough's method in reaching the calculations passes *Daubert* muster and the opinions are relevant and admissible under Rule 403, the proper avenue for exposing the potentially flawed assumptions underlying his calculation must be cross-examination and presentation of contrary evidence.

Second, the Court disagrees that a general discussion of the ways electricity can harm a person is irrelevant. The jury will be asked to determine whether Defendant owed J.S.M. a duty of reasonable care. One factor in considering the standard of reasonable conduct is the

³³ Docket No. 89-4, at 17-18.

magnitude of risk involved.³⁴ Unlike the risks involved in car accidents, the mechanisms of injury in accidents involving electricity may not be well known to a jury of laypersons. Therefore, a limited discussion of the dangers posed by a downed power line is relevant and its probative value is not outweighed by Rule 403 concerns. However, as stated above, Dr. Kimbrough's discussion of electrical injuries must be limited to observations arising from his education, training, and experience. Dr. Kimbrough must not overstep his qualifications by testifying about the ways that electricity can affect the human brain. In addition, the Court will not allow prolonged or graphic discussions of electrical injuries suffered by individuals other than J.S.M. The probative value of such discussions would be outweighed by a danger of unfair prejudice.

III. CONCLUSION

It is therefore

ORDERED that Defendant's Motion to Exclude The Testimony of Plaintiffs' Engineering Expert (Docket No. 70) is GRANTED IN PART and DENIED IN PART.

DATED this 13th day of January, 2017.

BY THE COURT:



Ted Stewart
United States District Judge

³⁴ See Restatement (Second) of Torts §§ 293 (1965) (“In determining the magnitude of risk for the purpose of determining whether the actor is negligent, the following factors are important: . . . (c) the extent of harm likely to be caused to the interests imperiled . . .”).