

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

MONIQUE ATTUSO, et al.,
Plaintiff

CIVIL ACTION

VERSUS

18-157-SDD-RLB

OMEGAFLEX, INC.,
& AUDUBON PLUMBING, INC.
Defendants

RULING

Before the Court is the *Motion to Exclude Certain Opinions and Testimony of Elizabeth Buc*¹ filed by the Defendant, Omega Flex, Inc. (“Omega Flex”). The Plaintiff, Republic Fire and Casualty (“Republic”), opposes the *Motion*.² The Defendant filed a Reply.³ For the reasons that follow the *Motion*⁴ shall be DENIED.

I. FACTUAL BACKGROUND

The factual background and procedural history was previously set out by the Court and will not be re-stated herein.⁵

II. THE SUBJECT MOTION IN LIMINE

Elizabeth Buc, PhD, PE, a materials engineer was retained by the Plaintiff, Republic, to provide opinion testimony about the cause and origin of the house fire at issue in this case. There is no challenge to Dr. Buc’s qualifications.⁶ Omega Flex moves

¹ Rec. Doc. 77

² Rec. Doc. 78.

³ Rec. Doc. 86.

⁴ Rec. Doc. 77.

⁵ See Rec. Doc. 94.

⁶ Briefly, The Court notes that Elizabeth Buc holds a Bachelor of Science degree and a Masters of Science degree in Chemistry from Rochester Institute of Technology in Rochester, NY and McMaster University in Hamilton, Ontario, respectively. Buc also holds a Masters of Science degree and a Doctorate in Materials

to preclude Dr. Buc from testifying that “[t]he cause and likely ignition source of the Attuso fire loss was lightning induced penetration and melting of the thin wall [CSST] above the kitchen ceiling . . . The temperature of the molten stainless steel is sufficient to ignite the escaping gas.”⁷ Defendant argues that “Dr. Buc cannot reliably render an opinion or testimony that an electrical arc event causes ignition of escaping propane gas because the testing on which she relies is inadmissible. Namely, in Dr. Buc’s underlying tests, using natural gas, she placed a TIG welder in contact with pinpricked CSST, which, not surprisingly, caused heat in excess of the minimum ignition temperature of propane gas.”⁸ The fuel which ignited in the subject fire was propane gas. Defendant argues that Buc’s cause and origin opinion is unreliable because the lab experiment, she performed used propane gas, rather than natural gas which was the actual fuel involved in the subject fire, and because she placed a TIG welder in direct contact with the CSST.⁹

In opposition, Republic explained the TIG welder lab experiment performed by Buc as follows:

A fire test was performed in Dr. Buc’s laboratory using yellow jacketed CSST, a TIG welder, temperature instrumentation and video recordings. The objective of the test was to measure the temperature of molten stainless steel as it cooled. In order to measure the temperature of the molten stainless steel, a thin gauge thermocouple was inserted under the yellow CSST jacket and placed in contact with the stainless-steel tubing. An arc event was created with the TIG welder tip. The thermocouple was embedded in molten stainless steel created by the arc and continued to

Science and Engineering, both from Wayne State University, Detroit, Michigan. She is a licensed Professional Engineer since 2006 and a Certified Fire Investigator by the International Association of Arson Investigators. Buc has served on multiple National Fire Protection Association (NFPA) technical committees, trained fire investigators in failure analysis and fire testing under the NFPA 1033 Standard for Professional Qualifications for Fire Investigator. Buc has been engaged in performing litigation-related fire testing as well as pure and applied research in fire science and fire investigation for 23 years. See Rec. Doc. 78-6 and Rec. Doc. 78-7.

⁷ Rec. Doc. 77-1 p. 6.

⁸ *Id.*

⁹ *Id.*

measure temperatures as the molten stainless steel cooled from its melting temperature. The temperature profile showed the temperature in the melt was in excess of the ignition temperatures of propane (920-1020°F), natural gas (1163°F) for up to two seconds and the plastic jacket material (620°F) for up to 3 seconds. The video recording of the event also shows a momentary delay between the arc event (bright flash) and the ignition of gas, which was natural gas for the demonstration escaping further supporting that the high temperature of the molten stainless steel was the most likely ignition source.¹⁰

Republic argues that “[i]t is not necessary to perform the laboratory demonstration with propane because the ignition temperature of natural gas is higher than the ignition temperature of propane, therefore the ignition of natural gas during the demonstration and the temperatures recorded confirms propane would ignite under similar conditions.”¹¹

Republic does not address the Defendants argument that the experiment was further flawed and thus unreliable because Buc placed the welder tip directly on the CSST. Republic merely explains that “[a]n arc event was created with the TIG welder tip.”¹² Defendant argues that “Dr. Buc fails to recognize or acknowledge that the arc from a TIG welder is vastly different from the arc from a lightning strike.”¹³

Buc’s opinion is:

The cause and the likely ignition source of the Attuso fire was the lightning induced penetration and melting of the thin wall corrugated stainless steel tubing above the kitchen ceiling. The Tracpipe CSST arced to the nearby sheet steel vent. The temperature of the molten stainless steel is sufficient to ignite the escaping gas.”¹⁴

¹⁰ Rec. Doc. 78 p. 9.

¹¹ *Id.* at p. 9-10 (citing Rec. Doc. 78-7 ¶¶11-12 (Buc Affidavit)).

¹² *Id.* at p. 9.

¹³ Rec. Doc. 77-1 p. 9-10.

¹⁴ Rec. Doc. 78-6 p.7.

Upon close review of Buc’s report and affidavit,¹⁵ it her opinion is that the propane gas in the Attuso home ignited “immediately after the opening [in the CSST] was created.”¹⁶ Buc observed that “[t]he damage to the TracPipe CSST in this case had all of the attributes of a lightning induced melt opening as the result of arcing of the CSST with a nearby metal object, the vent, at different potential.”¹⁷ Buc explained that “[i]f propane gas were released from the arc damage in the CSST at the Attuso home and not immediately ignited, then I would have expected an explosion and some overpressure damage. Overpressure damage was not observed after the Attuso fire.”¹⁸ In other words, the TIG welder was placed directly on the CSST to create melting of the metal in order to test the hypothesis that the heat from the molten metal was the source of the ignition.

In examining the reliability of a scientific expert’s methodology, the Court looks to whether the methodology is generally accepted within the relevant scientific community. “Science is not an encyclopedic body of knowledge about the universe. Instead, it represents a *process* for proposing and refining theoretical explanations about the world that are subject to further testing and refinement. But, in order to qualify as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation—*i.e.*, ‘good grounds,’ based on what is known.”¹⁹

In *Daubert*, the Supreme Court offered an illustrative list of factors that may be used to evaluate the reliability of the methodology utilized by a scientific expert in reaching

¹⁵ Rec. Doc. 78-6 and 78-7.

¹⁶ Rec. Doc 78-7 ¶14.

¹⁷ Rec. Doc. 78-6 p. 6.

¹⁸ Rec. Doc. 78 p. 10.

¹⁹ *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590 (1993) (internal citations and parentheses omitted).

her opinions, including whether the technique or methodology (1) can or has been tested; (2) has been subjected to peer review and publication; (3) has a known or potential rate of error or standards controlling its operation; and (4) is generally accepted in the relevant scientific community.²⁰

Plaintiff cites Chapter 921²¹ of the National Fire Protection Association (“NFPA”) handbook as providing a generally accepted peer-reviewed standard in the field of fire investigation and causation.²² The defendant does not mention NFPA or the scientific standards followed in the field of fire investigation. In opposing the *Motion in Limine*, Plaintiff cites NFPA 921 extensively and argues that “NFPA 921 states that if a fire is caused by electricity, the source of heat, the temperature generated, the first ignited fuel, and the path of transfer from the heat source and the ignited fuel must be calculated or identified.”²³

There is no dispute that post fire investigation revealed a melt hole in the TracPipe CSST supply line at the Attuso residence.²⁴ The Defendant’s expert, Harri Kytomaa, observed that “[o]ne hole was found in the TracPipe CSST supply line near the branch to the kitchen stovetop. The hole was formed from electrical arcing between the CSST and the metal vent pipe for the stovetop exhaust hood. The source of the electrical energy was lightning.”²⁵ Ultimately it comes down to whether the hole in the CSST that was observed and documented post-fire caused the fire.

²⁰ *Daubert*, 509 U.S. at 593-594.

²¹ NFPA 921 is entitled “*Guide for Fire and Explosion Investigations*”.

²² Rec. Doc. 78 p. 12 (citing, *inter alia*, David L. Faigman et al., 5 *Modern Scientific Evidence* § 37:9 (2015-2016 ed.).

²³ Rec. Doc. 71 p. 12 (citing NFPA 921 *Guide for Fire and Explosion Investigations*, Chapter 22)

²⁴ Rec. Doc. 78-6 p. 4 (Figure 2).

²⁵ Rec. Doc. 78-8 ¶6.

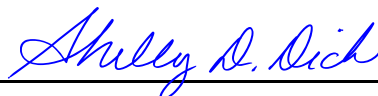
Buc's laboratory experiment was designed to test the hypothesis that "ignition of gas by the molten stainless steel [was] created as a result of the thin wall CSST melting and pooling from the arc event."²⁶ When the laboratory test performed by Dr. Buc is examined and understood for what it represents, the Court does not find that the methodology is unreliable. Buc followed accepted principles and methods described in NFPA 921. NFPA is peer reviewed and provides generally accepted standards in the field of fire investigation.²⁷ The Court finds that methodology Buc employed to formulate her opinions were consistent with the principles of NFPA 921. Accordingly, the Defendant, Omega Flex's *Motion* is DENIED.

III. CONCLUSION

For the above reasons, Omega Flex's *Motion in Limine*²⁸ is hereby DENIED.

IT IS SO ORDERED.

Signed in Baton Rouge, Louisiana on April 9, 2020.



**CHIEF JUDGE SHELLY D. DICK
UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA**

²⁶ Rec. Doc. 78 p. 8-9.

²⁷ *Travelers Prop. & Cas. Corp. v. GE*, 150 F.Supp. 2d 360, 366 (D.Conn. 2001).

²⁸ Rec. Doc. 77.