

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ALABAMA
NORTHEASTERN DIVISION**

MELISSA ANN BOBO and)
SHANNON JEAN COX, as Co-)
Personal Representatives of the)
Estate of Barbara Bobo, deceased,)
)
Plaintiffs,)
)
vs.)
)
TENNESSEE VALLEY)
AUTHORITY,)
)
Defendant.)

Civil Action No. CV 12-S-1930-NE

MEMORANDUM OPINION

Barbara Bobo, now deceased, commenced this action during her lifetime. The gravamen of her complaint was that she suffered from malignant pleural mesothelioma as a result of being “wrongfully exposed” to asbestos fibers, “an inherently dangerous toxic substance,”¹ that originated in the Browns Ferry Nuclear Plant operated by the Tennessee Valley Authority. Mrs. Bobo, however, never worked for the Tennessee Valley Authority in any capacity. Moreover, she was never inside its Browns Ferry Nuclear Plant. Instead, her claims were derivative: that is, they grew out of her weekly practice of laundering the asbestos-laden work clothes worn by her husband during the twenty-two years that he was employed at the

¹ Doc. no. 1 (Complaint), ¶ 12; doc. no. 171 (First Amended Complaint), ¶ 12.

Browns Ferry Nuclear facility.²

Mrs. Bobo's original complaint asserted claims against nine defendants, seven of which had allegedly developed, manufactured, marketed, distributed, or sold asbestos-containing products,³ and one (the Metropolitan Life Insurance Company) that had allegedly "conspired with other asbestos suppliers and product manufacturers to mislead the public as to the hazards of asbestos."⁴ All of Mrs. Bobo's claims against those other defendants were dismissed at various stages of the proceedings pursuant to stipulations for dismissal.⁵

² See doc. no. 171 (First Amended Complaint), ¶ 12(a) (alleging that Barbara Bobo's husband was employed by TVA "from 1975-1997"); doc. no. 174 (Memorandum Opinion and Order), at 3 (observing that the amended complaint expanded the amount of time during which plaintiff alleges that she was exposed to airborne asbestos fibers brought into her home on the person and clothing of her husband, a former TVA employee, from ten to twenty-two years: "that is, from 1975 to 1997, as opposed to the period of 1975 to 1985 alleged in the original complaint").

³ The seven defendants that allegedly developed, manufactured, marketed, distributed, or sold asbestos-containing products were: (i) Agco Corporation, *formerly known as* Allis Calmers Company, and *sued as successor to* Massey Ferguson Limited ("Agco") (doc. no. 1 (Complaint), ¶ 3); (ii) CBS Corporation, *formerly known as* Viacom, Inc., and *sued as the successor-by-merger to* CBS Corporation, *formerly known as* Westinghouse Electric Corporation ("CBS") (*id.* ¶ 4); (iii) Conopco, Inc., *doing business as* Unilever United States, Inc., and *sued both individually, and, as successor-by-merger to* Helene Curtis Industries, Inc. ("Conopco") (*id.* ¶ 5); (iv) Consolidated Aluminum Corporation, *also known as* Conlaco, Inc. ("Consolidated Aluminum") (*id.* ¶ 6); (v) Dana Companies LLC, *sued both individually, and, as successor-in-interest to* Victor Gasket Manufacturing Company ("Dana") (*id.* ¶ 7); (vi) Ford Motor Company ("Ford") (*id.* ¶ 8); and (vii) Unilever United States, Inc., *sued both individually, and, as successor-by-merger to* Helene Curtis Industries, Inc. ("Unilever") (*id.* ¶ 11).

⁴ Doc. no. 1 (Complaint), ¶ 9.

⁵ The following defendants were dismissed in accordance with stipulations of dismissal filed by Mrs. Bobo and the defendants noted: doc. no. 18 (Ford); doc. no. 19 (Order Dismissing Ford); doc. no. 44 (AGCO); doc. no. 45 (Order Dismissing AGCO); doc. no. 47 (Conopco and Unilever); doc. no. 48 (Order Dismissing Conopco and Unilever); doc. no. 53 (Consolidated Aluminum); doc. no. 56 (Order Dismissing Consolidated Aluminum); doc. no. 60 (CBS); doc. no. 61 (Order

Mrs. Bobo departed this life about fifteen months after filing suit,⁶ but her claims were not extinguished by death and survived in favor of her daughters, who were appointed co-personal representatives of their mother's estate by the Probate Court of Lauderdale County, Alabama.⁷ A timely motion to substitute them as plaintiffs was granted pursuant to Federal Rule of Civil Procedure 25(a)(1).⁸ The case thereafter proceeded to a bench trial on plaintiffs' claim that their deceased mother had contracted malignant plural mesothelioma as a result of negligence on the part of the Tennessee Valley Authority.⁹ Following consideration of the parties' pleadings, pre-trial evidentiary submissions, trial testimony and exhibits, briefs, and

Dismissing CBS); doc. no. 62 (Dana); doc. no. 64 (Order Dismissing Dana Companies); doc. no. 78 (MetLife); doc. no. 79 (Order Dismissing MetLife).

⁶ See, e.g., doc. no. 201 (Agreed and Stipulated Facts), ¶ 10.

⁷ See Ala. Code § 6-5-462 (1975) ("In all proceedings not of an equitable nature, all claims upon which an action has been filed and all claims upon which no action has been filed on a contract, express or implied, and all personal claims upon which an action has been filed, except for injuries to the reputation, survive in favor of and against personal representatives; and all personal claims upon which no action has been filed survive against the personal representative of a deceased tort-feasor."); doc. no. 178-1 (Letters Testamentary, *In re Estate of Barbara J. Bobo*, Case No. 20091, Probate Court for Lauderdale County, Alabama).

⁸ See doc. no. 178 (Plaintiff's Unopposed Motion to Substitute Party), and doc. no. 179 (Order Granting Motion to Substitute Party).

⁹ See doc. no. 174 (Memorandum Opinion and Order), at 56 (permitting the case to proceed on the claim that TVA was negligent in one or more of the following respects: (1) TVA violated Occupation Safety and Health Administration regulations concerning permissible levels of asbestos exposure; (2) TVA failed to follow mandatory directives governing the monitoring of an employee's exposure to asbestos; (3) TVA failed to provide employees who were exposed to airborne asbestos fibers protective clothing and equipment, as well as separate locker rooms and shower facilities; and (4) TVA failed to administer annual medical examinations to employees exposed to airborne asbestos fibers).

arguments of counsel, this court observed that the outcome of plaintiffs' claims turns upon, and will be controlled by, two unsettled questions of Alabama tort law.

Certification by a federal court of questions of state law is permitted under Article VI, § 6.02(b)(3) of the 1901 Alabama Constitution, as amended,¹⁰ and Alabama Rule of Appellate Procedure 18, providing, in pertinent part, as follows:

(a) When Certified. When it shall appear to a court of the United States that there are involved in any proceeding before it questions or propositions of law of this State which are determinative of said cause and that there are no clear controlling precedents in the decisions of the Supreme Court of this State, such federal court may certify such questions or propositions of law of this State to the Supreme Court of Alabama for instructions concerning such questions or propositions of state law, which certified question the Supreme Court of this State, by written opinion, may answer.

....

(c) Method of Invoking Rule. The provisions of this rule may be invoked by any of the federal courts upon its own motion or upon the suggestion or motion of any interested party when approved by such federal court.

Ala. R. App. P. 18.

Moreover, the Eleventh Circuit has observed that, whenever there is “substantial doubt about a question of state law upon which a case turns,” the issue “should be resolved by certifying the question to the state supreme court. Resolution

¹⁰ Article VI of the 1901 Alabama Constitution was amended in 1973 to include the following provision: “The supreme court shall have original jurisdiction . . . to answer questions of state law certified by a court of the United States.” 1901 Ala. Const. art. VI, amend. 328, § 6.02(b)(3) (1973).

in this way avoids the unnecessary practice of guessing the outcome under state law and offers the state court an opportunity to explicate state law.” *Jones v. Dillard’s, Inc.*, 331 F.3d 1259, 1268 (11th Cir. 2003) (citations omitted); *see also, e.g., Sultenfuss v. Snow*, 35 F.3d 1494, 1504 (11th Cir. 1994) (*en banc*) (Carnes, J., dissenting) (“Only through certification can federal courts [obtain] definitive answers to unsettled state law questions. Only a state supreme court can provide what we can be assured are ‘correct’ answers to state law questions, because a state’s highest court is the one true and final arbiter of state law.”) (alteration supplied).

For all of the foregoing reasons, this court concludes that it is advisable to certify to the Alabama Supreme Court the question of the scope of duty owed by premises owners to non-employees for hazards created at the workplace, and the question of the appropriate causation standard when a plaintiff’s injury is the result of multiple exposures to a toxic agent, such as asbestos. There are no clear, controlling precedents in the decisions of the Alabama Supreme Court on these issues, and their significance extends beyond the present case.

**I. CERTIFICATION FROM THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ALABAMA PURSUANT TO
ARTICLE VI, § 6.02(b)(3) OF THE ALABAMA CONSTITUTION OF 1901,
AND RULE 18 OF THE ALABAMA RULES OF APPELLATE
PROCEDURE**

TO THE SUPREME COURT OF THE STATE OF ALABAMA AND THE

HONORABLE JUSTICES THEREOF:

In order to assist the Justices of the Alabama Supreme Court in their consideration of the certified questions, and in accordance with Alabama Rule of Appellate Procedure 18,¹¹ the following post-trial findings of fact are provided.¹²

A. **Barbara Bobo**

Barbara Wear Bobo was born on March 3, 1942, and lived with her father, Clifton Wear, on the family farm until she married James “Neal” Bobo on September 28, 1964.¹³ The couple purchased a home in Florence, Alabama, in 1965.¹⁴ James Bobo died on September 7, 1997,¹⁵ from lung cancer induced by asbestosis¹⁶ — “a form of pneumoconiosis (silicatosi) caused by inhaling fibers of asbestos,” and “associated with pleural mesothelioma.”¹⁷ Mrs. Bobo did not remarry following the

¹¹ See Ala. R. App. P. 18(d) (“The certificate provided for herein shall contain the style of the case, a statement of facts showing the nature of the cause and the circumstances out of which the questions or propositions of law arise and the question of law to be answered.”).

¹² The following findings of fact were derived from the parties’ pleadings, pre-trial evidentiary submissions, trial testimony and exhibits, briefs, and arguments of counsel.

¹³ Doc. no. 83-1 (Barbara Bobo’s Sept. 25, 2012 Deposition), at 11; doc. no. 201 (Agreed and Stipulated Facts), ¶¶ 5, 12(b).

¹⁴ Doc. no. 123 (Barbara Bobo’s May 30, 2013 Deposition), at 16; doc. no. 201 (Agreed and Stipulated Facts), ¶ 6.

¹⁵ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 9.

¹⁶ See Trial Transcript, Day 1, at 181 (*ll* 9-14); doc. no. 145-3 (James Bobo Deposition) at 59, 70-71.

¹⁷ *Dorland’s Illustrated Medical Dictionary* 161 (30th ed. 2003) (defining the term *asbestosis* as meaning “a form of pneumoconiosis (silicatosi) caused by inhaling fibers of asbestos, marked by interstitial fibrosis of the lung varying in extent from minor involvement of the basal areas to extensive scarring; it is associated with pleural mesothelioma and bronchogenic carcinoma”).

death of her husband, and continued to live in the same home she had shared with Mr. Bobo until her own death.¹⁸ She was diagnosed with malignant pleural mesothelioma in November of 2011, and died as a result of that disease on September 7, 2013,¹⁹ the sixteenth anniversary of her husband's death. She then was 71 years of age.²⁰

B. TVA

The Tennessee Valley Authority (“TVA” or “the Authority”) is a constitutionally authorized instrumentality of the United States created pursuant to the Tennessee Valley Authority Act of 1933, 16 U.S.C. § 831 *et seq.* (“the TVA Act”), which broadly charges the Authority with the accomplishment of several important missions, including: improving navigability on the Tennessee River and any of its tributaries; flood control; reforestation; improvement of marginal lands; and agricultural and industrial development of the region served by TVA,²¹ an area that was particularly affected by the Great Depression, and which covers most of Tennessee, portions of Alabama, Mississippi, and Kentucky, and small slices of Georgia, North Carolina, and Virginia.

¹⁸ See doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 16-17, 29-30; doc. no. 201 (Agreed and Stipulated Facts), ¶¶ 9-10.

¹⁹ Doc. no. 178 (Motion to Substitute Party); doc. no. 179 (Order Granting Motion to Substitute Party); doc. no. 201 (Agreed and Stipulated Facts), ¶ 10.

²⁰ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 67.

²¹ See 16 U.S.C. § 831n and § 831n-4. See also, *e.g.*, doc. no. 207 (Agreed and Stipulated Facts), ¶ 12.

To assist in the accomplishment of its Congressionally-mandated purposes, the TVA Act specifically authorizes the Authority “to acquire real estate for the construction of dams, reservoirs, transmission lines, power houses, and other structures, and navigation projects at any point along the Tennessee River, or any of its tributaries,”²² and “[t]o produce, distribute, and sell electric power.”²³ All real property acquired by TVA for the purpose of accomplishing its statutory purposes is held “in the name of the United States of America,” and is “entrusted to [TVA] as the agent of the United States to accomplish the purposes of the [TVA Act].”²⁴

The Browns Ferry Nuclear Plant located on the North shore of the Tennessee River near Athens, in Limestone County, Alabama, is one of the properties owned by the United States and entrusted to TVA for management and operational control.²⁵ The Browns Ferry facility was the Authority’s first nuclear power plant, and the largest in the world when it began operation in 1974. It also was the first nuclear plant in the world to generate more than one billion watts of power.²⁶ The plant’s

²² 16 U.S.C. § 831c(i).

²³ 16 U.S.C. § 831d(l) (alteration supplied). *See also* 16 U.S.C.A. § 831h-1; doc. no. 207 (Agreed and Stipulated Facts), ¶ 13.

²⁴ 16 U.S.C. § 831c(h) (alterations supplied). *See also* doc. no. 207 (Agreed and Stipulated Facts), ¶ 14.

²⁵ Doc. no. 207 (Agreed and Stipulated Facts), ¶ 15; doc. no. 31 (TVA Answer), ¶ 10.

²⁶ TVA intended to construct seventeen nuclear reactors during the decade of the 1950s and ‘60s, but finished only five. The plans for the Browns Ferry facility were approved by the Nuclear Regulatory Commission on June 17, 1966; construction began in September of that year; and it began operation in 1974. *See, e.g.*, <http://www.tva.gov/sites/brownsferry.htm> (last visited June 11,

three operating units are General Electric boiling water reactors. They produce electricity by splitting uranium atoms, and the heat generated by that process boils water, producing steam that is piped to turbines, which spin generators to produce electricity.²⁷

C. James Bobo's Employment History and Exposure to Asbestos

Barbara Bobo's husband, James "Neal" Bobo, was employed as a machine operator at the Alabama Wire Plant in Florence, Alabama for about ten years between 1965 and April 15, 1975, the date on which he was hired by TVA.²⁸ During that period, he was exposed to several products containing asbestos: *e.g.*, Careytemp asbestos-containing pipe covering, insulating cement, and block insulation;²⁹ GAF Building Materials Corporation asbestos-containing pipe covering, insulating cement,

2015). As of 2015, TVA operated six reactors at three sites: Browns Ferry, the subject of this action (three nuclear reactor units); Sequoyah, in Soddy-Daisy, Tenn. (two nuclear reactor units); and Watts Bar, near Spring City, Tenn. (one existing nuclear reactor unit, but a second unit is under construction). Together, those plants contribute about 6,600 megawatts of electricity to the power grid, and about 30% of TVA's power supply. Those plants alone make enough electricity to power more than three million homes in the Tennessee Valley, thereby making the "Nuclear Power Group" an integral part of TVA's seven-state power system.

See <http://www.tva.com/power/nuclear/index.htm> (last visited June 11, 2015).

²⁷ *See, e.g.*, <http://www.tva.gov/sites/brownsferry.htm> (last visited June 11, 2015).

²⁸ Doc. no. 123 (Barbara Bobo's May 30, 2013 Deposition), at 52-70.

²⁹ Doc. no. 123-2 (Barbara Bobo Declaration in Support of Exposure to Celotex Corporation Asbestos Containing Products), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶¶ 16-17.

and block insulation;³⁰ H.K. Porter asbestos-containing cloth;³¹ Kaiser Aluminum & Chemical Corporation asbestos-containing block insulation;³² Keene Corporation asbestos-containing pipe covering, insulating cement, and block insulation;³³ and Raymark gaskets.³⁴

James Bobo was employed by TVA as either a temporary or annual employee for more than twenty-two years, from April 15, 1975 until September 7, 1997,³⁵ which also was the date of his death from lung cancer induced by asbestosis.³⁶ He worked primarily in the Browns Ferry Nuclear Plant.³⁷ Products and materials that contained

³⁰ Doc. no. 123-3 (Barbara Bobo Declaration in Support of Exposure to GAF Building Materials Corporation Asbestos Related Products), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶ 17.

³¹ Doc. no. 123-4 (Barbara Bobo Declaration in Support of Exposure to H.K. Porter Asbestos Related Products), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶ 17.

³² Doc. no. 123-5 (Barbara Bobo Declaration in Support of Exposure to Kaiser Aluminum & Chemical Corporation Asbestos Related Products), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶ 17.

³³ Doc. no. 123-6 (Barbara Bobo Declaration in Support of Exposure to Keene Corporation Asbestos Related Products), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶ 17.

³⁴ Doc. no. 123-7 (Barbara Bobo Declaration in Support of Exposure to Raymark Asbestos Related Products), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶ 17.

³⁵ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 28; doc. no. 83-3 (Exhibits to Priscilla Carthen Deposition), at ECF 24. “ECF” is an acronym formed from the initial letters of the name of a filing system that allows parties to file and serve documents electronically (*i.e.*, “Electronic Case Filing”). Bluebook Rule 7.1.4 allows citation to page numbers generated by the ECF header. *The Bluebook: A Uniform System of Citation*, at 21 (Columbia Law Review Ass’n *et al.* eds., 19th ed. 2010). Even so, the Bluebook recommends against citation to ECF pagination in lieu of original pagination. Consequently, unless stated otherwise, this court will cite to the original pagination in the parties’ pleadings. When the court cites to pagination generated by the ECF header, it will, as here, precede the page number with the letters “ECF.”

³⁶ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 9.

³⁷ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 28; doc. no. 83-3 (Exhibits to Priscilla

asbestos fibers (*e.g.*, thermal pipe coverings, insulation, roofing cement, packing materials, and gasket packing materials) were present throughout that facility.³⁸ Even so, there is no record of air monitoring measurements demonstrating either the fact of Mr. Bobo's exposure to airborne asbestos fibers during his TVA employment, or the extent of any such exposure in some measurable units.³⁹

While working for TVA, Mr. Bobo held at various times job positions classified as "laborer," "dual rate laborer foreman," and "laborer foreman."⁴⁰ He never held jobs classified as either "asbestos worker" or "insulator."⁴¹ His duties while working as a laborer included, among other things, general clean-up work, tool decontamination, and packing and storing of radiological wastes.⁴² Moreover, Mr. Bobo was often directed to assist TVA employees who installed (or removed) insulation materials that were made from (or that contained) asbestos.⁴³ Occasionally, he would assist the insulators in such work, but more often than not he was directed

Carthen Deposition), at ECF 24.

³⁸ Doc. no. 175 (Answer to First Amended Complaint), ¶ 10; doc. no. 201 (Agreed and Stipulated Facts), ¶ 31; doc. no. 83-2 (James Bobo Deposition), at 34-35. TVA's Safety Manual noted that asbestos thermal insulation was used at the plant, and that "[e]xposures occure[d] during application and removal of insulation." Doc. no. 91-1, at ECF 5 (alterations supplied).

³⁹ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 32.

⁴⁰ *Id.* ¶ 33.

⁴¹ *Id.* ¶ 34.

⁴² *Id.* ¶ 35.

⁴³ Doc. no. 83-2 (James Bobo Deposition), at 36.

to clean up after the insulators had completed their duties by sweeping insulation residue that had fallen to the floor.⁴⁴ The act of sweeping generated airborne “dust” containing asbestos fibers.⁴⁵ Additionally, Mr. Bobo was often present when insulators mixed refractory cement that contained asbestos fibers:⁴⁶ a process that also generated airborne contaminants.

Mr. Bobo worked at various times in parts of the nuclear facility that contained radiologically contaminated materials: areas that were referred to in this record as “C-Zones.”⁴⁷ Whenever Mr. Bobo did so, he was required to wear protective clothing and equipment to prevent or mitigate exposure to radiation.⁴⁸ Whenever Mr. Bobo swept insulation residue that was *not within* a C-Zone, however, he wore only his personal clothing and no over-garment protective coverings,⁴⁹ even though such gear would have prevented airborne asbestos fibers from adhering to and contaminating

⁴⁴ *Id.* at 36-38. Laborers cleaned up the insulation residue using brooms, rags, and mops. Doc. no. 83-4 (Jimmy Myhan Deposition), at 60.

⁴⁵ Doc. no. 83-2 (James Bobo Deposition), at 34, 100, 109; doc. no. 83-4 (Jimmy Myhan Deposition), at 61.

⁴⁶ Doc. no. 83-2 (James Bobo Deposition), at 144-45, 147.

⁴⁷ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 36.

⁴⁸ *Id.* ¶ 37 (“Mr. Bobo was required to wear over-garment protection while working in C-Zones for purposes of preventing personal radiological contamination.”). *See also, e.g.*, U.S. Dept. of Health & Human Services website on “Radiation Emergency Medical Management,” found at http://www.remm.nlm.gov/radiation_ppe.htm (last visited June 12, 2015). The term *contamination* refers to particles of radioactivity deposited where they are not supposed to be. *See, e.g.*, <http://nuclear.duke-energy.com/2012/08/21/radiation-protection-for-nuclear-employees>.

⁴⁹ Trial Transcript, Day 2, at 13-16.

his personal clothing.⁵⁰ Mr. Bobo's clothes were always clean when he left for work in the morning, but usually "pretty dirty" when he returned home in the evening.⁵¹

Jimmy Myhan was a TVA employee at Browns Ferry from March 16, 1976 until October 1, 1993, except for a two-year time period between October 1978 and August 1980 when Myhan left TVA for other employment.⁵² Mr. Myhan testified that, during both periods that he and James Bobo worked together — *i.e.*, 1976-78, and 1980 through the mid-to-late 1980s — Mr. Bobo worked at least once each week in a C-Zone, but at all other times he worked in one of the three units of the Nuclear Plant where he cleaned up *white* pipe insulation.⁵³ Mr. Myhan's description of the pipe insulation as "white" in color is significant, because heat-absorbing materials made from (or containing) asbestos fibers generally *are* "white" in color. For example, Frank Mecke testified that the contractor he worked for during construction of the Browns Ferry facility ("Shook & Fletcher") installed all insulation in the Unit 1 reactor,⁵⁴ and that insulating materials made from (or containing) asbestos fibers

⁵⁰ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 38.

⁵¹ Trial Transcript, Day 2, at 28-29, 136-37.

⁵² Doc. no. 201 (Agreed and Stipulated Facts), ¶¶ 29-30.

⁵³ Trial Transcript, Day 2, at 11-16.

⁵⁴ The operating license for the Unit 1 reactor was issued by the U.S. Nuclear Regulatory Commission on Dec. 20, 1973, and a renewal license issued on May 4, 2006. The current licence is due to expire on Dec. 20, 2033. *See* <http://www.nrc.gov/info-finder/reactor/bf1.html> (last visited June 12, 2015).

were *white* in color.⁵⁵ In like manner, Steven Brown, Director of Maintenance at the Browns Ferry Nuclear Plant, testified that all asbestos insulation removed during abatement procedures was *white* in color, and that he encountered asbestos insulation throughout the nuclear plant on a daily basis.⁵⁶ Indeed, TVA's own documentation confirms that asbestos insulation was used pervasively throughout the Browns Ferry facility, including the three reactor units in which Mr. Bobo worked.

A list of TVA employee fatalities shows that, in 1977, a labor foreman (a job position sometimes held by Mr. Bobo) died of asbestosis, and an electrician foreman died of mesothelioma.⁵⁷ A 1978 internal memo notes that an evaluation of the Browns Ferry insulator shop revealed that the atmosphere in the shop contained airborne asbestos fibers.⁵⁸

A 1979 evaluation of TVA facilities by the Occupational Safety and Health Administration noted that "asbestos exposure at numerous power plants" was one of "[a] number of recognized and documented hazards within TVA [that] have been known to exist for years [but which] still [had] not [been] abated."⁵⁹

A 1980 draft of TVA's "Hazard Control Standard 407" for Asbestos allowed

⁵⁵ Trial Transcript, Day 1, at 163-67.

⁵⁶ Trial Transcript, Day 3, at 12-13, 21.

⁵⁷ Plaintiff Exhibit 531, at 5.

⁵⁸ Plaintiff Exhibit 530.

⁵⁹ Plaintiff Exhibit 531, at 45 (alterations supplied).

the purchase of asbestos insulation if no suitable substitute existed. It also required non-asbestos materials to be designated as such, and required warning signs to be posted in areas where airborne asbestos fiber concentrations might exceed the permissible exposure level.⁶⁰

A 1988 “Asbestos Control Program Review Report” stated that “all insulation (usually gray) is [to be] treated as asbestos unless bulk sample analysis indicates otherwise,” and noted that “insulation containing asbestos was sometimes substituted in some areas being insulated with asbestos-free insulation during construction.”⁶¹

Even though air monitoring measurements were usually obtained after wet methods had eliminated most of the airborne dust, elevated levels of asbestos fibers still were detected in every reactor unit of the plant.⁶² Moreover, even though non-asbestos “mineral wool” was sometimes used during construction of the Browns Ferry Plant, it was covered (encased) with asbestos mud and asbestos cloth.⁶³

The preponderance of the evidence presented at trial established that a significant quantity of asbestos fibers accumulated on the clothing worn by Mr. Bobo when he swept insulation residue in the non-C-Zone areas of Browns Ferry.

⁶⁰ Plaintiff Exhibit 533, at 3, 9.

⁶¹ Plaintiff Exhibit 536, at 4 (alteration supplied).

⁶² Plaintiff Exhibit 543; Trial Transcript, Day 2, at 57-59.

⁶³ Trial Transcript, Day 1, at 164.

D. Barbara Bobo's Exposures to Asbestos Originating in Sources Other Than TVA's Browns Ferry Nuclear Plant

Although Barbara Bobo, like many Americans over the age of sixty, probably was exposed to products containing some amount of asbestos at various times throughout her life,⁶⁴ plaintiffs' counsel admitted that she experienced non-occupational exposures to asbestos during the eleven-year period that her husband was employed as a machine operator at the Alabama Wire Plant through laundering his work clothes and traveling in the family car.⁶⁵ Her exposures during that period, however, occurred 35 to 45 years before the date on which she was diagnosed as suffering from malignant pleural mesothelioma.⁶⁶

In addition, Mrs. Bobo worked as a beautician for various employers from approximately 1976 through 1983, when she opened her own beauty salon in a building adjacent to the home she and James Bobo shared.⁶⁷ From then until 2011, she worked as a self-employed beautician under the trade name of "Barbara's Beauty

⁶⁴ For example, it was alleged in the complaints that Barbara Bobo probably was exposed to asbestos during the decades of the 1940s and 1950s as a result of "observing her Father[, Clifton Wear,] who worked as a farmer, performing maintenance to his tractors" and, as a consequence, she "was exposed to asbestos-containing friction products" Doc. no. 1 (Complaint), ¶ 12(b) (alteration supplied), and doc. no. 171 (Amended Complaint), ¶ 12(b) (same).

⁶⁵ Doc. no. 123 (Barbara Bobo's May 30, 2013 Deposition), at 52-70; doc. no. 201 (Agreed and Stipulated Facts), ¶ 18.

⁶⁶ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 21.

⁶⁷ Doc. no. 123 (Barbara Bobo's May 30, 2013 Deposition), at 16; doc. no. 201 (Agreed and Stipulated Facts), ¶ 7.

Shop.”⁶⁸ During the thirty-five or so years that Mrs. Bobo was employed as a beautician, she generally worked five and a half days each week, with a typical work day of eight hours.⁶⁹ Mrs. Bobo used stationary hair driers on her patrons 25 to 30 times each day, and she inhaled dust particles while doing so.⁷⁰ She also cleaned hair dryer filters on a monthly basis: a maintenance procedure that involved removing, cleaning, and reinserting the filters.⁷¹ Mrs. Bobo also inhaled dust while performing that task.⁷²

E. Barbara Bobo’s Exposures to Asbestos Originating in TVA’s Browns Ferry Nuclear Plant

Plaintiffs contend that their deceased mother’s exposure to airborne asbestos fibers from those sources sketched in the preceding section was not significant in comparison to the quantity to which she was subjected through her practice of laundering her husband’s work clothes over the course of the twenty-two years that he was employed by TVA.⁷³ The washroom located in the center of the Bobo home

⁶⁸ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 19.

⁶⁹ Doc. no. 83-1 (Barbara Bobo’s Sept. 25, 2012 Deposition), at 28, 31; doc. no. 201 (Agreed and Stipulated Facts), ¶ 20.

⁷⁰ Doc. no. 83-1 (Barbara Bobo’s Sept. 25, 2012 Deposition), at 26-28; doc. no. 201 (Agreed and Stipulated Facts), ¶ 20.

⁷¹ Doc. no. 83-1 (Barbara Bobo’s Sept. 25, 2012 Deposition), at 29; doc. no. 201 (Agreed and Stipulated Facts), ¶ 20.

⁷² Doc. no. 83-1 (Barbara Bobo’s Sept. 25, 2012 Deposition), at 29-30; doc. no. 201 (Agreed and Stipulated Facts), ¶ 20.

⁷³ See doc. no. 171 (First Amended Complaint), ¶ 12; doc. no. 201 (Agreed and Stipulated Facts), ¶¶ 22, 39.

was small: its floor dimensions were only about four feet by five feet (20 square feet).⁷⁴ Mrs. Bobo washed her husband's clothes twice each week, but her daily practice was to pick-up the dirty clothing that he had removed at the end of the preceding work day, carry those articles into the washroom, shut the door, empty the pockets, shake the clothing to remove loose dirt particles, and place the items into the washing machine.⁷⁵ Mrs. Bobo recalled inhaling "dust" while performing those actions.⁷⁶ that is, she described the atmosphere of the laundry room as "[f]oggy," but said that she "just thought it was dust."⁷⁷ She also dry-swept the washroom floor with a small broom and dustpan prior to mopping it, and said that the air became dusty when doing so.⁷⁸ Mrs. Bobo had no knowledge that the "dust" on her husband's work clothing or the floor of her washroom contained asbestos fibers, and her home was never tested for the presence of that substance.⁷⁹

Dr. Eugene Mark, plaintiffs' expert, reviewed depositions, medical records, and

⁷⁴ Doc. no. 201 (Agreed and Stipulated Facts), ¶¶ 23-24; doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 18.

⁷⁵ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 24; doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 19.

⁷⁶ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 25; doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 20.

⁷⁷ Doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 19 (alteration supplied).

⁷⁸ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 26; doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 20.

⁷⁹ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 40; doc. no. 83-1 (Barbara Bobo's Sept. 25, 2012 Deposition), at 41-42; doc. no. 51 (Plaintiff's Answer to Interrogatories), at 3.

other file materials, and testified that Mrs. Bobo was exposed to asbestos by laundering her husband's clothes twice each week for more than twenty-two years.⁸⁰ He also testified that studies in scientific literature that are generally accepted as authoritative in the field link mesothelioma to asbestos exposure from laundering the clothes of a person who works with asbestos.⁸¹ One study relied upon by Dr. Mark (an article by Gunnar Hillerdal entitled "Mesothelioma Cases Associated with Non-Occupational and Low-Dose Exposures") reported that asbestos fiber concentrations in domestic exposure cases might be as high as in occupation exposure cases.⁸² The same study reported that "[o]rdinary vacuum cleaning is not effective in removing asbestos fibers, which can remain for years in the house and be airborne again whenever disturbed. Thus, domestic exposure is not low exposure."⁸³ Dr. Mark concluded, based upon his review of case materials, that Mrs. Bobo's exposure to asbestos from her husband's work at TVA was a substantial factor contributing to the development of her mesothelioma.⁸⁴

F. The Application of Regulations Promulgated by the Occupational Safety and Health Administration to TVA's Operations

⁸⁰ Trial Transcript, Day 1, at 86.

⁸¹ *Id.* at 87, 141, 145-51.

⁸² *Id.* at 158.

⁸³ *Id.* (alterations supplied).

⁸⁴ *Id.* at 97.

The Occupational Safety and Health Act of 1970 (“the OSH Act”) required “the head of each Federal agency . . . to establish and maintain an effective and comprehensive occupational safety and health program which is consistent with the standards promulgated under section 665” of the Act. 29 U.S.C. § 668(a).⁸⁵ Executive Order 11,612, promulgated in 1971, observed that, “[a]s the Nation’s largest employer, the Federal Government has a special obligation to set an example for safe and healthful employment.” 36 Fed. Reg. 13,891 (July 26, 1971) (alteration supplied). For that reason, the order required the head of each federal department and agency to “establish an occupational safety and health program . . . in compliance with the requirements of . . . section 19(a) of [the OSH Act],” and the programs were

⁸⁵ Section 668(a) goes on to mandate that the head of each Federal agency:

(1) provide safe and healthful places and conditions of employment, consistent with the standards set under section 655 of this title;

(2) acquire, maintain, and require the use of safety equipment, personal protective equipment, and devices reasonably necessary to protect employees;

(3) keep adequate records of all occupational accidents and illnesses for proper evaluation and necessary corrective action;

(4) consult with the Secretary with regard to the adequacy as to form and content of records kept pursuant to subsection (a)(3) of this section; and

(5) make an annual report to the Secretary with respect to occupational accidents and injuries and the agency's program under this section. Such report shall include any report submitted under section 7902(e)(2) of Title 5.

29 U.S.C. § 668(a).

required to “be consistent with the standards prescribed by section 6 of [the OSH Act],” now codified at 29 U.S.C. 668. *Id.* (alterations supplied).

Yet another Executive Order issued three years later recognized that “even greater efforts” were needed in order to establish occupational safety and health programs that were consistent with the standards prescribed by Section 6 of the OSH Act. Executive Order No. 11,807, recorded at 39 Fed. Reg. 35,559 (Sept. 28, 1974) (alteration supplied). Thus, this 1974 Executive Order was designed to provide additional guidance to ensure effective occupational safety and health programs within executive agencies, and to allow for detailed evaluations of such programs by the Secretary of the Department of Labor. *See id.*

It was not until the promulgation of Executive Order 12,196 in February of 1980, however, that federal executive agencies were specifically required to comply with the regulations of the Occupational Safety and Health Administration. *See* 45 Fed. Reg. 12,769 (Feb. 26, 1980) (providing that the head of each agency must “[c]omply with all standards issued under section 6 of [the OSH Act]” (alterations supplied)).

G. The Evolution of Standards by the Occupational Safety and Health Administration

The Occupational Safety and Health Administration (“OSHA”) promulgated

an emergency temporary standard for exposure to asbestos fibers under Section 6 of the OSH Act in 1971 (now codified as 29 U.S.C. § 668). 36 Fed. Reg. 23,207 (December 7, 1971). The temporary standard provided that an employee's exposure could "not exceed 5 fibers per milliliter greater than 5 microns in length" per cubic centimeter of air over an eight-hour, time-weighted average, and could not exceed a peak concentration level of 10 fibers per milliliter. 36 Fed. Reg. 23,208.⁸⁶ The concentration level of airborne asbestos fibers was to be determined by "the membrane filter method at 400-450x magnification (4 millimeter objective) phase contrast illumination." *Id.*

The exposure limits stated in the 1971 temporary standard became final in 1972, when OSHA notified employers to prepare for the following reductions in exposure limits that were to take effect, initially, on July 7, 1972, and then be further reduced four years thereafter, on July 1, 1976:

(b) *Permissible exposure to airborne concentrations of asbestos fibers*

(1) *Standard effective July 7, 1972.* The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed *shall not exceed five fibers*, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

⁸⁶ The Federal Register notice issued by OSHA announced the creation of 29 C.F.R. § 1910.93a (1971), *recodified as* 29 C.F.R. § 1910.1001 (1975). The emergency temporary standard for exposure to asbestos fibers was codified at 29 C.F.R. § 1910.93a(a).

(2) *Standard effective July 1, 1976.* The 8-hour time-weighted average air-borne concentrations of asbestos fibers to which any employee may be exposed *shall not exceed two fibers*, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) *Ceiling concentration.* No employee shall be exposed at any given time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

29 C.F.R. § 1910.93a(b) (1972), *recodified as* 29 C.F.R. § 1910.1001 (1975) (emphasis supplied).⁸⁷

Additionally, OSHA laid out requirements for protective equipment and clothing for employees such as Mr. Bobo, who were exposed to airborne concentrations of asbestos fibers that exceeded the permissible exposure levels prescribed in Section 1910.93a(b) above.

(d)(3) *Special clothing:* The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in paragraph (b) of this section.

(4) *Change rooms:* (i) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, the employer shall provide change rooms for employees working regularly at the place.

⁸⁷ At the time OSHA notified employers to prepare for the upcoming reductions in exposure limits, it also amended 29 C.F.R. § 1910.93a to eliminate the provision containing the temporary standard. *See* 37 Fed. Reg. 11,318-20 (June 7, 1972).

(ii) *Clothes lockers*: The employer shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(iii) *Laundering*: (a) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section. . . .

29 C.F.R. § 1910.93a(d) (1972), *recodified as* 29 C.F.R. § 1910.1001 (1975).

OSHA also mandated a particular method of measuring and monitoring asbestos concentrations in the air.

(e) *Method of measurement*. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 x (magnification) (4 millimeter objective) with phase contrast illumination.

(f) *Monitoring* — (1) *Initial determinations*. Within 6 months of the publication of this section, every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section

(2) *Personal monitoring* — (i) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) *Sampling frequency and patterns*. After the initial determinations required by subparagraph (1) of this paragraph, samples

shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by paragraph (b) of this section.

29 C.F.R. §§ 1910.93a(e)-(f) (1972), *recodified as* 29 C.F.R. § 1910.1001 (1975).

The 1972 OSHA standard for asbestos exposure further stated that “every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers.” 29 C.F.R. § 1910.93a(j)(3).

H. TVA’s Internal Policies

TVA has an internal safety organization that is “responsible for establishing TVA policies and procedures for assuring safe and healthful work conditions for all employees on TVA properties (TVA safety practices).”⁸⁸ Such safety practices “are organized generally into three tiers: agency safety practices established by the TVA safety organization; business unit safety practices established by major business units such as nuclear power . . . ; and site specific safety practices established by local facilities such as Browns Ferry”⁸⁹ Further, many of those safety practices address specific standards relating to the use of asbestos at TVA properties.⁹⁰

⁸⁸ Doc. no. 68 (Jeter Affidavit), ¶ 2.

⁸⁹ *Id.* ¶ 3 (alterations supplied); doc. no. 201 (Agreed and Stipulated Facts), ¶ 44.

⁹⁰ Doc. no. 68 (Jeter Affidavit), ¶ 4; doc. no. 201 (Agreed and Stipulated Facts), ¶ 45.

1. TVA Hazard Control Standard 407

TVA adopted “Hazard Control Standard 407” for asbestos on April 15, 1974.⁹¹ Paragraph 1.0 of that standard applied “primarily, but not exclusively, to operations where asbestos or insulating material containing asbestos is handled, mixed, sprayed, applied, removed, cut, or scored.”⁹² Paragraph 4.1.2 listed materials that might contain asbestos: *e.g.*, heat insulating materials; fireproofing materials; transite;⁹³ limpet fibers;⁹⁴ calcium silicate block and pipe insulation;⁹⁵ asbestos cement, mortars, wire covers, grouting, paper, blankets, tape, and plaster; and vehicle brake linings.⁹⁶ Paragraph 4.3 prescribed the permissible exposure levels for airborne concentrations of asbestos fibers:

⁹¹ Doc. no. 68 (Jeter Affidavit), ¶ 4; *see also* Plaintiffs’ Exhibit 528 (TVA Hazard Control Standard 407); doc. no. 68-1 (Same).

⁹² Plaintiffs’ Exhibit 528 (TVA Hazard Control Standard 407), at 1 (alteration supplied).

⁹³ “Transite” originated as a trade name for a line of asbestos-cement products, but over time, it became a generic term for “a hard, fireproof composite material” and “fiber cement boards” that were frequently used in wall construction. *See* <http://en.wikipedia.org/wiki/Transite> (last visited June 11, 2015).

⁹⁴ “Limpet” is a mixture of cement and asbestos, and it was often used in a spray-form. Geoffrey Tweedale, 5.8 *Limpet Asbestos: Spraying Ill-Health World-Wide*, World Asbestos Report, http://worldasbestosreport.org/conferences/gac/gac2000/A5_8~182.pdf (last visited June 11, 2015). It was often used for insulation, sound-proofing, fireproofing, and condensation control. *Id.*

⁹⁵ Calcium silicate is used to insulate high-temperature pipes and equipment and for fire endurance applications. It is manufactured and sold in three different forms: preformed block, preformed pipe, and board. Calcium silicate evolved about 1950 from earlier high-temperature thermal insulations: 85-percent magnesium carbonate and pure asbestos insulation. At first, calcium silicate insulation was typically reinforced with asbestos fibers. By the end of 1972, however, most North American manufacturers had switched to glass fiber, plant fibers, cotton lintens, or rayon. *See, e.g.*, <http://www.insulation.org/articles/article.cfm?id=IO080904> (last visited June 17, 2015).

⁹⁶ *See* Plaintiffs’ Exhibit 528 (TVA Hazard Control Standard 407), at 2.

- 4.3.1 The 8-hour time-weighted average airborne concentration of asbestos fibers to which an employee may be exposed shall not exceed five fibers, each longer than five micrometers, per cubic centimeter of air. (On July 1, 1976, the permissible concentration for asbestos will be reduced from five fibers to two fibers, each longer than five micrometers, per cubic centimeter of air.)
- 4.3.2 An employee shall not be exposed for any length of time to airborne concentrations of asbestos fibers in excess of the ceiling limit of 10 fibers, each longer than five micrometers, per cubic centimeter of air without appropriate personal protective equipment as described in paragraph 4.5 of this standard.⁹⁷

Paragraph 4.4 provided instructions on the proper use of asbestos products:

- 4.4.1 Engineering controls, except when technically not feasible, shall be utilized to ensure that each individual working with or near materials containing asbestos is not exposed to concentrations of asbestos dust in excess of the permissible limits. Administrative controls shall be used only if engineering controls are not feasible.
- 4.4.2 When both respiratory protection and control of exposure time are practicable, control of exposure time shall be used. The permissible exposure time can be determined by allowing a precalculated length of exposure to airborne concentrations of asbestos above the permissible concentration (but in no case, above the ceiling limit), followed by a comparable period of no exposure. *Accurate records of exposure times and airborne asbestos concentrations shall be maintained.*
- 4.4.3 Asbestos and materials containing asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise used in a wet state (except where impracticable or where the usefulness of the product would be diminished) to prevent airborne concentrations

⁹⁷ *Id.* at 2-3.

of asbestos fibers in excess of the permissible limits⁹⁸

Paragraph 4.5 defined the requirements for personal protective equipment:

4.5.1 The use of respiratory protection for controlling employee exposure to asbestos shall be limited to the following conditions:

- A. Prior to implementation of engineering controls or work methods designed to maintain airborne asbestos concentrations within the permissible limits required by paragraph 4.3 of this standard.
- B. Where engineering controls or administrative controls are technically not feasible.
- C. In emergency situations.
- D. *Prior to determining the airborne concentrations of asbestos in a work environment.*

4.5.2 Employees exposed to airborne concentrations of asbestos fibers greater than the ceiling limit shall be provided with and required to use personal protective equipment to protect the eyes, head, hands, feet, and trunk from asbestos *Protective clothing shall be utilized for exposures of undetermined concentrations until it has been proven by tests that the activity will not produce concentrations above the ceiling limits.*⁹⁹

Paragraph 4.6.2 contained standards for changing rooms, and stated that “[e]ach employee exposed to airborne concentrations of asbestos in excess of the ceiling limit shall be provided with two separate lockers or containers *so separated or isolated to prevent contamination of the employee’s street clothes from his work*

⁹⁸ *Id.* at 3 (emphasis supplied).

⁹⁹ *Id.* at 3-5 (emphasis supplied).

clothes.”¹⁰⁰

Paragraph 4.7 established requirements for “Personal and Environmental Monitoring,” and provided that:

Initial and continuing monitoring shall be performed by the TVA Hazard Control Branch which will *quantitatively determine airborne asbestos fiber concentration in the breathing zone of exposed employees*, and in areas of a work environment which are representative of airborne concentrations which may reach the breathing zone of employees. Eight-hour time-weighted average and ceiling concentrations shall be determined. Such evaluations shall be accomplished at least semiannually and shall represent with reasonable accuracy the levels of exposure of employees.¹⁰¹

TVA also was required to “maintain records of personal monitoring and environmental monitoring.”¹⁰²

Paragraph 4.9, addressed the subject of “Housekeeping,” and provided that “the use of air jets or dry sweeping to clean up asbestos accumulations is prohibited.”¹⁰³

Finally, Paragraph 4.10.2 mandated that “[e]mployees exposed to airborne concentrations of asbestos fibers shall receive an annual medical examination.”¹⁰⁴

Significantly, records of those medical examinations were required to be retained by

¹⁰⁰ Plaintiffs’ Exhibit 528 (TVA Hazard Control Standard 407), at 5 (alteration and emphasis supplied).

¹⁰¹ *Id.* at 5 (emphasis supplied).

¹⁰² *Id.* at 6.

¹⁰³ *Id.*

¹⁰⁴ *Id.* (alteration supplied).

TVA for twenty years.¹⁰⁵

2. TVA nuclear power safety and hazard control manual

TVA's Nuclear Power Division adopted a safety and hazard control manual on May 8, 1978.¹⁰⁶ The threshold limit for airborne asbestos concentrations under the standards of that manual was "five fibers per cubic centimeter, greater than five micrometers in length."¹⁰⁷ Requirement number 4 specified that "[e]mployees exposed to airborne concentrations of asbestos shall wear an approved respirator and protective coveralls"¹⁰⁸ Additionally, Requirement number 12 mandated that "[e]ach employee exposed to airborne concentrations of asbestos shall be provided with two separate lockers. One locker shall be used for street clothes and must not be contaminated with asbestos."¹⁰⁹

3. Browns Ferry internal plant standards

A 1979 Browns Ferry internal plant memo stated, in a manner consistent with the language of the Nuclear Power Division manual quoted in the preceding section,

¹⁰⁵ *Id.*

¹⁰⁶ See Plaintiffs' Exhibit 529 (Division of Nuclear Power Safety and Hazard Control Manual); doc. no. 86-4 (Same); doc. no. 68-2 (TVA Asbestos Standards – Browns Ferry Nuclear Plant (1975-1985)).

¹⁰⁷ Plaintiffs' Exhibit 529 (Division of Nuclear Power Safety and Hazard Control Manual), at 2965.

¹⁰⁸ *Id.* (alteration supplied).

¹⁰⁹ *Id.* at 2966 (alteration and emphasis supplied).

that “[l]ocker and shower facilities separate from other plant facilities should be provided for all insulators *and designated cleanup laborers*.”¹¹⁰

The Browns Ferry Nuclear Plant adopted “Standard Practice 14.45” on October 15, 1980, and established site-specific policies and procedures governing the use of asbestos and materials that contained asbestos.¹¹¹ That standard set the threshold limit value for airborne asbestos concentrations at “five fibers per cubic centimeter, greater than five micrometers in length.”¹¹² In addition, that standard mandated that “[e]mployees exposed to airborne concentrations of asbestos shall wear an approved respirator and protective coveralls”¹¹³ Annual medical examinations were also mandated for “employees exposed to airborne concentrations of asbestos fibers.”¹¹⁴ Although other requirements in Standard Practice 14.45 applied to “concentrations of asbestos dust in excess of the permissible limits,” the requirement for respirators and protective coveralls did not make that distinction.¹¹⁵ In other words, those requirements applied to *any quantity* of asbestos exposure.

¹¹⁰ Plaintiffs’ Exhibit 530 (1979 Browns Ferry Internal Plant Memo) (alteration and emphasis supplied).

¹¹¹ See Plaintiffs’ Exhibit 534 (Browns Ferry Nuclear Plant Standard Practice 14.45), at 1; doc. no. 90-2 (Same), at ECF 2; doc. no. 68-2 (TVA Asbestos Standards – Browns Ferry Nuclear Plant (1975-1985)).

¹¹² Plaintiffs’ Exhibit 534 (Browns Ferry Nuclear Plant Standard Practice 14.45), at 1.

¹¹³ *Id.* (alteration supplied).

¹¹⁴ *Id.* at 2.

¹¹⁵ *Id.* at 1.

4. 1984 TVA memorandum

A 1984 memorandum entitled “TVA Policy on Asbestos” established “additional requirements to better protect employees from exposure to asbestos fibers.”¹¹⁶ The first requirement lowered the permissible exposure limit to “no more than 0.5 fibers, longer than 5 micrometers, per cubic centimeter of air (f/cc) as the permissible 8-hour time-weighted average (TWA) airborne concentration of all forms of asbestos. The ceiling level will be lowered from 10 f/cc to 5 f/cc.”¹¹⁷ Employees who could “reasonably be expected to be exposed above a TWA of .1 fiber/cc” were to be identified, given initial and annual training, and offered medical examinations.¹¹⁸

I. TVA’s Response to OSHA Regulations, Policies, and Procedures

The parties stipulated that no statute, regulation, or policy — including the Occupational Safety and Health Act of 1970 and regulations promulgated thereunder by the Occupational Safety and Health Administration — imposed a mandatory requirement that TVA prevent *all* exposure to airborne asbestos fibers during the years that James Bobo worked at Browns Ferry.¹¹⁹ In other words, that Act and the

¹¹⁶ See TVA’s Exhibit 67 (Memorandum by W.F. Willis), at 1; doc. no. 90-3 (Same), at 1; doc. no. 68-2 (TVA Asbestos Standards – Browns Ferry Nuclear Plant (1975-1985)), at 1.

¹¹⁷ TVA’s Exhibit 67 (Memorandum by W.F. Willis), at 1.

¹¹⁸ *Id.* at 2.

¹¹⁹ See doc. no. 201 (Agreed and Stipulated Facts), ¶ 46 (1st sentence).

regulations promulgated thereunder, as well as TVA’s own internal polices and procedures, allowed employees to be exposed to airborne asbestos fibers at concentration levels between zero and the permissible exposure levels in effect on the date of the occupational exposure.¹²⁰ Even so, TVA was aware of the regulations promulgated pursuant to the Occupational Safety and Health Act by the Occupational Safety and Health Administration.¹²¹ As early as 1974, the Authority knew that airborne asbestos fibers could adhere to an employee’s clothing, and should be avoided for reasons of health.¹²² TVA first established an asbestos standard in 1974 as part of its Hazard Control Manual.¹²³ Moreover, as previously discussed in Parts I.H.1. and I.H.2. of this opinion, *supra*, TVA’s internal polices required that all employees exposed to any quantity of airborne asbestos fibers be provided protective clothing, two separate lockers — one of which was to “be used for street clothes and must not be contaminated with asbestos”¹²⁴ — as well as “shower facilities separate from other plant facilities.”¹²⁵ Further, TVA was aware that, of nine employee deaths

¹²⁰ *Id.* (2d sentence).

¹²¹ *Id.* ¶ 48.

¹²² *Id.* ¶ 49.

¹²³ *Id.* ¶ 50.

¹²⁴ Plaintiffs’ Exhibit 529 (Division of Nuclear Power Safety and Hazard Control Manual adopted May 8, 1978) at 2966.

¹²⁵ Plaintiffs’ Exhibit 530 (1979 Browns Ferry Internal Plant Memo providing that “[l]ocker and shower facilities separate from other plant facilities should be provided for all insulators *and designated cleanup laborers*”) (alteration and emphasis supplied).

that occurred during 1977, one (a labor foreman, the same position once held by James Bobo) died of asbestosis, and a second (an electrician foreman) died of mesothelioma.¹²⁶ Finally, even though insulation materials that were not made of asbestos began to be used in the Browns Ferry Nuclear Plant during the decade of the 1980s (all of which were generally brown or greenish-brown in color),¹²⁷ asbestos insulation (generally white in color) remained in use until at least 1991.¹²⁸

TVA's industrial hygiene database lists no record of air sampling to determine concentrations of airborne asbestos fibers prior to October 1979.¹²⁹ Indeed, employees at the Browns Ferry Plant were not monitored for asbestos exposure until at least the early 1980's.¹³⁰ A 1979 Browns Ferry internal plant memo recorded management's recognition that "TVA and Federal safety and health standards require that we provide locker and shower facilities for insulators and designated cleanup laborers that are separate from the plant's regular facilities."¹³¹

The extent to which employees in the Browns Ferry Plant were exposed to airborne asbestos fibers was ineffectively and inaccurately determined by means of

¹²⁶ *Id.* ¶ 51; see also Part I.B. of this opinion, *supra*.

¹²⁷ Doc. no. 201 (Agreed and Stipulated Facts), ¶ 53.

¹²⁸ *Id.* ¶ 52.

¹²⁹ *Id.* ¶ 55.

¹³⁰ *Id.* ¶ 56.

¹³¹ *Id.* ¶ 57.

a visual inspection conducted by supervisory personnel. Notably, however, those personnel were not provided meaningful criteria to measure the concentration levels to which employees were exposed.¹³² Moreover, Browns Ferry supervisors conducted asbestos air monitoring measurements of only three employees in 1980.¹³³ Only eight employees were sampled in 1981, and only five in 1982.¹³⁴ An internal review in 1988 determined that asbestos monitoring “has been very limited and does not meet the monitoring requirements of the OSHA asbestos standard.”¹³⁵ Further, TVA did not provide laborers with protective clothing, separate locker rooms, or separate shower facilities, unless they were working in a C-Zone.¹³⁶

II. DISCUSSION

Plaintiffs’ negligence claims are based upon the laws of Alabama. That may seem incongruous in view of the fact that TVA is a constitutionally authorized instrumentality of the United States. Even so, “the precedents going back over a hundred and fifty years establish that any claim, *even one created by state law*, against a federally created corporation arises under federal law.” *Monsanto Co. v.*

¹³² Trail Transcript, Day 2, at 62-64, 67, 71.

¹³³ *Id.* at 65-66. Air monitoring was performed by measuring the number of asbestos fibers in the air at the work area of the employee. *Id.* at 57.

¹³⁴ *Id.* at 66.

¹³⁵ Plaintiffs’ Exhibit 536, at 7.

¹³⁶ *See* Trial Transcript, Day 2, at 13, 16; Plaintiffs’ Exhibit 530.

Tennessee Valley Authority, 448 F. Supp. 648, 651 (N.D. Ala. 1978) (Wyatt, J.) (emphasis supplied) (citing *Osborn v. Bank of the United States*, 22 U.S. (9 Wheat.) 738 (1824) (Marshall, C.J.); *The Bank of the United States v. Planters Bank of Georgia*, 22 U.S. (9 Wheat.) 904 (1824) (Marshall, C.J.)). See also 28 U.S.C. § 1331 and 16 U.S.C. § 831c-2(a)(1).¹³⁷

In order to prevail,¹³⁸ plaintiffs must prove by a preponderance of the evidence that: TVA owed Mrs. Bobo a duty of reasonable care; TVA breached that duty; Mrs. Bobo suffered a loss or injury; and, TVA's breach was the actual and proximate cause of Mrs. Bobo's loss or injury. See, e.g., *Ford Motor Co. v. Burdeshaw*, 661 So. 2d 236, 238 (Ala. 1995); see also, e.g., *Sessions v. Nonnenmann*, 842 So. 2d 649, 651 (Ala. 2002) ("In [a] premises-liability case, the elements of negligence are the same as those in any tort litigation: duty, breach of duty, cause in fact, proximate or legal

¹³⁷ 28 U.S.C. § 1331 is the federal question statute, and provides that district courts have original jurisdiction of all civil actions arising under the Constitution, laws, or treaties of the United States. Section 831c-2(a)(1) of the Tennessee Valley Authority Act provides that:

An action against the Tennessee Valley Authority for injury or loss of property, or personal injury or death arising or resulting from the negligent or wrongful act or omission of any employee of the Tennessee Valley Authority while acting within the scope of this office or employment is exclusive [*sic*] of any other civil action or proceeding by reason of the same subject matter against the employee or his estate whose act or omission gave rise to the claim. Any other civil action or proceeding arising out of or relating to the same subject matter against the employee or his estate is precluded without regard to when the act or omission occurred.

16 U.S.C. § 831c-2(a)(1).

¹³⁸ See *supra* note 9.

cause, and damages.”) (quoting *Ex parte Harold L. Martin Distributing Co.*, 769 So. 2d 313, 314 (Ala. 2000) (in turn quoting *E.R. Squibb & Sons, Inc. v. Cox*, 477 So.2d 963, 969 (Ala.1985)) (alteration in original, internal quotation marks omitted).¹³⁹

A. Did TVA Owe Barbara Bobo a Duty of Reasonable Care?

It is black letter Alabama law that, in order for a plaintiff “to maintain a negligence action the defendant must have been subject to a legal duty,’ because ‘where there is no duty, there can be no negligence.’” *DiBiasi v. Joe Wheeler Electric Membership Corp.*, 988 So. 2d 454, 460 (Ala. 2008) (quoting *Thompson v. Mindis Metals, Inc.*, 692 So. 2d 805, 807 (Ala. 1997) (in turn quoting *Morton v. Prescott*, 564 So. 2d 913, 915 (Ala. 1990)), and *City of Bessemer v. Brantley*, 65 So. 2d 160, 165 (Ala. 1953)). Further, the issue of whether a duty exists is “strictly a legal question to be determined by the court.” *DiBiasi*, 988 So. 2d at 460 (quoting *Pritchett v. ICN Medical Alliance, Inc.*, 938 So. 2d 933, 937 (Ala. 2006) (in turn quoting *Taylor v. Smith*, 892 So. 2d 887, 891-92 (Ala. 2004))).

TVA denies that it owed Mrs. Bobo a duty of care.¹⁴⁰ And, insofar as this court

¹³⁹ In addition to disputing plaintiffs’ proof of the elements of a *prima facie* negligence claim, TVA contends that the statute of limitations on plaintiffs’ claims has expired, and that it is shielded from liability by the so-called “discretionary function doctrine.” However, those issues need not be addressed until the issues of duty and causation under Alabama law have been settled.

¹⁴⁰ Doc. no. 128 (TVA’s Brief in Support of Summary Judgment), at 1. TVA incorporates its summary judgment briefing regarding whether TVA owed a duty to Mrs. Bobo. Doc. no. 209 (TVA’s Post-Trial Brief), at 19.

has been able to ascertain, it appears that TVA is correct when asserting that “no Alabama appellate court has issued an opinion regarding the availability of take-home claims under Alabama law.”¹⁴¹

Nevertheless, plaintiff argue that the *foreseeability* of an injury appears to be the “key factor” in determining whether a duty exists under Alabama law. *See, e.g., Taylor v. Smith*, 892 So. 2d 887, 892 (Ala. 2004), *Patrick v. Union State Bank*, 681 So. 2d at 1364, 1368 (Ala. 1996). Consequently, plaintiffs contend that the Alabama Supreme Court probably will join those jurisdictions holding that the employers of persons exposed to airborne asbestos fibers during the performance of their work responsibilities owe a duty of reasonable care to non-employees in take-home asbestos cases based on the foreseeability of injury from *any* exposure to that inherently dangerous toxic substance.¹⁴² *See, e.g., Simpkins v. CSX Corp.*, 929 N.E.2d 1257, 1263-64 (Ill. App. Ct. 2010) (“[W]e believe that it takes little imagination to presume that when an employee who is exposed to asbestos brings home his work clothes, members of his family are likely to be exposed as well. Thus, the general character of the harm to be prevented was reasonably foreseeable.”) (alteration

¹⁴¹ Doc. no. 128 (TVA’s Brief in Support of Motion for Summary Judgment), at 20.

¹⁴² Doc. no. 145 (Plaintiffs’ Brief in Opposition to Summary Judgment), at 27-30. Because TVA incorporated its brief in support of summary judgment, the court will consider plaintiffs’ brief in opposition to summary judgment.

supplied); *Satterfield v. Breeding Insulation Co.*, 266 S.W.3d 347, 367 (Tenn. 2008) (holding that the harm to the plaintiff was foreseeable, because she was regularly in contact with asbestos-contaminated work clothes for extended periods of time); *Olivo v. Owens-Illinois, Inc.*, 895 A.2d 1143, 1149 (N.J. 2006) (holding that a premises owner owed a duty to spouses handling the asbestos-contaminated work clothing based on the foreseeable risk of harm arising from such exposures); *Zimko v. American Cyanamid*, 905 So. 2d 465, 483 (La. App. 2005) (same).

TVA disagrees, and argues that the Alabama Supreme Court would not impose a duty solely upon the basis of the foreseeability of injury, but would — as stated in previous decisions by that Court — consider additional factors, such as public policy, social considerations, the nature of the defendant’s activity, the relationship between the parties, and the type of injury threatened.

“In determining whether a duty exists in a given situation . . . courts should consider a number of factors, including public policy, social considerations, and foreseeability. *The key factor is whether the injury was foreseeable by the defendant.*” *Patrick v. Union State Bank*, 681 So. 2d 1364, 1368 (Ala. 1996) (quoting *Smitherman v. McCafferty*, 622 So. 2d 322, 324 (Ala. 1993)). In addition to foreseeability, Alabama courts look to a number of factors to determine whether a duty exists, including “(1) the nature of the defendant’s activity; (2) the relationship between the parties; and (3) the type of injury or harm threatened.” *Taylor*, 892 So. 2d at 892 (quoting *Morgan v. South Central Bell Telephone Co.*, 466 So. 2d 107, 114 (Ala. 1985)).

DiBiasi v. Joe Wheeler Electric Membership Corp., 988 So. 2d 454, 461 (Ala. 2008)

(emphasis supplied). Pivoting off the foregoing quotation, TVA argues that the Alabama Supreme Court would follow those jurisdictions that have found, based upon considerations of public policy, that no legal duty is owed by employers to non-employees in take-home asbestos-exposure cases. *See, e.g., Campbell v. Ford Motor Co.*, 141 Cal. Rptr. 3d 390 (Cal. Ct. App. 2012) (concluding that “a property owner has no duty to protect family members of workers on its premises from secondary exposure to asbestos used during the course of the property owner’s business”); Kan. Stat. Ann. § 60-4905(a) (2012) (“No premises owner shall be liable for any injury to any individual resulting from silica or asbestos exposure unless such individual’s alleged exposure occurred while the individual was at or near the premises owner’s property.”); *Price v. E.I. DuPont De Nemours & Co.*, 26 A.3d 162, 170 (Del. 2011) (holding that there was no legal duty because the plaintiff did not have a “special relationship” with the premises owner); *Boley v. Goodyear Tire & Rubber Co.*, 929 N.E.2d 448, 453 (Ohio 2010) (holding in accordance with an Ohio statute¹⁴³ that “a

¹⁴³ The Ohio statute at issue in the case of *Boley v. Goodyear Tire & Rubber Co.* provided that:

(A) The following apply to all tort actions for asbestos claims brought against a premises owner to recover damages or other relief for exposure to asbestos on the premises owner's property:

(1) A premises owner is not liable for any injury to any individual resulting from asbestos exposure unless that individual’s alleged exposure occurred while the individual was at the premises owner’s property.

premises owner is not liable in tort for claims arising from asbestos exposure originating from asbestos on the owner's property, unless the exposure occurred at the owner's property"); *In re Certified Question from Fourteenth District Court of Appeals of Texas*, 740 N.W.2d 206, 222 (Mich. 2007) ("[W]e hold that, under Michigan law, defendant, as owner of the property . . . did not owe to the deceased, who was never on or near that property, a legal duty to protect her from exposure to any asbestos fibers carried home on the clothing of a member of her household") (alteration supplied); *CSX Transportation, Inc. v. Williams*, 608 S.E.2d 208, 210 (Ga. 2005) ("[W]e decline to extend on the basis of foreseeability the employer's duty beyond the workplace to encompass all who might come into contact with an employee or an employee's clothing outside the workplace.") (alteration supplied); *Adams v. Owens-Illinois, Inc.*, 705 A.2d 58, 66 (Md. Ct. Spec. App. 1998) (holding that a steel company did not owe a duty of care to an employee's wife to maintain a safe workplace for its employees); *In re Eighth Judicial District Asbestos Litigation*, 12 Misc.3d 936, 941, 815 N.Y.S.2d 815, 821 (Erie Co. N.Y. Sup. Ct. 2006) (holding that employer did not owe duty of care to spouse of employee who contracted mesothelioma as a result of laundering her husband's asbestos-laden work clothes).

TVA contends that the cases decided under the laws of New York, Georgia,

R.C. § 2307.941(A)(1).

and California are especially persuasive, allegedly because the laws of those jurisdictions are similar to those of Alabama regarding issues of “duty.”¹⁴⁴ However, when deciding that no duty was owed to non-employees in a take-home exposure claim similar to the present action, the trial court judge of the Erie County, New York, Supreme Court said that “[d]uty in negligence cases *is not defined by foreseeability of injury*. Rather, foreseeability determines merely the scope of the duty once it is determined to exist.” *In re Eighth Judicial District Asbestos Litigation*, 12 Misc.3d at 938-39, 815 N.Y.S.2d at 818 (alteration supplied, internal citations and quotation marks omitted).¹⁴⁵ Furthermore, while the Supreme Court of Georgia declined, based upon policy considerations, to extend an employer’s duty to provide a safe workplace beyond its employees, to persons outside the workplace, the Court did not place the same emphasis on foreseeability that an Alabama court would. *See CSX Transportation, Inc.*, 608 S.E.2d at 210 (“[W]e decline to extend on the basis of foreseeability the employer’s duty beyond the workplace to encompass all who might come into contact with an employee or an employee’s clothing outside the workplace.”) (alteration supplied). Finally, even though the California Court of Appeals considered the foreseeability of an injury when determining “duty” in a take-

¹⁴⁴ *See* doc. no. 128 (TVA’s Brief in Support of Motion for Summary Judgment), at 21.

¹⁴⁵ The Erie County, New York Supreme Court is a trial court of general jurisdiction, structurally equivalent to an Alabama Circuit Court.

home exposure claim, it stated:

[E]ven assuming a property owner can reasonably be expected to foresee the risk of latent disease to a worker's family members secondarily exposed to asbestos used on its premises, we must conclude strong public policy considerations counsel against imposing a duty of care on property workers for such secondary exposure

Campbell, 141 Cal. Rptr. 3d at 402-03 (alteration supplied). Notably, the court did not address foreseeability as the “key factor” in its determination.

In contrast to TVA's arguments, plaintiffs cite cases in which the courts placed an emphasis on the foreseeability of an injury, while also considering public policy. *See Satterfield*, 266 S.W.3d at 373-75 (noting that “Tennessee's courts rely heavily on foreseeability when determining the existence and scope of a duty,” and that “the existence of a duty to exercise reasonable care to avoid the risk of harm to another involves considerations of fairness and public policy”); *Olivio*, 895 A.2d at 1148 (“Foreseeability is significant in the assessment of a duty of care to another,” and “[o]nce the ability to foresee harm to a particular individual has been established . . . considerations of fairness and policy govern whether the imposition of a duty is warranted.”) (alterations supplied).

TVA argues, nevertheless, that the Alabama Supreme Court would adopt the reasoning of courts in California and Georgia, and hold that policy concerns weigh

against the imposition of a duty under the circumstances present in this action, because the policy considerations surrounding the establishment of a new duty are substantial, and have potentially far-reaching implications for individual litigants, the business community, and the courts. Even so, the Supreme Court of Tennessee recognized that there is no danger to the business community in finding that liability should be imposed upon employers who were “aware of, or should have been aware of, the risk to others that could result from exposure to asbestos fibers,” and who also knew that their “employees’ work clothes contained significant quantities of asbestos fibers, and . . . understood the danger of transmitting these asbestos fibers to others” outside the workplace. *Satterfield*, 266 S.W.3d at 371; *see also Olivo*, 895 A.2d at 1150 (“Although Exxon Mobil fears limitless exposure to liability based on a theory of foreseeability built on contact with Anthony’s asbestos-contaminated clothing, such fears are overstated. The duty we recognize in these circumstances is focused on the particularized foreseeability of harm to plaintiff’s wife, who ordinarily would perform typical household chores that would include laundering the work clothes worn by her husband.”); *Simpkins*, 929 N.E.2d at 1266 (dismissing policy concerns of “limitless liability to ‘the entire world’” based upon the fact that “the scope of liability will be inherently limited by the foreseeability of the harm”).

Thus, the question of whether policy considerations affecting the recognition

of a duty to family members of employees in take-home asbestos exposure cases should be deemed to outweigh the foreseeability of injury is an unanswered issue of Alabama law that should be resolved by that State's highest court. *See, e.g., Jones v. Dillard's, Inc.*, 331 F.3d 1259, 1268 (11th Cir. 2003); *Sultenfuss v. Snow*, 35 F.3d 1494, 1504 (11th Cir. 1994) (*en banc*) (Carnes, J., dissenting) ("Only a state supreme court can provide what we can be assured are 'correct' answers to state law questions, because a state's highest court is the one true and final arbiter of state law.").

B. Causation

The term "general causation" refers to the question of whether an allegedly toxic substance has the potential to cause the plaintiff's injury. In that regard, the Eleventh Circuit has observed that

toxic tort cases usually come in two broad categories: first, those cases in which the medical community generally recognizes the toxicity of the drug or chemical at issue, and second, those cases in which the medical community does not generally recognize the agent as both toxic and causing the injury plaintiff alleges. *Examples of the first type include toxins like asbestos, which causes asbestosis and mesothelioma; silica, which causes silicosis; and cigarette smoke, which causes cancer. . . .*

McClain v. Metabolife Int'l, Inc., 401 F.3d 1233, 1239 (11th Cir. 2005) (emphasis and ellipsis supplied); *see also, e.g., Chapman v. Procter & Gamble Distributing, LLC*, 766 F.3d 1296, 1303 (11th Cir. 2014) (same); doc. no. 201 (Agreed and

Stipulated Facts), ¶ 82 (“[A]sbestos is generally recognized in the medical community as having the potential to cause mesothelioma.”) (alteration supplied).

In order to recover on a claim of negligence, however, plaintiffs must also prove “proximate causation” by demonstrating that TVA’s conduct “naturally and probably brought about the harm,” and, that “the harm would not have happened without the conduct.” 2 *Alabama Pattern Jury Instructions — Civil* § 33.00 (3d ed. 2013). *Accord Lingefelt v. International Paper Co.*, 57 So. 3d 118, 122-23 (Ala. Civ. App. 2010) (“Proximate cause is an act or omission that in a natural and continuous sequence, unbroken by any new independent causes, produces the injury and without which the injury would not have occurred.”) (quoting *Martin v. Arnold*, 643 So. 2d 564, 567 (Ala. 1994)); *Vines v. Plantation Motor Lodge*, 336 So. 2d 1338, 1339 (Ala. 1976) (“Liability will be imposed only when negligence is the proximate cause of injury; injury must be a natural and probable consequence of the negligent act or omission which an ordinarily prudent person ought reasonably to foresee would result in injury.”); *City of Mobile v. Havard*, 268 So. 2d 805, 810 (Ala. 1972) (“For an act to constitute actionable negligence, there must be not only some causal connection between the negligent act complained of and the injury suffered, but also the connection must be by a natural and unbroken sequence, without intervening, efficient causes, so that, but for the negligence of the defendant, the injury would not

have occurred.”).

Although the foregoing standards for determining proximate causation are appropriate in most negligence actions, the parties disagree regarding whether the Alabama Supreme Court would apply traditional “but-for” causation, or “substantial factor” causation, in a case where multiple exposures to a toxic agent, such as airborne asbestos fibers, combine to produce the plaintiffs’ injuries.¹⁴⁶ No Alabama courts have addressed this issue. *See Holland v. Armstrong International, Inc.*, 2012 WL 7761438, at *1 (E.D. Pa. Nov. 28, 2012) (observing that, even though the Alabama Supreme Court has not definitively addressed the causation standard to be applied in asbestos cases, that Court “has held *under maritime law* that proof that defendant’s asbestos-containing product caused plaintiff’s injuries is an essential element to any claim based on asbestos exposure”) (citing *Sheffield v. Owens–Corning Fiberglass Corp.*, 595 So. 2d 443, 450–54 (Ala. 1992)) (emphasis supplied).

Plaintiffs contend that a “substantial factor causation standard” should govern asbestos cases involving multiple exposures. That standard is described by the

¹⁴⁶ TVA incorporates its summary judgment briefing regarding what causation standard should apply in this case. *See* doc. no. 209 (TVA’s Post-Trial Brief), at 8 n.9. Plaintiffs, likewise, incorporate their summary judgment briefing regarding that issue. *See* doc. no. 213 (Plaintiffs’ Response to TVA’s Post-Trial Brief), at 7-8.

Restatement (Second) of Torts as follows: “The actor’s negligent conduct is a legal cause of harm to another if (a) his conduct is a *substantial factor* in bringing about the harm, and (b) there is no rule of law relieving the actor from liability because of the manner in which his negligence has resulted in the harm.” Restatement (Second) of Torts § 431 (emphasis supplied). The Alabama Supreme Court applied that standard in the case cited by the Eastern District of Pennsylvania in its opinion in *Holland v. Armstrong International, supra: i.e., Sheffield v. Owens-Corning Fiberglass*, 595 So. 2d 443 (Ala. 1992), a case in which former seamen sued shipowners and manufacturers of products containing asbestos for exposure to airborne asbestos fibers while serving on board their respective ships. *See id.* at 446. That case was governed by principles of maritime law, however, which are “[d]rawn from state and federal sources and represent an amalgam of traditional common-law rules, modifications of those rules, and newly created rules.” *Id.* at 450 (quoting *East River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858, 864-65 (1986)) (alteration in original, internal quotation marks omitted). For those reasons, the Alabama Supreme Court in *Sheffield* followed other admiralty courts by relying on the Restatement (Second) of Torts for general standards of proof of causation. *Id.* (collecting cases).

Plaintiffs acknowledge that *Sheffield* was decided under maritime law, but

argue that the Alabama Supreme Court relied on *Sheffield* in the case of *Owens-Corning Fiberglass Corp. v. Gant*, 662 So. 2d 255 (Ala. 1995): an appeal that arose from the trial of four asbestos personal injury actions that had been consolidated for trial, and in which the jury returned verdicts in favor of the plaintiffs. The defendant, Owens Corning Fiberglass Corporation (“OCF”), appealed from the judgments based on jury verdicts for the plaintiffs, contending that the trial judge erred when denying OCF’s motion for a directed verdict on the issue of proximate cause, and “arguing that the plaintiffs failed to prove sufficient exposure to OCF’s asbestos-containing product, Kaylo.” *Id.* at 256. The Alabama Supreme Court rejected that argument, and cited its prior opinion in *Sheffield* approvingly. *See id.* Even so, the *Gant* court did not expressly state that *Sheffield*’s analysis had been adopted as the appropriate standard under Alabama law for determining causation in cases involving multiple exposures to airborne asbestos fibers.¹⁴⁷ Although the *Gant* opinion is a signal

¹⁴⁷ Specifically, the *Gant* Court said:

OCF contends that it was entitled to a directed verdict on the issue of proximate cause, arguing that the plaintiffs failed to prove sufficient exposure to OCF’s asbestos-containing product, Kaylo. We have carefully and thoroughly studied the record. We conclude that the trial court properly sent the cases to the jury. *See Sheffield v. Owens–Corning Fiberglass Corp.*, 595 So. 2d 443, 456 (Ala. 1992); Rule 50, A. R. Civ. P.; *K.S. v. Carr*, 618 So. 2d 707, 713 (Ala. 1993); *Bailey v. Avera*, 560 So. 2d 1038, 1039 (Ala. 1990); *Woodruff v. Johnson*, 560 So. 2d 1040, 1041 (Ala. 1990); *Timmerman v. Fitts*, 514 So. 2d 907, 910 (Ala. 1987).

Owens-Corning Fiberglass Corp. v. Gant, 662 So. 2d 255, 256 (Ala. 1995).

indicating that the Alabama Supreme Court would adopt the “substantial factor” standard in cases involving liability for multiple exposures to airborne asbestos fibers, it does not definitively settle the issue.¹⁴⁸

TVA argues, on the other hand, that there is no reason to deviate from Alabama’s traditional “but-for” causation standard, and that the Alabama Supreme Court would adopt the following adaptation of the but-for standard in a multiple exposure toxic tort case: either “(1) that the illness would not have occurred without exposure to the defendant’s asbestos *or* (2) that exposure to the defendant’s asbestos was independently sufficient to cause the illness.” Doc. no. 128 (TVA’s Brief in Support of Motion for Summary Judgment), at 17 (emphasis supplied). *See, e.g., Ford Motor Co. v. Boomer*, 736 S.E.2d 724 (Va. 2013); *Wilcox v. Homestake Mining Co.*, 619 F.3d 1165, 1169 (10th Cir. 2010) (applying New Mexico but-for causation

¹⁴⁸ Plaintiffs also note that the Texas Court of Appeals relied on the *Sheffield* opinion to apply the substantial factor test as the appropriate causation standard under Alabama law. *North American Refractory Co. v. Easter*, 988 S.W.2d 904, 908, 911 (Tex. App. 1999). However, the Texas court failed to take note of the fact that the *Sheffield* opinion was decided under federal maritime law. Plaintiffs also note that the Alabama Supreme Court applied a “contributing cause” standard in a workers’ compensation case involving toxic exposure not exclusively occurring in the workplace. *Ex parte Valdez*, 636 So. 2d 401, 403 (Ala. 1994). Although the Alabama Workers’ Compensation Act requires plaintiffs to establish that the workplace was the “proximate cause” of an injury, “it is well established that [Alabama] courts have historically rejected a ‘but-for’ test in workers’ compensation cases in favor of a ‘causal-connection’ test.” *Ex parte Patton*, 77 So. 3d 591, 594 (Ala. 2011) (alteration supplied). Thus, the Alabama Supreme Court’s rejection of the but-for test in a Workers’ Compensation case involving toxic exposure is no indication that the court would apply the substantial factor causation standard to a negligence action involving toxic exposure.

standard to a toxic tort case involving radiation exposure).

The standard advocated by TVA appears to be the minority position in asbestos cases. *See, e.g., Lindstrom v. A-C Product Liability Trust*, 424 F.3d 488, 492 (6th Cir. 2005) (applying substantial factor test under maritime law); *Lohrmann v. Pittsburgh Corning Corp.*, 782 F.2d 1156, 1162-63 (4th Cir. 1986) (upholding substantial factor test in a Maryland asbestos case); *Rando v. Anco Insulations, Inc.*, 16 So. 3d 1065, 1088 (La. 2009); *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765, 773-74 (Tex. 2007); *Rutherford v. Owens-Illinois, Inc.*, 941 P.2d 1203, 1219 (Cal. 1997); *Thacker v. UNR Industries, Inc.*, 603 N.E.2d 449, 455 (Ill. 1992).

Moreover, the causation standard advocated by TVA does not “recognize the proof difficulties accompanying asbestos claims. The long latency period for asbestos-related diseases, coupled with the inability to trace precisely which fibers caused disease and from whose product they emanated, make this process inexact.” *Borg-Warner Corp. v. Flores*, 232 S.W.3d at 772. The Illinois Supreme Court addressed some of those issues in the case of *Thacker v. UNR Industries, Inc.*, *supra*, saying that:

Courts throughout the country . . . have struggled with how a plaintiff in an asbestos case can fairly meet the burden of production with regard to causation. Several factors complicate the analysis *First, because asbestos fibers are friable and may float in the air, it is*

possible that even those who do not come into direct physical contact with asbestos products may suffer from asbestos poisoning. Second, due to the microscopic size of asbestos fibers, asbestos cannot always be seen drifting in the air or entering a plaintiff's body. The small size of these fibers also means that asbestos fibers from different sources are generally indistinguishable from one another, even when removed from a plaintiff's body and examined through a microscope. Third, asbestos injury takes an extended time period to manifest itself. Evidence presented to the jury showed that the time between when asbestos fibers are first inhaled and when scarring in the lungs becomes symptomatic is commonly between 25 and 30 years. This means that a plaintiff injured by asbestos fibers often does not know exactly when or where he was injured and therefore is unable to describe the details of how such injury occurred. In addition, we note that even when a plaintiff is able to narrow the circumstances of exposure to a single event or circumstance, the extended passage of time between exposure and illness often means that witnesses are no longer readily available or that the memories of those who are available have become unreliable.

Thacker, 603 N.E.2d at 455-56 (emphasis and alterations supplied).

Once again, the question of whether traditional “but-for” causation, or “substantial factor” causation should apply to cases in which multiple exposures to a toxic agent, such as airborne asbestos fibers, combine to produce the plaintiff’s injuries is an unanswered issue of Alabama law that should be resolved by that State’s highest court.

III. CONCLUSION

Because the issues of duty and causation in this case are unsettled areas of Alabama law, and because the resolution of those questions will have significance

beyond the facts of the present case, this court concludes that certification to the Alabama Supreme Court is advisable.

IV. QUESTIONS CERTIFIED TO THE ALABAMA SUPREME COURT

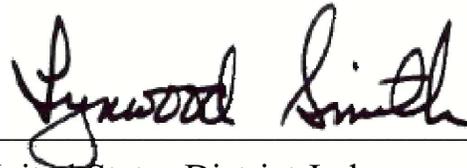
Hence, pursuant to Article VI, § 6.02(b)(3) of the Alabama Constitution of 1901, as amended, and Alabama Rule of Appellate Procedure 18, the following two questions are certified to the Alabama Supreme Court:

WHETHER A PREMISES OWNER HAS A DUTY TO PROTECT THE FAMILY MEMBERS OF PERSONS WHO WORK ON THE PROPERTY OWNER'S PREMISES FROM SECONDARY EXPOSURE TO A TOXIC AGENT, SUCH AS ASBESTOS, USED DURING THE COURSE OF THE PROPERTY OWNER'S BUSINESS?

WHAT CAUSATION STANDARD APPLIES WHEN MULTIPLE EXPOSURES TO A TOXIC AGENT, SUCH AS ASBESTOS, COMBINE TO PRODUCE THE PLAINTIFF'S INJURY?

The phrasing of the foregoing questions is not intended to limit the inquiry of the Alabama Supreme Court. When answering the certified questions, the Supreme Court is at liberty to consider the problems and issues involved in this case as it perceives them. In order to assist the Supreme Court, the court transmits entire record in this case.

DONE and **ORDERED** this 22nd day of June, 2015.

A handwritten signature in black ink, reading "Lynwood Smith". The signature is written in a cursive style with a large initial "L".

United States District Judge