

IN THE SUPREME COURT OF VIRGINIA

RECORD NOS. 120283, 120299

FORD MOTOR COMPANY
and
HONEYWELL INTERNATIONAL, INC.

Appellants,

v.

WALTER E. BOOMER,
Administrator for suit purposes only of the Estate of
JAMES D. LOKEY, DECEASED,
Appellee.

**AMICI CURIAE BRIEF OF THE VIRGINIA CHAMBER OF COMMERCE,
COALITION FOR LITIGATION JUSTICE, INC., CHAMBER OF
COMMERCE OF THE UNITED STATES OF AMERICA, AMERICAN
CHEMISTRY COUNCIL, AMERICAN TORT REFORM ASSOCIATION,
AMERICAN INSURANCE ASSOCIATION, AND NFIB SMALL BUSINESS
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QUESTION PRESENTED

*Amici*¹ file this brief to urge the Court to consider carefully the implications on Virginia law and the asbestos docket of permitting the experts in this case to testify that *any* occupational exposure to asbestos products, no matter how small, is causative of asbestos disease.

INTEREST OF AMICI CURIAE

Amici are organizations that represent companies doing business in Virginia and their insurers. *Amici* have a substantial interest in ensuring that Virginia's tort system is fair, follows traditional tort law rules, and reflects sound public policy. Consequently, *amici* have a substantial interest in addressing attempts by plaintiffs to advance the unscientific theory that every occupational exposure to a toxic substance, no matter how small, is a cause of disease. Plaintiff's "*any exposure*" theory has been rejected by multiple courts and should not be permitted here. See Mark A. Behrens & William L. Anderson, *The "Any Exposure" Theory: An Unsound Basis for Asbestos Causation and Expert Testimony*, 37 Sw. U. L. Rev. 479 (2008).

¹ None of the parties or their counsel, or anyone other than the *amici*, their members, or their counsel, authored this brief in whole or in part or made a monetary contribution intended to fund the brief's preparation or submission. Counsel for Defendants-Appellants consented to the filing of this brief but Counsel for Plaintiff-Appellee did not.

STATEMENT OF THE CASE AND FACTS

Amici adopt Defendants-Appellants' Statement of the Case and Facts relating to the question presented.

INTRODUCTION AND SUMMARY OF THE ARGUMENT

The two consolidated cases before this Court are emblematic of a substantial problem with asbestos litigation today arising from the increasing use of the *any exposure* theory to ensnare defendants associated with trivial and *de minimis* exposures in litigation. Mr. Lokey was not an insulator who applied insulation, nor was he an asbestos factory worker who breathed large amounts of asbestos in a manufacturing setting. He was not even a brake mechanic himself and did not handle any asbestos-containing parts or work on them. He was an inspector who was simply present in a large room when brake work took place. His exposures from this activity would be incrementally small – almost certainly far below even today's OSHA standard – and vastly different than the world in which asbestos disease arose, *i.e.*, the “dusty trades” and insulators of the 1930s-1960s.

The Administrator nevertheless claims that Mr. Lokey's unquantified and *de minimis* exposure to brake dust caused his mesothelioma. This claim is based *entirely* on the litigation-generated *any exposure* theory

asserted by plaintiff experts in this and other recent cases. Under this theory, the dose of the substance does not matter, and the length and duration of exposure does not matter. The experts disdain any need even to answer the fundamental question, "How much was plaintiff exposed to?" Instead, they opine that each and every occupational exposure is causative, down to the smallest amount and most isolated incidence. This theory contradicts the most fundamental principle of toxicology, "the dose makes the poison."

More than thirty courts have evaluated the sufficiency of the *any exposure* theory since 2005 and found it lacking scientifically and legally. This is a dramatic set of opinions from significant courts – including the United States Court of Appeals for the Sixth Circuit (three times), the Texas Supreme Court, and multiple intermediate appellate and trial courts at both the federal and state levels. See Behrens & Anderson, *supra*; see also Mark A. Behrens, *What's New in Asbestos Litigation?*, 28 Rev. Litig. 501 (2009).

The most recent of these decisions from a state court of last resort is *Betz v. Pneumo Abex, LLC*, No. 38 WAP 2010, - A.3d -, 2012 WL 1860853 (Pa. May 23, 2012), in which the Pennsylvania Supreme Court, in a 28-page unanimous opinion issued in May 2012, soundly rejected *any*

exposure testimony as insufficient to support causation in an asbestos case – and the plaintiff in that case (unlike Mr. Lokey here) was an automotive mechanic who worked his entire life on brakes. See also *Dixon v. Ford Motor Co.*, No. 536, - A.3d -, 2012 WL 2483315, at *7 (Md. Ct. Spec. App. June 29, 2012) (excluding the *any exposure* testimony of plaintiff's expert Dr. Welch as "not a scientific conclusion"). The massive movement against this theory in recent years illustrates how strongly courts are reacting against the notion that everything is causative and how the theory undermines standard "substantial factor" and "but for" causation requirements in toxic tort litigation.

Amici urge this Court to inspect carefully the underpinnings of the *any exposure* theory as asserted here by Plaintiff's experts. The theory is illogical – the same experts who claim even the smallest amount of occupational exposure is causative disavow any causative role from millions of fibers of "background" asbestos we all breathe. The theory is not asserted or found in any peer-reviewed articles in the published scientific literature. The litigation experts cobble together bits and pieces of largely irrelevant support (case reports, animal studies, epidemiology studies from much higher exposures and the wrong fiber type) to reach a conclusion that those sources neither support nor justify.

Amici believe asbestos litigation has become grossly out of balance because of recent attempts to sue over even the slightest exposures in a workplace, and that court decisions such as those in other jurisdictions are essential to bring balance back and to preserve courtroom time for plaintiffs with legitimate claims. Eliminating the *any exposure* theory in Virginia and other jurisdictions is essential to that ongoing process.

I. **THE ANY EXPOSURE THEORY IS SPECULATIVE AND UNRELIABLE**

A. **The Any Exposure Theory Ignores Any Consideration of Dose**

Mr. Lokey died of mesothelioma in 2007 at age 84. Beginning in 1941, Mr. Lokey worked full-time, for over a year, as an apprentice pipefitter in the pipe shop of the Norfolk Naval Shipyard. (08/15/11 Trial Tr. 628, 938). While working at the shipyard, Mr. Lokey was repeatedly exposed to amosite asbestos fibers, which remained in his body until the time of his death over 60 years later. (08/15/11 Trial Tr. 2412). Plaintiff's expert pathologist, Dr. Maddox, testified that shipyard asbestos exposure – like Mr. Lokey's – is *the leading cause* of mesothelioma in America, and identified the Norfolk Navy Shipyard as the most likely source of the amosite fibers found in Mr. Lokey's lungs at the time of his death. (08/15/11 Trial Tr. 1281-1282). Dr. Maddox also testified that the onset of

Mr. Lokey's mesothelioma in 2005 was consistent with the latency period for the disease following his shipyard exposure decades earlier. (08/15/11 Trial Tr. 1256). Indeed, Plaintiff's experts agreed that Mr. Lokey's experience at the shipyard significantly increased his risk of developing mesothelioma, probably by a factor of five or more. (08/15/11 Trial Tr. 1247-1250, 2030, 2442-2443).

Years after his shipyard exposure, Mr. Lokey held a nine-year position with the Virginia State Police, which required him to inspect certified vehicle inspection stations in Northern Virginia on an average of ten days per month. (08/15/11 Trial Tr. 606-610). During his inspections, Mr. Lokey would observe the removal of a single brake from an automobile for the mechanic to measure the thickness of the brake lining. (08/15/11 Trial Tr. 651, 1754-1757). While Mr. Lokey stood 10 feet away from the automobile, the mechanic would often use compressed air to blow out the surrounding brake dust, and Plaintiff's expert witnesses testified that this type of activity would result in the release of respirable chrysotile asbestos fibers, above the background levels typically encountered in the atmosphere. (08/15/11 Trial Tr. 614, 617-18, 801-802).

It is these instances of supposed airborne chrysotile asbestos exposure – while standing 10 feet away from a brake mechanic during

individual brake lining inspections – that Plaintiff’s experts point to as a significant contributing cause of Mr. Lokey’s mesothelioma. In so concluding, Plaintiff’s experts have disregarded or ignored the overwhelming evidence to the contrary and their own conflicting testimony:

- None of the eighteen reported epidemiological studies that have examined the potential risks of mesothelioma among brake workers have identified *any* increased risk of contracting cancer among professional mechanics or individuals who actually repair brakes on a regular basis, including shipyard workers who later worked as mechanics – all of whom would have had significantly *greater* brake exposure than Mr. Lokey. (08/15/11 Trial Tr. 1309-1311, 2011, 2024, 2089).
- Plaintiff’s own experts could not point to a single human epidemiology study showing increased risk of mesothelioma from brake dust among professional mechanics – individuals whose exposure to brake dust would have exceeded Mr. Lokey’s. (08/15/11 Trial Tr. 917, 1302-1303).
- Plaintiff’s evidence demonstrates that the asbestos used in brake friction products is chrysotile asbestos, a much less potent form of asbestos than the amosite asbestos to which Mr. Lokey was exposed during his shipyard work and that was found in his lungs at the time of his death. (08/17/11 Trial Tr. 215-216, 284-291, 347; 08/18/11 Trial Tr. 135-136, 151, 249-252).
- The conversion of asbestos fibers to non-hazardous dust due to the heat of braking actions leaves only minimal fibers in the resulting dust. (08/17/11 Trial Tr. 284-291; 08/18/11 Trial Tr. 249-252).
- Plaintiff’s experts acknowledge that Mr. Lokey’s probable exposure to amosite asbestos at the shipyards increased his

risk of developing mesothelioma by a factor of five or more.
(08/15/11 Trial Tr. 1247-1250, 2030, 2442-2443).

Perhaps most egregious, though, is the fact that Plaintiff's experts hung their hats on Mr. Lokey's inspection exposures yet made *no effort whatsoever* to actually quantify his exposure to chrysotile asbestos fibers as an inspection station inspector or to show that such a level was sufficient to cause mesothelioma. As Plaintiff's lead causation expert, Dr. Welch, testified:

Q. What in your opinion caused Mr. Lokey's mesothelioma?

A. Asbestos exposure. And specifically asbestos exposure in his job as a Virginia State Trooper inspecting inspection stations. (08/15/11 Trial Tr. 813).

...

Q. And to give your opinions, you don't need to know the frequency of exposure to the product, do you?

A. No.

Q. And to give your opinions about products causing mesothelioma, you don't need to know the duration of exposure to the product, do you?

A. That's correct . . . [O]nce it's demonstrated that an exposure occurred, then, yes, I think it's a substantial contributing factor. (08/15/11 Trial Tr. 878-880).

"An" exposure is all it takes, according to Plaintiff's lead expert. This is the crux of the *any exposure* theory – any exposure to asbestos, no matter the dose or duration of exposure – contributes to the ultimate disease. Indeed, *any exposure* theorists – like Plaintiff's experts in this

case – eschew any need to estimate actual exposure and instead opine that each and every occupational exposure is causative, down to the smallest, most isolated amount. There is an important caveat, however, in that most *any exposure* proponents – including Plaintiff’s experts – argue that *background* exposures to asbestos, even though they may contribute millions of fibers to an individual’s lungs over a lifetime, do *not* contribute to the development of disease; only occupational exposures count. This kind of baseless, nonsensical logic has no place in science and should have no place in law.

B. Dose is Recognized in Both Science and Law as an Essential Element of Causation

The fallacy of the *any exposure* theory can best be demonstrated against the backdrop of widely accepted tort and medical causation principles because the theory departs so dramatically from those principles. Ordinarily, courts should require asbestos plaintiffs to demonstrate that each defendant’s product was either a “but for” cause or a “substantial factor” in the cause of plaintiff’s disease. See Restatement (Second) of Torts §§ 431, 433 (1965). In the typical tort case, such a showing would require not only proof of exposure to the defendant’s product, but also exposure to *enough of a dose* of the defendant’s product to actually cause disease. Courts routinely require plaintiffs to demonstrate not just some

exposure, but “evidence from which the trier of fact could conclude that the plaintiff was exposed to levels of toxins *sufficient to cause the harm complained of.*” *Wintz v. Northrop Corp.*, 110 F.3d 508, 513 (7th Cir. 1997) (citing Reference Manual on Scientific Evidence) (emphasis added); *Wright v. Willamette Indus., Inc.*, 91 F.3d 1105, 1107 (8th Cir. 1996).

The concept of necessary dose goes back to the sixteenth century, when the “father of toxicology”, Paracelsus, first articulated the principle that “the dose makes the poison” and toxicology rests on this “fundamental tenet.” Federal Judicial Center, *Reference Manual on Scientific Evidence, Reference Guide on Toxicology* 403 (2d ed. 2000). Examples abound in our modern lives: alcohol, aspirin, sunlight, even certain vitamins that are not harmful at low levels, but can case cause harm at high doses. Indeed, “[d]ose is the single most important factor to consider in evaluating whether an alleged exposure caused a specific adverse effect.” David L. Eaton, *Scientific Judgment and Toxic Torts – A Primer In Toxicology For Judges and Lawyers*, 12 J.L. & Pol’y 5, 11 (2003). This principle holds true for asbestos just as much as any other toxin. See *id.* at 13.

The importance of dose is widely recognized in both science and law as the foundation of causation and the basis for many medical and toxic tort decisions. Courts have widely recognized the necessity of proving an

actual toxic dose in tort cases. See e.g., *McClain v. Metabolife Int'l, Inc.*, 401 F.3d 1233, 1241 (11th Cir. 2005) (“In toxic tort cases, ‘[s]cientific knowledge of the harmful level of exposure to a chemical, plus knowledge that [the] plaintiff was exposed to such quantities, are minimal facts necessary to sustain the plaintiff’s burden’”) (emphasis added) (*quoting Allen v. Pa. Eng’g Corp.*, 102 F.3d 194, 199 (5th Cir. 1996)); *Mitchell v. Gencorp, Inc.*, 165 F.3d 778, 781 (10th Cir. 1999) (“[A] plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally as well as the plaintiff’s actual level of exposure to the defendant’s toxic substance before he or she may recover”); *In re Bextra and Celebrex Marketing Sales Practices and Prod. Liab. Litig.*, 524 F. Supp. 2d 1166, 1174-5 (N.D. Cal. 2007) (studies did not show that dose at issue could cause the alleged injury; “The Court finds that dose matters.”).

Plaintiff’s experts, however, ignore the principle of dose, substituting instead an illogical artifice designed to capture low-dose defendants in litigation. These experts simply claim that all exposures contribute to causation, with the notable and illogical exception that background exposures are somehow *not* cumulative – only occupational exposures.

Indeed, Dr. Welch departs from scientific principles in refusing to ascertain or identify whether Mr. Lokey’s vehicle inspection exposures

reached a harmful level. She did not present evidence to suggest that Mr. Lokey's alleged exposures to chrysotile fibers while present during brake blow-outs exceeded the levels his body could process without toxicity, or that those exposures would produce a different result than exposure to background fibers.

Other courts have rejected the notion that dose does not matter and required reliable scientific evidence linking plaintiff's alleged exposure to a dose that has been shown to cause the alleged injury. *See, e.g., Nelson v. Tennessee Gas Pipeline Co.*, 243 F.3d 244, 252 (6th Cir. 2001) (upholding exclusion of expert witness who "made no attempt to determine what amount of PCB exposure" the plaintiffs received); *Moore v. Ashland Chem. Inc.*, 151 F.3d 269, 278 (5th Cir. 1998), *cert. denied*, 526 U.S. 1064 (1999) ("Because he had no accurate information on the level of Moore's exposure to the fumes, Dr. Jenkins necessarily had no support for the theory that the level of chemicals to which Moore was exposed caused RADS"). Dose matters, and Drs. Welch and Maddox's failure to conduct any dose assessment was a fatal flaw in their causation opinions.

C. Mr. Lokey's Bystander Exposure During Vehicle Inspections Would Have Been Below Mechanic Exposures, Which Have Been Studied and Do Not Show an Increased Risk of Disease

Mr. Lokey's asbestos exposure during inspection station visits would have necessarily been less than exposures to actual vehicle mechanics performing brake work and other tasks. Yet study after study of actual mechanics has shown no increased risk of mesothelioma.

In fact, the automotive mechanic occupation has been studied many times, and the studies have consistently produced odds ratios or risk measurements at or below 1.0, indicating no increased risk of mesothelioma in this population. In contrast to the many epidemiology studies that have documented the association between occupations like shipbuilding and insulator work and asbestos disease, the studies of mechanics have found that their disease incidence is no different than that in professions with little or no opportunity for asbestos exposure, such as traveling salesmen, teachers, librarians, office clerks, accountants, and farmers.² There are at least seventeen of these studies, conducted over

² See, e.g., Kay Teschke *et al.*, *Mesothelioma Surveillance to Locate Sources of Exposure to Asbestos*, 88 *Can. J. Pub. Health* 164, Table II (1997), at <http://journal.cpha.ca/index.php/cjph/article/view/945/945>; Alison D. McDonald & J. Corbett McDonald, *Malignant Mesothelioma in North America*, 46 *Cancer* 1650 (1980).

the last thirty years, almost all published in peer-reviewed articles, and performed in seven different countries by over sixty different researchers.³ The most recent such study, the largest study ever performed comparing mesothelioma to populations, continued the trend by exonerating mechanic work:

We found ***no evidence of increased risk*** associated with non-industrial workplaces or those that were classified as 'low risk', ***including motor mechanics and workers handling gaskets and mats that may have contained asbestos.***⁴

Drs. Welch and Maddox are thus pushing against a mountain of contradictory evidence⁵ in concluding that Mr. Lokey's vehicle inspection

³ The studies are summarized and discussed in Francine Laden *et al.*, *Lung Cancer and Mesothelioma Among Male Automobile Mechanics: A Review*, 19 *Revs. on Env'tl. Health* 39 (2004); Michael Goodman *et al.*, *Mesothelioma and Lung Cancer Among Motor Vehicle Mechanics: A Meta-analysis*, 48 *Ann. Occup. Hyg.* 309 (2004), at <http://annhyg.oxfordjournals.org/content/48/4/309.full.pdf+html>.

⁴ Julian Peto *et al.*, *Occupational, Domestic and Environmental Mesothelioma Risks in Britain: A Case-Control Study*, UK Health and Safety Exec. (2009); Christine Rake *et al.*, *Occupational, Domestic and Environmental Mesothelioma Risks in the British Population: A Case Control Study*, 100 *Brit. J. Cancer* 1175, 1182 (2009).

⁵ Plaintiff may claim that there is no requirement to provide epidemiological proof of causation to present a case to a jury. That proposition misses the point. Plaintiff does not merely causation in the absence of any epidemiology, but instead claims causation when a wealth of studies repeatedly say "not so." This is the classic situation that arose in the Bendectin litigation that led to the famous *Daubert* rulings – plaintiffs' experts in those cases asserted that Bendectin caused birth defects, but (Footnote continued on next page)

exposure – 10 feet away from a mechanic – caused his mesothelioma, when even a lifetime of exposure to mechanics shows no increased risk of disease. Plaintiff's experts' theory becomes all the more difficult when they try to assert that *any* exposure to a bystander-to-a-mechanic causes mesothelioma. This opinion falls outside the scope of scientific investigation or methodology and enters the realm of pure speculation.

II. THE ANY EXPOSURE THEORY IS NEITHER GOOD SCIENCE NOR GOOD LAW

In addition to ignoring the essential importance of dose, the *any exposure* theory is also inconsistent with established asbestos science and requirements for expert admissibility.

A. In Addition to Dose Assessment, the Any Exposure Theory Ignores Differences in Fiber Potency

The proponents of the *any exposure* theory not only fail to account for the dose received but also fail to address differences in potency of fiber types. Not all asbestos is the same. See, e.g., *Gideon v. Johns-Manville Sales Corp.*, 761 F.2d 1129, 1145 (5th Cir. 1985) (“all asbestos products cannot be lumped together in determining their dangerousness”). The

that opinion was rejected as unscientific because it failed to account for repeated and consistent negative epidemiology. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993).

fibers involved in brake linings are chrysotile, a form of asbestos that is widely acknowledged as less potent than amphibole fibers. Unlike amphibole fibers found in insulation, chrysotile is not rigid, breaks down easily in the body, and much of it is quickly removed.⁶ Cohorts exposed chiefly or only to chrysotile fibers show very few mesotheliomas, if any, even when the doses are much higher than the current OSHA limit.⁷ More

⁶ See United States Env'tl. Protection Agency, *Report on the Peer Consultation Workshop to Discuss a Proposed Protocol to Assess Asbestos-Related Risk* vii (May 30, 2003) ("The panelists unanimously agreed that the available epidemiology studies provide compelling evidence that the carcinogenic potency of amphibole fibers is two orders of magnitude greater than that for chrysotile fibers."); Rake *et al.*, *supra*, 100 *Brit. J. Cancer* at 1182.

⁷ See, e.g., David Rees *et al.*, *Case-Control Study of Mesothelioma in South Africa*, 35 *Am. J. Indus. Med.* 213, 220 (1999) (no reports of mesothelioma from chrysotile exposure found despite substantial numbers of miners in chrysotile mines from the 1930s to 1980s exposed to intense concentrations of dust); H.F. Thomas, *Further Follow-Up Study of Workers from an Asbestos Cement Factory*, 39 *Brit. J. Indus. Med.* 273, 275 (1982) (study of 1261 workers at asbestos cement plant using only chrysotile asbestos after 1936 found only two cases of mesothelioma, both in employees who worked at the plant prior to 1936 when the plant was using amphibole asbestos); M. Neuberger & M. Kundi, *Individual Asbestos Exposure: Smoking and Mortality – A Cohort Study in the Asbestos Cement Industry*, 47 *Brit. J. Indus. Med.* 615, 619 (1990) (finding no incidence of mesothelioma among 2861 cement plant employees exposed only to chrysotile, some with exposures in excess of 50 f/ml); Misty Hein *et al.*, *Follow-Up Study of Chrysotile Textile Workers: Cohort Mortality and Exposure-Response*, 64 *Occup. Envir. Med.* 616, 618, Table 2, 620 (2007) (finding only three mesotheliomas in workers employed in higher exposure jobs out of a cohort of 3,072 workers exposed to chrysotile of up to 700 f/cc years in an asbestos textile plant); see also John M. Dement *et al.*, *Follow-*
(Footnote continued on next page)

specifically, the studies of workers exposed to *low doses* of chrysotile have found that their disease incidence is no different than that in professions with little or no opportunity for asbestos exposure, such as teachers, accountants, or farmers.⁸

The *any exposure* theorists typically agree that chrysotile fibers are significantly less potent, but then fail to take that difference into account in their opinions. Medically, it is obvious that a less potent substance requires a higher dose to have any effect – e.g., it would require a much greater quantity of beer to have the same impact as drinking a bottle of 180 proof whiskey. A scientific approach to asbestos, then, requires an estimate of the different doses of fibers of different toxicity to determine whether they contributed to disease. Drs. Welch and Maddox do not do this. They agree that chrysotile is less potent (08/17/11 Trial Tr. 215-216, 284-291, 347) but do not assess, for example, how Mr. Lokey's vehicle inspection exposures to chrysotile fibers compare to the level of amphibole exposures known to cause disease. There is no scientific principle that would permit an expert to opine that all exposures with different potency are equally

Up Study of Chrysotile Textile Workers: Cohort Mortality and Case-Control Analyses, 26 Am. J. Indus. Med. 431, 437-38 (1994).

⁸ See, e.g., Teschke *et al.*, *supra*; McDonald & McDonald, *supra*.

causative, yet that is a fundamental underpinning of the *any exposure* theory.

B. The Any Exposure Theory is an Untested and Speculative Hypothesis

Courts have repeatedly recognized that the *any exposure* theory has no grounding in published, peer-reviewed literature; nor has it been adequately and repeatedly tested for reliability. In *Free v. Ametek*, No. 07-2-04091-9 SEA, 2008 WL 728387 (Wash. Super. Ct. King County Feb. 28, 2008), the experts *admitted* that the *any exposure* theory was an unproven hypothesis, and the court rejected the testimony on that and other grounds:

The assumption that every exposure to asbestos over a life's work history, even every exposure greater than 0.1 fbrs/cc yr, is a substantial factor contributing to development of an asbestos-related disease, is not a scientifically proved proposition that is generally accepted in the field of epidemiology, pulmonary pathology, or any other field relevant to this case.

Id. Unproven hypotheses should not form the basis for courtroom expert testimony. See *Sanderson v. Int'l Flavors and Fragrances, Inc.*, 950 F. Supp. 981, 1003 (C.D. Cal. 1996) ("Plaintiff asks, 'Given the dearth of research on the neurotoxic effects of fragrances and fragrance chemicals, what is a plaintiff to do?' Unfortunately for plaintiff, the answer is: Wait. When a plaintiff can't prove her case with reliable scientific evidence, she can't prove her case.") (internal citation omitted).

No studies in the peer-reviewed literature state as scientific fact that every occupational exposure to asbestos – no matter how brief or small – must be considered a cause of mesothelioma. Any such statement would run counter to the established principles of cancer causation, as set forth in the seminal article on toxic tort causation, David L. Eaton, *Scientific Judgment and Toxic Torts – A Primer In Toxicology For Judges and Lawyers*, 12 J.L. & Pol’y 5 (2003). Drs. Welch and Maddox have never published their *any exposure is causative* theory or submitted it for peer review. As observed in *Daubert II*, “[i]t’s as if there were a tacit understanding within the scientific community that what’s going on here is not science at all, but litigation.” *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1318 (9th Cir. 1994), *cert. denied*, 516 U.S. 869 (1995).

C. The Any Exposure Theory Has Been Rejected by Numerous Courts

In the last seven years, many courts have carefully examined the *any exposure* theory and have routinely rejected it as unscientific. See Behrens & Anderson, *supra*; David C. Landin *et al.*, *Lessons Learned from the Front Lines: A Trial Court Checklist for Promoting Order and Sound Public Policy in Asbestos Litigation*, 16 Brook. J.L. & Pol’y 589, 637-641 (2008).

The courts rejecting this theory include the Sixth Circuit Court of Appeals (three times), the highest courts of Texas, New York, and

Pennsylvania, two Ninth Circuit district court cases, and trial and appellate courts in Texas, Georgia, Florida, Delaware, Ohio, Mississippi, and Pennsylvania, among others.⁹ These courts are attempting to regain some

⁹ See *Pluck v. B.P. Oil Pipeline Co.*, 2011 WL 1794293 (6th Cir. May 12, 2011) (benzene); *Gregg v. V-J Auto Parts Co.*, 943 A.2d 216 (Pa. 2007); *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765 (Tex. 2007); *Parker v. Mobil Oil Corp.*, 857 N.E.2d 1114 (N.Y. 2006) (benzene); *Georgia-Pacific Corp. v. Stephens*, 239 S.W.3d 304 (Tex. App.-Hous. 2007); *In re Asbestos Litig. (Certain Asbestos Friction Cases Involving Chrysler LLC)*, 2008 WL 4600385 (Pa. Ct. Com. Pl. Phila. County Sept. 24, 2008); *In re W.R. Grace & Co.*, 355 B.R. 462 (Bankr. D. Del. 2006), *appeal denied*, 2007 WL 1074094 (D. Del. Mar. 26, 2007); *Brooks v. Stone Architecture, P.A.*, 934 So. 2d 350 (Miss. Ct. App. 2006); *Bartel v. John Crane, Inc.*, 316 F. Supp. 2d 603, 611 (N.D. Ohio 2004), *aff'd sub nom. Lindstrom v. A-C Prod. Liab. Trust*, 424 F.3d 488 (6th Cir. 2005); *In re Asbestos Litig.*, No. 2004-03964, 2004 WL 5183959 (11th Dist. Ct., Harris County, Tex. Jan. 20, 2004); *In re Asbestos Litig. [Pena v. Bondex]*, No. 2004-3, 2007 WL 5994694 (11th Dist. Ct., Harris County, Tex. July 18, 2007); *In re Toxic Substances Cases*, No. A.D. 03-319, 2006 WL 2404008 (Pa. Ct. Com. Pl. Aug. 17, 2006), *aff'd sub nom. Betz v. Pneumo Abex, LLC*, - A.3d -, 2012 WL 1860853 (Pa. May 23, 2012); *Basile v. American Honda Motor Co.*, No. 11484 CD 2005, 2007 WL 712049 (Pa. Ct. Com. Pl. Indiana County Feb. 22, 2007) (Order Granting Caterpillar's Motion to Exclude Plaintiffs' Experts' Testimony); *Free v. Ametek*, 2008 WL 728387 (Wash. Super. Ct. King County Feb. 28, 2008) (trial order); *Martin v. Cincinnati Gas & Elec. Co.*, 561 F.3d 439 (6th Cir. 2009); *Smith v. Kelly-Moore Paint Co., Inc.*, 307 S.W.3d 829 (Tex. App.-Fort Worth 2010); *Daly v. Arvinmeritor, Inc.*, 2009 WL 4662280 (17th Jud. Cir., Broward County, Fla. Nov. 30, 2009) (trial order); *Butler v. Union Carbide Corp.*, 712 S.E.2d 537 (Ga. App. 2011); *Henricksen v. ConocoPhillips Co.*, 605 F. Supp. 2d 1142 (E.D. Wash. 2009) (benzene); *Newkirk v. ConAgra Foods, Inc.*, 727 F. Supp. 2d 1006 (E.D. Wash. 2010) (popcorn).

control over an asbestos litigation in which “anything goes” is increasingly becoming “not in our courts.”¹⁰

Beginning with the federal courts, the Sixth Circuit Court of Appeals has rejected the *any exposure* theory as a basis for asbestos causation in two different appeals, *Martin v. Cincinnati Gas & Electric Co.*, 561 F.3d at 439, and *Lindstrom v. A-C Product Liability Trust*, 424 F.3d at 493 (internal quotes and citation omitted). Both times the court was troubled by the inconsistency of the *any exposure* approach with the substantial factor causation requirement: this logic “would make every incidental exposure to asbestos a substantial factor.” *Id.*

Several state supreme courts have also rejected the *any exposure* theory. Most recently, the Pennsylvania Supreme Court, in a unanimous decision issued in May 2012, affirmed the exclusion of expert testimony (including from Dr. Maddox) based on the *any exposure* theory. *Betz*, 2012 WL 1860853. The *Betz* court found that Dr. Maddox’ *any exposure* opinion was in “irreconcilable conflict with itself” because “one cannot

¹⁰ See David E. Bernstein, *Getting to Causation in Toxic Tort Cases*, 74 Brook. L. Rev. 51, 59 (2008) (“The recent, increasingly strict exposure cases . . . reflect a welcome realization by state courts that holding defendants liable for causing asbestos-related disease when their products were responsible for only *de minimis* exposure to asbestos, and other parties were responsible for far greater exposure, is not just. . .”).

simultaneously maintain that a single fiber among millions is substantially causative, while also conceding that a disease is dose responsive.” *Id.* at *23.

The Pennsylvania Supreme Court’s decision in *Betz* is consistent with its prior observation in *Gregg v. V-J Auto Parts, Inc.*, 943 A.2d 216 (Pa. 2007). In *Gregg*, while affirming the use of the frequency, regularity, proximity standard, the Pennsylvania Supreme Court took pains to address specifically the theory that any exposure to asbestos would be sufficient for legal causation:

We appreciate the difficulties facing plaintiffs in this and similar settings, where they have unquestionably suffered harm on account of a disease having a long latency period and must bear a burden of proving specific causation under prevailing Pennsylvania law which may be insurmountable. Other jurisdictions have considered alternate theories of liability to alleviate the burden. [Citations omitted.] Such theories are not at issue in this case, however, and ***we do not*** believe that it is a viable solution to ***indulge in a fiction that each and every exposure to asbestos, no matter how minimal in relation to other exposures, implicates a fact issue concerning substantial-factor causation*** in every “direct-evidence” case.

Gregg, 943 A.2d at 226-227 (emphasis added). The *Gregg* court went on to point out why that approach would contradict Pennsylvania substantial factor law and create joint and several liability without scientific evidence of harm:

The result [of applying the *any exposure* theory], in our view, is to ***subject defendants to full joint-and-several liability for injuries and fatalities in the absence of any reasonably developed scientific reasoning that would support the conclusion that the product sold by the defendant was a substantial factor*** in causing the harm.

Id. (emphasis added).

The Texas Supreme Court has also rejected the *any exposure* approach in the widely-recognized *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765 (Tex. 2007) decision, in which the plaintiff was a forty-year automotive mechanic, yet as here, plaintiff's experts in that case made no attempt to assess his dose but assumed that "some" mechanic exposure was enough. *Id.* at 771. The New York Court of Appeals in *Parker v. Mobil Oil Corp.*, 857 N.E.2d 1114, 1121-22 (N.Y. 2006), a benzene case, also rejected testimony that a gas station attendant's exposures were "substantial" or "significant" and a cause of his leukemia, without any comparison of the dose to factory workers who incurred leukemia.

A number of state courts have also increasingly rejected *any exposure* testimony under both *Frye* and *Daubert* standards. Washington state, a *Frye* jurisdiction, has twice rejected asbestos *any exposure* testimony, which one of those courts found to be "hypothetical" and "not a scientifically proven proposition." *Free*, 2008 WL 728387 at *4. Other courts in Maryland, Florida, and Mississippi have all issued rulings rejecting

or criticizing *any exposure* asbestos litigation testimony within the last five years.¹¹ Texas courts both before and after *Borg-Warner* have consistently rejected the *any exposure* theory since 2004.¹²

III. THE ANY EXPOSURE THEORY HAS CONTRIBUTED TO THE GROSS EXPANSION OF ASBESTOS LITIGATION AND IMPROPERLY SHIFTS THE BURDEN OF PROOF WHILE ALLOWING UNTESTED AND UNRELIABLE EVIDENCE TO REACH THE JURY

The effect of the *any exposure* theory on the expansion of asbestos litigation is significant. Earlier asbestos cases typically pitted an asbestos worker with lung cancer, mesothelioma, or impairing asbestosis against defendants who produced the type of asbestos or product associated with the worker's job. See Stephen J. Carroll *et al.*, *Asbestos Litigation* 28 (RAND CORP. 2005). Occupations such as shipbuilders and Navy

¹¹ *Dixon*, 2012 WL 2483315; *Brooks*, 934 So. 2d at 255-56; *Daly*, 2009 WL 4662280.

¹² *Stephens*, 239 S.W.3d at 312-21; *In re Asbestos Litig.*, 2004 WL 5183959; *In re Asbestos Litig.*, 2007 WL 5994694; *Smith*, 307 S.W.3d at 838.

Given the breadth of asbestos litigation and the entrenched nature of weakened asbestos rules, it is not surprising that some courts have permitted *any exposure* testimony to go forward. Those decisions include a New Jersey appellate court, see *Buttita v. Allied Signal*, 2010 WL 1427273 (N.J. Super. A.D. 2010), and the Nebraska Supreme Court in a benzene case, *King v. Burlington Northern Santa Fe Ry. Co.*, 762 N.W.2d 24 (Neb. 2009) (decided under the more generous causation standard of FELA)). These opinions do not reach the significance or level of analysis of the many cases rejecting the theory.

personnel working around heavy amphibole asbestos exposures on World War II ships; insulators blowing large clouds of free amphibole or mixed fibers; and asbestos factory workers exposed to “snowstorms” of raw asbestos are the paradigm settings for asbestos disease.

In part due to the press of many such cases, and in part due to the complexities of proof, some courts began to relax a number of standard rules to accommodate these claims. See, e.g., Victor E. Schwartz & Leah Lorber, *A Letter to the Nation’s Trial Judges: How the Focus on Efficiency is Hurting You and Innocent Victims in Asbestos Liability Cases*, 24 Am. J. Trial Advoc. 247 (2000). This “looseness” extended to causation requirements, when some courts permitted plaintiffs to demonstrate merely that they were *exposed* to a defendant’s product (as one of many in the “snowstorm”), rather than require proof that any particular exposure was high enough to cause a plaintiff’s disease. In this context, plaintiff experts developed a highly standardized approach to their testimony, presenting essentially the same testimony regardless of job, exposure, dose or other factors.

Today, however, the litigation environment is different. Most cases now involve diverse exposures – the removal of a few gaskets; the use of “dental tape” during dentistry work; removing the cloth insulation on

electrical wires; walking by someone repairing an engine or a brake; merely handling boxes of brake pads; performing a few brake jobs on the family car – all of these and more have been the subject of not only cases, but in some cases trials and large jury verdicts. And unlike older occupational exposure cases that involved insulation containing long, rigid amphibole fibers, many of the newer cases involve the more common, but far less toxic, chrysotile form of fiber. In 1980 there were about 300 defendants named in asbestos litigation, but today there are over 10,000.¹³

The *any exposure* theory is the vehicle that plaintiffs need to permit these trivial or minimal exposure cases to get to a jury. Without it, plaintiffs would have to prove a real dose, consistent with occupations known through epidemiology studies to have caused asbestos disease – just like any other defendant in any other toxic tort litigation. *Amici* submit that experts in asbestos litigation should be held to the same standards as those in any other toxic tort litigation.

Likewise, plaintiff experts should be held to the same standard of admissibility in asbestos cases as in any other toxic tort litigation. Virginia

¹³ See Towers Watson, *A Synthesis of Asbestos Disclosures From Form 10-Ks - Insights*, Apr. 2010, at 1, at http://www.towerswatson.com/assets/pdf/1492/Asbestos_Disclosures_Insights_4-15-10.pdf.

law is clear that in order for expert opinion testimony to be admissible, it must be supported by an adequate factual foundation. See *John v. Im*, 263 Va. 315, 319-320, 559 S.E.2d 694, 696-97 (2002). Indeed, “[e]xpert testimony is inadmissible if it is speculative or founded on assumptions that have an insufficient factual basis” or if the expert has “failed to consider all variables bearing on the inferences to be drawn from the facts observed.”

Id. In fact, this Court has previously held expert causation testimony inadmissible in the absence of dose estimation. See *Norfolk S. Ry. v. Rogers*, 270 Va. 468, 479-480, 621 S.E.2d 59, 65-66 (2005) (expert testimony excluded in silica-exposure case where expert, *inter alia*, could not quantify the amount of silica dust to which plaintiff was exposed).

Not surprisingly, courts that have scrutinized the *any exposure* theory have excluded it, under both *Daubert* and *Frye* criteria for admissibility:

- “[T]here is no medical authority or generally accepted methodology that would support the conclusion that . . . ‘each and every exposure’ substantially contributed” to a particular plaintiff’s disease process.” *In re Toxic Substances Cases*, 2006 WL 2404008, at *13 (Pa. Ct. Com. Pl. Allegheny County Aug. 17, 2006), *aff’d sub nom. Betz v. Pneumo Abex, LLC*, - A.3d -, 2012 WL 1860853 (Pa. May 23, 2012).
- The opinion that “each and every exposure” was a substantial factor in contributing to mesothelioma is “fundamentally flawed and not generally accepted by the relevant scientific community.” *Id.*

- “I have been unable to find, and I do not believe that [plaintiffs’ experts], or any other witness or authority offered on behalf of the plaintiffs have offered any generally accepted methodology to support this [*any exposure*] proposition.” *Id.* at *6.
- “[T]he assumption that every exposure to asbestos ... is a substantial factor contributing to development of an asbestos-related disease, is not a scientifically proved proposition that is accepted in the field of epidemiology, pulmonology, or any other field relevant to this case.” *Free*, 2008 WL 728387 at *3.

What is more, the pernicious effect of the *any exposure* theory is to shift to defendants the burden of proving a negative: that their product had no effect on the plaintiff. In no other context does Virginia law transfer the burden from plaintiff to defendant, and asbestos cases should be no exception. There is no unfairness in requiring plaintiffs to meet the normal burden of demonstrating a harmful dose that is appropriate for all toxic tort litigation. Science has well-established mechanisms for determining exposures believed to be capable of causing human harm, and Plaintiff’s experts ought to be held to the same standard.

CONCLUSION

Amici urge this Court to recognize the fallacy of the *any exposure* theory and to reverse the trial court’s admission of expert testimony based thereon.

Respectfully submitted,



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CERTIFICATE OF COMPLIANCE

I hereby certify that this brief complies with the Virginia Supreme Court Rules that pertain to the filing of briefs, including but not limited to Rules 5:6 (Forms of Briefs; paper size, line spacing, 14-point Ariel font; binding and cover), 5:26 (General Requirements for All Briefs; length not exceeding the longer of 50 pages or 8,750 words; copies for filing; signature and certificate), 5:30 (Briefs *Amicus Curiae*), and 5:31 (Gray Cover for Brief *Amicus Curiae*).



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Dated: July 3, 2012

CERTIFICATE OF SERVICE

I certify that on July 3, 2012, I sent the original and 15 copies of this Brief by overnight mail to the office of the clerk of the Court for filing and emailed a pdf of the signed brief to scvbrieffs@courts.state.va.us and to counsel for all parties. I also served three copies of the Brief upon counsel by mailing them in first-class postage-prepaid envelopes put into a depository under the exclusive care and custody of the U.S. Postal Service addressed to:

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