No. 103135-1

IN THE SUPREME COURT
OF THE STATE OF WASHINGTON

KERRY L. ERICKSON; MICHELLE M. LEAHY; RICHARD A. LEAHY; and JOYCE E. MARQUARDT,
Plaintiffs-Petitioners,

v.

PHARMACIA LLC, Delaware limited liability company, f/k/a Pharmacia Corporation,
Defendant-Respondent.

SUPPLEMENTAL BRIEF OF PETITIONERS

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Statutes and Legislative History

Books and Articles

Other Authorities

INTRODUCTION

The court of appeals reversed a landmark jury verdict for Washington public-school teachers who suffered permanent brain damage from exposure to dangerous chemicals called PCBs.

For four decades, until they were banned by every nation on earth, Monsanto enjoyed a monopoly over these odorless, long-lasting chemicals. PCBs were highly profitable. But they were also highly toxic, as Monsanto knew early on. So a monopoly on sales wasn't enough; Monsanto wanted a monopoly on information. Executives at the Missouri headquarters thus orchestrated an elaborate, decades-long plan to conceal the dangers of PCBs. Even though Monsanto was specifically aware of the risks that PCBs posed in school buildings, it did nothing to alert the public or prevent predictable harm to teachers and students. After a seven-week trial, the jury found Monsanto responsible for the teachers' injuries—as did seven Washington juries in related cases.

The decision below got one important thing right—it rejected the argument in Monsanto's cross-petition that Washington policy prohibits punitive damages even when the issue is governed by the law of a state (here, Missouri) that permits them. This Court, in its

seminal decision *Johnson v. Spider Staging Corp.* adopted an influential choice-of-law test that mandates application of the most interested state's law to each "particular issue" in a case. 87 Wn.2d 577, 581, 555 P.2d 997 (1976). And in *Kammerer v. Western Gear Corp.*, this Court applied that test to uphold an award of punitive damages under the law of another state. 96 Wn.2d 416, 422, 635 P.2d 708 (1981). The court below correctly followed this Court's holding that, where the other state has the most significant relationship to punitive damages, "a Washington court can award punitive damages under the law" of that state. *Id.* at 423.

But the court below nevertheless threw out the jury's carefully considered verdict, reasoning that the trial court erred in applying Missouri law to deny repose for Monsanto's Missouri-based conduct. The court held that the twelve-year repose period in the Washington Products Liability Act immunized Monsanto's Missouri-based conduct because the effects of Monsanto's PCBs were felt by the plaintiffs in Washington many years later.

If that harsh result were allowed to stand, the toxic-exposure claims of these injured Washington residents would be terminated

before anyone could conceivably have discovered them and before some of the victims were even born.

That draconian result flouts two of this Court's precedents. *First*, it's incompatible with *Spider Staging*'s common-law rule, which mandates application of the law of the state with the greatest interest. "[C]lear evidence of the legislature's intent" is required to override a common-law rule like this. *Dearinger v. Eli Lilly & Co.*, 199 Wn.2d 569, 575, 510 P.3d 326 (2022). But nothing in the WPLA (enacted in 1981) ousts the common-law framework of *Spider Staging* (decided five years earlier). To the contrary, the WPLA *expressly preserves* the common law. RCW 7.72.020(1). So, because Missouri has the greatest interest in policing Monsanto's Missouri conduct, Missouri's law on repose applies—a result consistent with the consensus view of courts that, in product-liability cases, repose is governed by the law of the place of the manufacturer's conduct.

Second, the court of appeals' application of the WPLA's statute of repose cannot be reconciled with *Bennett v. United States*, 2 Wn.3d 430, 539 P.3d 361 (2023), in which this Court struck down a materially indistinguishable statute of repose under Washington's privileges and immunities clause. Because the requisite "nexus" here

is far weaker than in *Bennett*, that decision compels the conclusion that the WPLA's repose period is unconstitutional.

Finally, the majority erred in holding, over a dissent, that *Frye* barred the admission of the plaintiffs' expert's opinions on the level of PCBs at Sky Valley. The plaintiffs' expert was selected by the EPA to serve as principal investigator and peer reviewer on this very issue: PCB exposure assessments. But the majority barred his opinions because he applied simple math and performed tests based on work in the field, rather than in a lab. That stretches *Frye*—which leaves it to scientists to determine the validity of *novel* scientific techniques—far beyond its limits. And, in doing so, the decision below not only departs from the views of six experienced Washington judges, but also usurps the jury's role under the Washington Constitution. That holding should be reversed.

STATEMENT

A. Factual background. In 2011, Sky Valley Education Center, a public school in Monroe, moved to a building that was formerly a middle school. RP3087-88. At the time, the plaintiff teachers—all beloved as "hard working" and "dedicated"—were full of energy and in good health. RP2531, 2971; CP16654.

That quickly changed. They soon experienced an "explosion of symptoms" of neurological injury: headaches, brain fog, memory problems, and fatigue. RP3131; Op. 7. They weren't alone. "[O]ver 100 parents, teachers and children … reported illness that they associate[d] with the building." Ex. 2124 at 1.

Eventually, the cause became clear: polychlorinated biphenyls, or PCBs. The building was constructed in the 1960s, when 95 percent of fluorescent-light ballasts contained PCBs. RP1716-17, 1726-27. PCBs were also in the caulk. RP1762-63. The teachers saw brown liquid "leaking out of light fixtures." RP1727-28, 1762-63. Unbeknownst to them, PCBs also escaped the lights and caulk in vaporized form. RP1755-56. And while testing by independent consultants found PCBs in the schools, it ruled out other potential culprits like mold or asbestos: There was "not a single shred of evidence" that they were the cause. RP2347-48; Resp. Br. at 34-36.

But the danger of PCBs was real. As far back as the 1930s, Monsanto knew that PCBs caused "systemic toxic effects" and even death.[1] RP1318; D-20081. But with profits on the line, Monsanto

[1] Throughout this brief, "Monsanto" refers to both Monsanto and its corporate successor, Pharmacia.

repeatedly assured regulators and customers that PCBs were "singularly free of difficulties." Ex. 212. For example, even though Monsanto knew that the Navy's testing of PCBs killed all 150 rabbits exposed, Ex. 162, Monsanto told another customer, one month later, that PCBs caused "no serious effects" in rabbits, Ex. 163 at 1.

In 1966, around the time the Sky Valley building was being built, scientists exposed the threat of PCBs: they escaped into the environment, were found in "children's hair," and were "as poisonous as DDT." Exs. 266 at 4, 350 at 3. Over the next decade, Monsanto went on the defensive: Its lawyers directed reports to be "burn[ed]," Ex. 653 at 58, while Monsanto tried to "sell the hell out of [PCBs for] as long as we can," CP18889. Secrecy was critical to that plan. As one memo explained, Monsanto considered it a good thing that "the general public is not even aware that PCBs are in their fixtures," as a "lot of people would undoubtedly become very emotional—even panic—if they found out the[re] was a 'cancer-causing' agent hanging over their heads." Ex. 2531.

Even after the EPA banned PCBs in 1979, Monsanto refused to acknowledge the problem, telling the public that PCBs were no more toxic than "common table salt." Ex. 956 at 1. But internally,

Monsanto's public-relations team repeatedly flagged PCBs in schools as the company's "'sleeper' issue." Ex. 3561 at 1. Monsanto knew that students and teachers in aging school buildings were exposed to various PCB sources, RP1610-11, and that "the primary pathways of PCB contamination in schools are caulk and leaking fluorescent light ballasts," Ex. 1889 at 5-6.

Yet Monsanto did nothing. Worse than nothing. In 2009, when the EPA issued guidance detailing its "concern[s] about potential exposure to PCBs … in older schools and buildings," Ex. 1548 at 3, Monsanto gave the *Wall Street Journal* a statement that resembled its defiance and deception decades earlier: "[T]he weight of scientific evidence does not support any causal link" between PCBs and any "significant human illnesses." Ex. 3558 at 2.

B. Procedural background. After discovering that PCBs caused their injuries, over 250 Sky Valley teachers, students, and family members sued to hold Monsanto accountable. The plaintiffs here were the first to have their day in court.

Trial began in June 2021 on claims for design defect, construction defect, and failure to warn (both at time of sale and post-sale, after Monsanto obtained new evidence of PCBs' dangers).

The jury heard hundreds of hours of testimony from 46 witnesses, including more than a dozen experts, and saw thousands of pages of exhibits. After the seven-week trial, the jury returned a verdict for the plaintiffs on all claims.

Division One reversed. It held that the trial court should have found Monsanto's conduct immunized by Washington's twelve-year statute of repose, shouldn't have permitted the plaintiffs to seek punitive damages on their post-sale failure-to-warn claim, and—over Judge Dwyer's dissent—should have excluded the testimony of the plaintiffs' PCB-exposure expert. The court did not address whether the admission of the expert testimony was prejudicial and independently warranted a new trial, but still decided the issue because it was "likely to recur" on remand. Op. 2.

Following the decision, Monsanto sought to compel the plaintiffs—public-school teachers suffering from severe injuries—to pay nearly $2 million in costs out of their own pockets.

ARGUMENT

I. Missouri law governs punitive damages and repose.

A. This Court's common-law test governs choice of law unless the legislature displaces it.

Almost half a century ago, this Court's watershed decision in *Spider Staging* positioned it in an early wave of state courts that abandoned the traditional choice-of-law rule for tort claims. 87 Wn.2d at 580; *see* Symeon C. Symeonides, *The Choice of Law Revolution*, 2015 U. Ill. L. Rev. 1847, 1870-75 (2015). The prior rule, which applied "the law of the place of injury," 87 Wn.2d at 580, was reviled for its "unjust and anomalous results," *Babcock v. Jackson*, 191 N.E.2d 279, 282 (N.Y. 1963). *Spider Staging* was a key part of the "judicial revolution" that overthrew this outdated rule. Symeonides, *The Choice of Law Revolution*, 2015 U. Ill. L. Rev. at 1849.

In its place, this Court, along with most others, *see id.*, adopted the choice-of-law test from the Restatement (Second) of Conflict of Laws, which applies the law of the state with the "most significant relationship" to an "issue in tort." *Spider Staging*, 87 Wn.2d at 580. This Court set forth a two-part test. First, a court evaluates each state's connections to the case. *See id.* at 580-81. If they point clearly to one state, its laws apply. But if they're "evenly

balanced," the court proceeds at the second step to evaluate each state's "interests and public policies." *Id.* at 582.

Under this test, "[e]ach issue"—not each claim—"receive[s] separate consideration." Restatement (Second) of Conflict of Laws § 145 cmt. d. Thus, under the modern rule adopted by Washington's common law, "different issues" regarding a single claim "may be decided according to the substantive law of different states"—a phenomenon "referred to as depeçage." *Pope Res. L.P. v. Certain Underwriters at Lloyd's, London*, 19 Wn. App. 2d 113, 123 n.21, 494 P.3d 1076 (2021). The doctrine of depeçage provides for "application to each issue of the rule of the state with the greatest concern in the determination of that issue." Willis L.M. Reese, *Depecage: A Common Phenomenon in Choice of Law*, 73 Colum. L. Rev. 58, 60 (1973). Courts applying the doctrine have allowed "severance of statutes of limitations, questions of individual causation, damages, and affirmative defenses in accordance with different states' law." *Simon v. Philip Morris Inc.*, 124 F. Supp. 2d 46, 75 (E.D.N.Y. 2000).

This Court in *Spider Staging* applied its two-part test to deny a company the benefit of a cap on damages in a product-liability case. The plaintiff was injured in Kansas by a defective product

manufactured in Washington. 87 Wn.2d at 578. He sued in Washington, and the company invoked Kansas's damages cap—raising a conflict with Washington law, which had no cap. *Id.* at 578-79. On the first step, the Court found the states' contacts "evenly balanced." *Id.* at 582. On the second step, it found Kansas had "no interest" in limiting damages of "nonresident defendants." *Id.* at 583-84. Washington's policy of providing "full compensation," meanwhile, was "clearly advanced by the application of its own law." *Id.* at 583. Allowing "[u]nlimited recovery" would "deter tortious conduct" and "encourage respondents to make safe products for its customers." *Id.* The Court thus denied the company the benefit of the damages cap, applying instead the law of the company's home state and the state where it committed the tortious acts.

Under this established common-law test, there can be little question that Missouri has the "most significant relationship" to both punitive damages and repose. Monsanto conducted its decades-long campaign to conceal PCBs' toxicity from its Missouri headquarters. Missouri therefore has a powerful sovereign interest in punishing the company for that conscious disregard for safety—the standard for punitive damages—and in deterring others from

doing the same. It has an equally strong interest in ensuring that repose doesn't immunize Monsanto's conduct from liability just because that conduct, by design, took decades to come to light.

There's nothing unfair about subjecting Monsanto to the law of its home state. *See Marchesani v. Pellerin-Milnor Corp.*, 269 F.3d 481, 492 (5th Cir. 2001). As a company that distributed its products in all fifty states, Monsanto "could not have justifiably relied on" Washington-specific rules in planning its conduct. *Spider Staging*, 87 Wn.2d at 583 n.3. A company that consciously disregards the safety of people in every state can "have few, if any, justified expectations in the area of choice of law to protect." Restatement (Second) of Conflict of Laws § 145 cmt. b; *see* Resp. Br. 72-74.

Monsanto nevertheless seeks to evade accountability under its home state's law, calling this Court's choice-of-law framework "wholly inapplicable" to the WPLA. But it is a background principle of Washington law that a statute will not be read to "abrogate the common law" absent "clear evidence of the legislature's intent to deviate" from it, *Dearinger*, 199 Wn.2d at 575, and choice of law is as much "part of the common law … as any other branch of the state's law," Restatement (Second) of Conflict

of Laws § 5 cmt. a, c. The WPLA, in fact, moves that background principle to the foreground, expressly providing that the "previous existing applicable law of this state on product liability"—which, of course, includes *Spider Staging*—"is modified only to the extent set forth" in the Act. RCW 7.72.020(1). Nothing in the WPLA overcomes that double presumption against displacing Washington's normal choice-of-law rules.

B. Missouri law governs the issue of punitive damages.

1. Under the rule of *Spider Staging* and the Second Restatement, punitive damages are not governed by the law of the forum or place of injury, but by the law of the "state of most significant relationship *with respect to the issue of damages*." Restatement (Second) of Conflict of Laws § 171 cmt. b (emphasis added). Under this issue-by-issue test, "the measure of damages" may be decided by the law of a different state than that which governs "whether the actor's conduct was tortious." *Id.* §§ 156, 171.

Our brief in the court of appeals explained in detail (at 66-70) why Missouri has the more significant relationship to the issue of punitive damages. As this Court held in *Spider Staging*, a state's interest in "protect[ing] defendants from excessive financial

burdens … is primarily local" because the state typically "seeks to protect its own residents." 87 Wn.2d at 582-83. Washington thus has no "interest in applying its [damages] limitation to nonresident defendants." *Id.* at 583-84. To do so "would not protect [Washington] residents, but would merely limit their ability to recover damages." *Zenaida-Garcia v. Recovery Sys. Tech., Inc.*, 128 Wn. App. 256, 265, 115 P.3d 1017 (2005).

Missouri, on the other hand, has a strong "interest in deterring its corporations from" misconduct. *Singh v. Edwards Lifesciences Corp.,* 151 Wn. App. 137, 148, 210 P.3d 337 (2009). Where, as here, "the primary purpose of the tort rule involved is to deter or punish misconduct" rather than "to compensate the victim for his injuries," "the state where the conduct took place" typically has the "dominant interest and thus [the] most significant relationship." *Barr v. Interbay Citizens Bank*, 96 Wn.2d 692, 698, 635 P.2d 441 (1981). The most "significant factor" for punitive damages is therefore "the jurisdiction in which the bad behavior … occurred." *Singh*, 151 Wn. App. at 145 (applying California's punitive-damages law where "[t]he conduct that serve[d] as the basis of the punitive damage award … occurred in California"). Here, that's Missouri.

2. Monsanto offers three reasons why the Court should nonetheless apply Washington law.

a. First, it argues that applying *Spider Staging* to uphold a punitive-damages award under Missouri law conflicts with Washington's "public policy prohibiting punitive damages." Cross-Pet. at 32. But that policy doesn't come from the WPLA, so it can't be the "clear evidence" of legislative intent needed to displace the common law. *Dearinger*, 199 Wn.2d at 575. Monsanto's appeal to that policy, then, amounts to a plea for this Court to prohibit a conflicts analysis *whenever* punitive damages are at issue.

But as Division One recognized, this Court rejected that argument four decades ago in *Kammerer v. Western Gear Corp.*, which applied *Spider Staging* to uphold a Washington court's award of punitive damages under California law. 96 Wn.2d at 421-23. Where another state has a more significant relationship to the issue, the Court held, "a Washington court can award punitive damages under the law" of that state. *Id.* at 423; *see also, e.g.*, *Singh*, 151 Wn. App. at 144-45 (allowing punitive damages under California law for claim under WPLA).

Monsanto's contrary argument finds no support in Washington law. As this Court has explained, "invocation of [Washington's] public policy" to foreclose a right under another state's law "should be very narrowly limited." *Richardson v. Pac. Power & Light Co.*, 11 Wn.2d 288, 302, 118 P.2d 985 (1941). Although Washington has a policy against punitive damages, it also has "a strong public policy … in favor of recognizing and enforcing rights and duties validly created by a foreign law." *Id.*

3. Second, in an argument floated for the first time in its reply below, Monsanto argues (at 32-33) that the legislature overruled this Court's established choice-of-law rule with a "statutory directive" requiring application of Washington law. It points to the WPLA's definition of "harm," which, unlike the model law on which it's based, doesn't expressly include punitive damages. Instead, it authorizes "any damages recognized by the courts of this state." RCW 7.72.010(6). In Monsanto's view, that definition, incorporates an across-the-board prohibition on punitive damages.

This Court has explained, however, that this language is intended to *expand*, not restrict, the remedies available under the model act. *See Wash. State Physicians Ins. Exch. & Ass'n v. Fisons*

Corp., 122 Wn.2d 299, 320, 858 P.2d 1054 (1993). Instead of limiting remedies to statutorily designated categories, the legislature wanted to "allow[] for the continued development of the concept through case law." *Id.* It thus broadly authorized "*any* damages recognized"—now or in the future—by Washington courts. RCW 7.72.010(6) (emphasis added). Punitive damages awarded under the law of another state easily satisfy that definition because they have repeatedly been "recognized by" Washington courts—including (in *Kammerer*) by this Court. *See Singh*, 151 Wn. App. at 147 (noting that "Washington courts have allowed punitive damages").

Regardless, the WPLA's definition of "harm" is not a statutory directive on choice of law that displaces the common law. To constitute such a directive, a statute must be "*expressly directed* to choice of law"—that is, it must "provide for the application of the local law of one state, rather than the local law of another." Restatement (Second) of Conflict of Laws § 6 cmt. a (emphasis added). As an example of such a provision, the Restatement cites Uniform Commercial Code § 4-102(b), providing that a bank's "liability is governed by the law of the place where the branch or separate office is located." *See id.* Such statutes, however, are "few in

number." *Id.* Courts "rarely find that a question of choice of law is explicitly covered by statute." *Id.*, cmt b. Unlike the Restatement's example, which expressly directs courts to apply "the law of the place," the WPLA's definition of "harm" says nothing about which state's law of damages applies.

c. Finally, Monsanto asks this Court to abandon the Restatement (Second) of Conflict of Laws in favor of the still-in-progress Restatement (Third) of Conflict of Laws. It points to a provision of the tentative draft stating that "[t]he law governing the availability of punitive damages is the law selected under the rules" governing choice-of-law in product-liability cases. Restatement (Third) of Conflict of Laws § 6.12.

But, as relevant here, the two restatements are consistent. The product-liability "rules" to which the tentative draft refers do not, as Monsanto appears to assume, provide that the same state's law governs both liability and punitive damages. Rather, they provide that "[i]ssues relating to damages are determined by the law selected under the choice-of-law rules *for such damages*." *Id.* § 6.11(c) (emphasis added). In other words, the draft's choice-of-law rules—just like the Second Restatement's—must separately be applied to

each "[i]ssue[] relating to damages." *Id.* Indeed, the draft cites *Singh* as a paradigmatic case "allowing punitive damages when they are allowed by the state of the tortfeasor's domicile and the state of conduct but not the state of injury." *Id.* § 6.12, reporter's note.

5. While recognizing that the plaintiffs may recover punitive damages under Missouri law, Division One nevertheless disallowed those damages on one claim—that Monsanto violated its duty to warn consumers of PCBs' dangers *after* sale. In a single sentence without any citation, the panel asserted that Missouri "lacks a cause of action for post-sale failure to warn," thus barring recovery of punitive damages under Missouri law for that claim. Op. 35.

That was error. Where choice-of-law principles mandate application of another state's law, the court's job is to "predict what that law is" based on how "it thinks the foreign highest court would apply" it. Kevin M. Clermont, *Signaling Deference to Another Sovereign's Law*, 59 Gonz. L. Rev. 207, 219-20 (2023). Here, every indication points to Missouri recognizing a post-sale duty to warn.

"In Missouri, a plaintiff may choose to bring a failure to warn case under a negligence theory pursuant to Section 388 of the Restatement (Second) of Torts." *Thompson v. Brown & Williamson*

Tobacco Corp., 207 S.W.3d 76, 107 (Mo. Ct. App. 2006); *see also Peters v. Gen. Motors Corp.*, 200 S.W.3d 1, 17 (Mo. Ct. App. W.D. 2006) (explaining that Missouri recognizes a negligence-based failure-to-warn claim as distinct from a statutory strict-liability-based failure-to-warn claim under Mo. Rev. Stat. § 537.760). As numerous courts applying that section have held, it permits post-sale failure-to-warn claims. *See, e.g.*, *LaBelle v. McCauley Indus. Corp.*, 649 F.2d 46, 49 (1st Cir. 1981); *Cover v. Cohen*, 61 N.Y.2d 261, 275-76 (1984); *see also generally In re Gen. Motors LLC Ignition Switch Litig.*, 202 F. Supp. 3d 362, 366-67 (S.D.N.Y. 2016). Indeed, allowing manufacturers to entirely "ignore post-sale knowledge about dangers" would be "contrary to" that very section. *Crowston v. Goodyear Tire & Rubber Co.*, 521 N.W.2d 401, 407 (1994).

Consistent with that approach, Missouri generally recognizes a broad duty to warn users when a product is dangerous. *See Orr v. Shell Oil Co.*, 177 S.W.2d 608, 610 (Mo. 1943). It has never limited that duty to the time of sale. Rather, the duty arises when "the fact is … established" that an "apparently harmless" product "contains concealed dangers." *Johnston v. Upjohn Co.*, 442 S.W.2d 93, 97 (Mo. App. 1969); *see, e.g.*, *Lopez v. Three Rivers Elec. Co-op.*, 26 S.W.3d 151,

156 (Mo. 2000) (recognizing continuing duty to warn); *Stanger v. Smith & Nephew, Inc.*, 401 F. Supp. 2d 974, 982 (E.D. Mo. 2005) (recognizing post-sale failure-to-warn claim). And none of the elements of a negligent failure-to-warn claim in Missouri provides any basis for limiting such claims to pre-sale failures to warn. *See* Mo. Approved Jury Instr. (Civil) 25.09.

Division One provided no explanation for its contrary conclusion. Monsanto, in its cross-petition, attempted to fill the gap by pointing to two cases as purportedly establishing a rule that the duty to warn is limited to the time of sale. *See Moore v. Ford Motor Co.*, 332 S.W.3d 749 (Mo. 2011); *Nesselrode v. Exec. Beechcraft, Inc.*, 707 S.W.2d 371 (Mo. 1986). But neither involved a post-sale warning claim and so could not have rejected the existence of the claim. If anything, both *support* a post-sale duty to warn. *Nesselrode* held that the defendant could have avoided liability by issuing a post-sale "service bulletin." 707 S.W.2d at 385. And *Moore* explained that a duty-to-warn claim under a negligence theory (as here) "focuses on what the manufacturer knew." 332 S.W.3d at 764. As other courts have recognized, there is no reason that a claim focused

on the manufacturer's knowledge would disregard knowledge obtained post-sale. *See Crowston*, 521 N.W.2d at 407.

C. Missouri law governs the issue of repose.

1. Under *Spider Staging*'s issue-by-issue test, courts also choose the law governing "defenses to the plaintiff's claim," Restatement (Second) of Conflict of Laws § 161, by determining which state has the "most significant relationship" to that "particular issue," 87 Wn.2d at 580. This Court in *Rice v. Dow Chemical* thus held that the WPLA's statute of repose, RCW 7.72.060, is "subject to conflict of laws methodology," applying *Spider Staging* and the Second Restatement to "determine which state's law applies." 124 Wn.2d 205, 210, 213, 875 P.2d 1213 (1994).

Rice thus confirms that the WPLA's repose period is, like every other issue in the case, subject to ordinary choice-of-law principles. So the same interest analysis applied above applies to repose, and it points in the same direction: Missouri law applies. Missouri "has an obvious interest in regulating the conduct of persons within its territory." Restatement (Second) of Conflict of Laws § 145, cmt. d.

The legislature, to be sure, could have included language dictating which state's law applies to repose or how the choice-of-

law analysis works. But it didn't. The WPLA's language says nothing about the relevant question: whether the statute is "directed to choice of law"—meaning, whether it "provide[s] for the application of the local law of one state, rather than the local law of another." Restatement (Second) of Conflict of Laws § 6 cmt. a. If anything, the Act provides the opposite. Its preamble explains that the "intent of the legislature" was that "retail businesses located primarily *in the state of Washington* be protected from the substantially increasing product liability insurance costs." RCW 7.72.010 (emphasis added). The legislature's "intention to protect local businesses and manufacturers is not furthered by applying [Washington] law to immunize" Monsanto from the consequences of its conduct in its home state. *Martin v. Goodyear Tire & Rubber Co.*, 114 Wn. App. 823, 834-35, 61 P.3d 1196 (2003).

2. Division One nevertheless held that *Spider Staging*'s issue-by-issue analysis was not "appropriate" for repose. Op. 12. The court reasoned that, because "the legislature integrated the statute of repose's limitation on liability into WPLA," the limitation is "mandatory to the existence of a WPLA claim" and "claim-defining." *Id.* at 18. The Court distinguished the statute of repose

from "affirmative defenses," which, it recognized, would still be subject to ordinary choice-of-law principles. Op. 18 n.12. Put differently, Division One did *not* hold that the WPLA displaces the common law issue-by-issue analysis; rather, it held that repose must be treated as the same issue as a plaintiff's affirmative liability case.

That can't be reconciled with *Rice*. *Rice* unambiguously treated repose as a distinct "issue." 124 Wn.2d at 213. And when it examined states' competing "interest[s]," this Court considered those states' interest "in providing repose," not in controlling what constitutes a defective design—the essence of liability there. *Id.* at 216.

Nor can Division One's reasoning be reconciled with the statute's text: Under the WPLA (unlike some other states' statutes), repose *is* an affirmative defense—not part of the plaintiff's claim. A statutory exception (like repose here) creates an affirmative defense unless (1) "the statute reflects a legislative intent to treat absence of the exception … as one of the elements of a cause of action" or (2) the exception "negates an element of the action which the plaintiff must prove." *Kastanis v. Educ. Emps. Credit Union*, 122 Wn.2d 483, 493, 859 P.2d 26 (1993). Neither is true here.

First, the WPLA reflects an intent *not* to make repose an element of the plaintiff's case. It applies only "*if the product seller proves* by a preponderance of the evidence that the harm was caused after the product's 'useful safe life' had expired." RCW 7.72.060(1)(a) (emphasis added). A statute that "expressly places the burden of proof on the" defendant, as this does, is clearly creating an affirmative defense, *Asplundh Tree Expert Co. v. Washington State Dep't of Lab. & Indus.*, 145 Wn. App. 52, 61, 185 P.3d 646 (2008), because "[t]he defendant should bear the burden of proof *only* where it asserts an 'affirmative defense,'" *Kastanis*, 122 Wn.2d at 493 (emphasis added).

Second, the WPLA's repose provision doesn't "negate" an element of the claim. RCW 7.72.030(1) defines when "[a] product manufacturer is subject to liability." The passage of time that is the focus of the repose provisions "negates" no aspect of the plaintiff's prima facie case—plaintiffs can fully prove their case without ever mentioning when the harm-causing product was sold. *Compare State v. W.R., Jr.*, 181 Wn.2d 757, 768, 336 P.3d 1134 (2014) (because "consent necessarily negates [element of] forcible compulsion," it's

not an affirmative defense in rape cases). The premise of Division One's holding was thus fundamentally flawed.

3. Division One's decision also splits with the decisions of every other court to have addressed choice of law for repose under similar products-liability statutes. Division One didn't cite a single decision by any court adopting its contrary approach. Nor did it address any of the on-point, contrary decisions we cited below.

The New Jersey Supreme Court in *Gantes v. Kason Corp.*, for example, held that claims under Georgia's comprehensive products-liability statute were not subject to the statute's repose period and instead applied the law of the site of the tortious conduct to repose. 679 A.2d 106, 109 (N.J. 1996). Similarly, the Fifth Circuit in *Marchesani v. Pellerin-Milnor Corp.*, 269 F.3d at 489, applied the repose period of a manufacturer's home state to claims under Tennessee's products-liability statute, rejecting arguments that the statute's repose period was an "inseparable part of [the state's] substantive product liability law" and that depeçage "would destroy a deliberate and completely integrated statutory scheme," 2000 WL 33982512, at *28-33 (brief of appellee).

Every other court to decide the issue has reached the same conclusion. *See, e.g.*, *Bruce v. Haworth, Inc.*, 2014 WL 834184, at *3 n.2 (W.D. Mich. 2014) (Michigan products-liability act doesn't bar applying Georgia law on repose); *Ehrenfelt v. Janssen Pharmaceuticals, Inc.*, 2016 WL 7335922 (W.D. Tenn. 2016) (Tennessee products-liability act doesn't bar applying Kansas law on repose); *Sico N. Am., Inc. v. Willis*, 2009 WL 3365856 (Tex. Ct. App. 2009) (declining to apply Texas repose statute); *Mitchell v. Lone Star Ammunition, Inc.*, 913 F.2d 242 (5th Cir. 1990) (same for North Carolina); *Mahne v. Ford Motor Co.*, 900 F.2d 83 (6th Cir. 1990) (same for Florida). And more broadly, courts have rejected the notion that the existence of an "integrated statute," in the absence of a specific directive on choice of law, requires courts to "deviate from the proper issue-by-issue approach." *Sibley v. KLM-Royal Dutch Airlines*, 454 F. Supp. 425, 429 (S.D.N.Y. 1978).

The only authority that Division One cited in holding otherwise was the in-progress draft of the Third Restatement, which it wrongly read to require that the same state's law govern both liability and repose. But, as noted above, the Third Restatement still determines choice of law "in terms of individual issues."

Restatement (Third) of Conflict of Laws ch. 6, intro. note. This means that "different issues in a single case or claim"—including repose—may "be governed by different states' laws." *Id.*; *see also id.* § 6.11 cmt. h (recognizing repose as a separate issue for issue-by-issue analysis). Regardless, the rule of the Second Restatement and *Spider Staging* remains the law of this state until this Court holds otherwise; Monsanto hasn't even asked the Court to overrule it; and nothing in the single (unexplained) sentence on which Monsanto relies would justify doing so.

II. The WPLA's statute of repose is unconstitutional.

A. Even if Washington law governed repose, Division One erred in applying the WPLA's twelve-year statute of repose, RCW 7.72.060, because it is unconstitutional. Division One's contrary holding directly conflicts with this Court's recent decision in *Bennett v. United States*, which holds that a statute of repose conferring special immunity from tort liability violates Washington's privileges and immunities clause if it lacks a sufficient "nexus" to "the legislature's stated purpose" that does not "rest solely on hypothesized facts." 2 Wn.3d at 449.

Bennett concerned the statute of repose for medical malpractice, which sought to address rising insurance premiums. This Court held that it lacked the requisite nexus to that purpose because the legislature "did not assert" that the statute would "in fact" reduce premiums; instead, it simply concluded that "to the extent" that repose affects insurance, it would "tend to reduce" premiums. *Id.* This Court refused to hypothesize the missing finding that the statute would *actually* reduce premiums. *Id.*

As explained in more detail in our supplemental briefs below, the required "nexus" here is far weaker than in *Bennett*. Division One identified a single legislative purpose in support of the statute of repose: "that retail businesses located primarily in the state of Washington be protected from the substantially increasing product liability insurance costs.'" Laws of 1981, ch. 27, § 1. The legislature, however, failed to identify any real-world basis for the notion that claims older than twelve years had any impact on liability-insurance rates. To the contrary, the Senate report acknowledged that the evidence showed "the concern about older products may be exaggerated," refuting "the need and effectiveness of a statute of repose." 1981 Senate J., Vol. 1 at 621, 625-26. In fact, only three

percent of "product-related incidents occurred" over *six* years after a product was purchased. *Id.* at 632. That connection is far "too attenuated" to liability-insurance rates to survive under *Bennett*. *See DeYoung v. Providence Med. Ctr.*, 136 Wn.2d 136, 149, 960 P.2d 919 (1998) (statute of repose covering "less than one percent" of claims was "too attenuated to survive" even rational-basis scrutiny).

Other state high courts have invalidated products-liability statutes of repose of the same vintage because the available evidence showed that these "individual state tort reforms" were unlikely to "stabilize product liability insurance rates," *Lankford v. Sullivan, Long & Hagerty*, 416 So. 2d 996, 1002 (Ala. 1982), and were thus "incapable of achieving the avowed purpose," *Berry By & Through Berry v. Beech Aircraft Corp.*, 717 P.2d 670, 681 (Utah 1985); s*ee also Dickie v. Farmers Union Oil Co.*, 611 N.W.2d 168 (N.D. 2000); *Kennedy v. Cumberland Eng'g Co.*, 471 A.2d 195, 201 (R.I. 1984); *Heath v. Sears, Roebuck & Co.*, 464 A.2d 288, 293 (N.H. 1983); *Bolick v. Am. Barmag Corp.*, 284 S.E.2d 188, 191-92 (N.C. Ct. App. 1981), *modified*, 293 S.E.2d 415 (N.C. 1982). Although we cited these decisions below, Division One didn't address them.

B. In upholding the statute, Division One didn't dispute the evidence that older claims have no effect on insurance rates. Instead, it held that the statute of repose was justified because it addressed the Senate Committee's observation that "'an insurer's *perception* of potential claims, whether substantiated or not, very likely is reflected in rates.'" Op. 26-28 (quoting S. Select Comm. on Tort & Product Liability Reform, Final Report at 19 (Wash. Jan. 1981)) (emphasis added).[2]

Division One's analysis rests on exactly the type of "hypothesized" facts that *Bennett*'s "exacting" standard prohibits. 2 Wn.3d at 449. All information in front of the legislature showed that the enacted statute of repose would *not* address insurers' "perceptions." Insurers were clear that what mattered was "certainty"—going so far as to explain that "the actual time period selected" for repose was of "less concern" than the need for a clear line. Final Report at 19. The Committee likewise recognized the "fairly obvious" "advantage" of an "absolute cutoff." *Id.* at 42. But

[2] In its cross-petition, Monsanto also asserted (at 19-20) that the Committee "found that … the WPLA would slow or decrease rising premiums." The report says nothing of the kind.

the enacted statute of repose—with its shifting starting point (tied to the date of sale, not manufacture), rebuttable twelve-year cutoff, and exceptions for fraud and delayed manifestation of harm, *see* RCW 7.72.060—could hardly be less certain. *See* Resp. Suppl. Br. at 7-9. It's no wonder that senators debating this statute concluded that repose must be resolved by a jury. 1981 Senate J., Vol. 1 at 614-15. That is the opposite of what insurers claimed was needed to reduce premiums.

Division One elided this evidence in the legislative record by asserting (at 26) that the statute provided a "measure of certainty." But neither the Committee nor the legislature found that a "measure of certainty" would "in fact" result in a reduction of premiums—the critical finding *Bennett* requires. *See* 2 Wn.3d at 449. The court of appeals hypothesized that pivotal link for them—exactly what *Bennett* forbids.

The court below also held that the statute "balance[d] the interests of different stakeholders." Op. 27. But this Court has repeatedly held that conferring special tort immunity cannot be justified simply by appealing to "legislative compromise." *See Bennett*, Wn.3d at 449; *Schroeder v. Weighall*, 179 Wn.2d 566, 581,

316 P.3d 482 (2014). Division One distinguished *Bennett* and *Schroeder* on the ground that, here, the "research drove" the compromise because it showed that "insurers wanted a degree of certainty" and got a "measure of this desired certainty." Op. 27-28.

Not so. Nothing in the legislative record states that insurers wanted merely a "degree of certainty"—they needed a clear line. Final Report at 19. And, again, no "research" found that a "measure of" certainty would drive down premiums. Division One ignored that reality in favor of its own speculation about the statute's effects. Because that speculation cannot be reconciled with *Bennett*, this Court should hold that the statute of repose is unconstitutional.

C. Judge Dwyer expressed concern that the statute of repose, if held invalid, might not be severable from the rest of the WPLA. But the legislature included an express severability clause: "If any provision ... is held invalid, the remainder of the act ... is not affected." Laws of 1981, ch. 27, § 18. This provides the "necessary assurance that the Legislature would have enacted the appropriate sections of the legislation despite the unconstitutional sections." *El Centro De La Raza v. State*, 192 Wn.2d 103, 132, 428 P.3d 1143 (2018). Context confirms this. What's now called "the WPLA" was part of

broader legislation, including provisions governing all tort claims. *Id.* So severing wouldn't "render the remaining part useless." *McGowan v. State*, 148 Wn.2d 278, 294, 60 P.3d 67 (2002). But striking down the entire statute would upend the framework governing *all* tort claims.

Judge Dwyer's suggestion that severing could impermissibly "broaden" the statute was likewise mistaken. When courts refuse to "broaden" a statute, it's because they don't "presume the legislature meant [the law] to be applied to persons it specifically excluded." *Mt. Hood Beverage Co. v. Constellation Brands*, 149 Wn.2d 98, 118, 63 P.3d 779 (2003). But, here, striking the repose provision would simply return the law to the pre-existing common law on one narrow issue while preserving many other defendant-friendly reforms that the legislature wouldn't have discarded simply to preserve repose in a small fraction of cases.

III. The panel majority incorrectly excluded two opinions from the plaintiffs' exposure expert.

To prove that they were exposed to harmful levels of PCBs at Sky Valley, the plaintiffs offered, among other evidence, the opinions of Kevin Coghlan. By the time he began work on this case, Sky Valley had undergone remediation to remove PCBs in the

school, and enough time had passed that PCBs in the plaintiffs' blood had dissipated. RP1339-41, 1704-05, 1781-85, 2481. Coghlan therefore offered three independent estimates designed to "reconstruct the historical levels of PCBs in the air," Dissent 5—one based on an EPA-published study identifying the rate at which PCBs deposit into various building materials, and two based on a separate EPA-published study about PCBs in similar schools. Each was sufficient to show that the plaintiffs were exposed to dangerous levels of PCBs. RP1798-1800, 1814; Ex. 3786. The trial court here, like four other King County judges, held each of Coghlan's estimates admissible.

On appeal, Monsanto sought to throw out the entire verdict because Coghlan's testimony was admitted. It did so despite abundant other evidence that the plaintiffs were exposed to PCBs: PCBs were found in the lights, they were found in the carpets, and they were found in the caulk. *E.g.*, RP1727. The Snohomish Health District even temporarily barred the school from reopening until PCBs dropped below approved levels. Ex. 2124.

And although Monsanto challenges Coghlan's testimony, it doesn't question his qualifications. For good reason. Three decades

into his career as an industrial hygienist, Coghlan has personally managed and directed hundreds of environmental investigations in schools and other work settings. He has even been selected by the EPA to serve as principal investigator and peer reviewer for this very issue: PCB exposure assessments. CP7430-31, 18253-54, 18265.

Still, Monsanto sought to exclude Coghlan's testimony on the ground that his methods failed *Frye* because they lack "general acceptance" in the scientific community. The panel majority—over Judge Dwyer's dissent and without explaining how the admission of Coghlan's testimony could, in view of all the evidence, be prejudicial—agreed as to two of Coghlan's three opinions. But the majority's flawed *Frye* analysis, which this Court reviews de novo, misunderstands both *Frye*'s limitations and Coghlan's work. *See State v. Copeland*, 130 Wn.2d 244, 255, 922 P.2d 1304 (1996). It should be reversed.

A. *Frye* applies only to scientific methods, not to practical experience or the application of accepted methodologies.

Frye requires experts whose opinions are grounded in scientific methodologies "to base their conclusions on generally accepted science." *L.M. v. Hamilton*, 193 Wn.2d 113, 128, 436 P.3d 803 (2019).

This requirement precludes opinions based on "novel" theories not yet approved by the scientific community. *Id.* *Frye*'s foundation is that judges lack "the expertise required to decide whether a challenged scientific theory is correct," so they "defer this judgment to scientists." *Copeland*, 130 Wn.2d at 255.

That's the extent of *Frye*'s reach. It doesn't apply to opinions based on "practical experience and acquired knowledge" rather than scientific techniques. *State v. Ortiz*, 119 Wn.2d 294, 311, 831 P.2d 1060, 1069 (1992). Even for scientific methods, courts don't "require every deduction drawn from generally accepted theories to be generally accepted." *Anderson v. Akzo Nobel Coatings*, 172 Wn.2d 593, 611, 260 P.3d 857 (2011). "Other evidentiary requirements"—and the jury's weighing of evidence—prevent "deductions that are mere speculation." *Id.*; *Copeland*, 130 Wn.2d at 271.

The same is true of "concerns about [the] implementation" of a generally accepted methodology: They don't implicate *Frye*. *State v. Russell*, 125 Wn.2d 24, 55, 882 P.2d 747 (1994). Claims of "laboratory error," "cross contamination," "lack of controls," and even data manipulation—all of which a jury, aided by cross-examination, is well suited to assess—go to "weight, not

admissibility." *Copeland*, 130 Wn.2d at 274-76. Or, if an expert's application of a method is so unreliable that it ceases to be helpful, it can be excluded under Rule 702. But that isn't a *Frye* "general acceptance" issue either. *Lakey v. Puget Sound Energy, Inc.*, 176 Wn.2d 909, 920, 296 P.3d 860 (2013).

B. Coghlan's opinions either satisfy *Frye* or don't implicate it at all.

The majority stretched *Frye* well beyond its limits in excluding two of Coghlan's opinions. His extrapolations from PCB levels in carpet samples applied a peer-reviewed equation and method, while his remediation comparison involved only basic math and experience-based observations. *Frye* doesn't bar either one.

Carpet Analysis. Coghlan's first opinion was based on a peer-reviewed equation—that Monsanto concedes is generally accepted—applying principles of source-sink dynamics. The majority faulted Coghlan for reversing the equation, not employing certain controls, and being unable to point to a peer-reviewed

article doing exactly what he did in this case. This Court's case law makes clear that the majority erred.

1. Source-sink dynamics is the scientific principle that explains how toxic substances "transfer or migrate from primary sources to other building materials or 'sinks.'" CP18294. The approach is grounded in the reality that materials like brick, tile, and carpet passively collect PCBs from surrounding air. CP11561-62. Anyone who has spent time around a campfire has experienced source-sink dynamics: The more smoke from the fire, the more your clothes smell after you leave. RP1795.

In 2012, the EPA published a peer-reviewed paper (the "Guo paper") that applied source-sink dynamics to evaluate how PCBs transfer from the air to 20 common building materials. Ex. 1649. The paper's aim was to ascertain what materials absorb PCBs at the greatest rate (and the "mathematical tools" needed to make that determination) to aid "decision makers" with "risk assessment and risk management for PCB contamination." Ex. 1649 at 3. Guo exposed each material to a known amount of PCBs in the air in a controlled "test chamber" and "removed [the materials] from the test chamber at different times to determine their PCB content."

Ex. 1649 at 3, 39. With those two knowns in hand—PCBs in the air and PCBs in the material over time—Guo and his co-authors used an equation to calculate a "partition coefficient" for each material, *i.e.*, "a ratio of how much [of a toxin] is in the air versus" the tested material. RP1791-92; *see also* Ex. 1649 at 87, 96.

2. Coghlan had deep familiarity with Guo's work. The paper was the second of a two-part study on PCBs contamination and mitigation in buildings. The first paper examined emissions from "PCB-containing building material," with a focus on caulk and light ballasts—exactly the problem presented in Sky Valley. The EPA selected Coghlan as peer reviewer for that paper. CP 7431.

For his opinion in this case, Coghlan used the second Guo paper's equation and findings to estimate the pre-remediation PCB levels at Sky Valley using carpet samples preserved by a teacher. From those samples, Coghlan had the levels of PCBs in carpet—one variable in Guo's paper. RP1792. And, from the Guo paper itself, Coghlan also had the partition coefficient for carpet—a second variable. RP1792. He used those two knowns (and Guo's equation) to solve for the third variable: PCBs in the air before remediation. RP1792, 2024. Whereas Guo took (A) known air levels

and (B) known material levels to solve for (***C***) the then-unknown partition coefficient, Coghlan used (B) known material levels (the preserved carpet) and (C) the now-known partition coefficient, to solve for (***A***) unknown pre-remediation air levels.

As both the trial court and Judge Dwyer recognized, Coghlan's analysis satisfies *Frye*. He "used [an] established formula to determine an estimated air concentration," and the "scientific principles behind [that] analysis were well-established." Dissent 6. *Frye* requires nothing more.

3. The majority's *Frye* analysis was a parade of serious errors.

First, the majority faulted Coghlan for "develop[ing] a novel equation to 'work backward.'" Op. 53-54. As Judge Dwyer recognized, not even Monsanto contended that Coghlan's rearranging of Guo's equation was a "novel equation." Dissent 8.

Monsanto was right not to make this argument. That a generally accepted equation, like Guo's, can be rearranged is the exact type of "deduction" that *Frye* "does not require" be generally accepted. *L.M.*, 193 Wn.2d at 129. But, in any event, it is: As Coghlan explained—and Monsanto has not contested—the "multiplication property of equality" recognizes that equations,

from the Pythagorean theorem to Guo's, work in reverse. CP11573-74; RP2024 ("[I]t's simple algebra.").

The majority rested its contrary conclusion on a single case: *Lake Chelan Shores Homeowners Ass'n v. St. Paul Fire & Marine Ins. Co.*, 176 Wn. App. 168, 313 P.3d 408 (2013). Despite involving a "back calculation" and a "formula," *Lake Chelan* is nothing like this case. The expert there used a brand-new formula and admitted that he "d[id]n't know" of anything done to verify it—it was not, as here, an accepted formula. *Id.* at 177. Put differently, in *Lake Chelan*, there was no Guo paper.

Second, the majority erred in adopting the argument that Monsanto did make—that applying Guo's method outside of a controlled environment was a novel methodology. In particular, the court faulted Coghlan for "assum[ing]" that "the PCBs in the carpet came from the air," Op. 52, thereby accepting Monsanto's critique that, because Coghlan "ignor[ed] … the controls employed by Guo," the PCBs could instead have come from people "tracking" them in on their shoes. Monsanto Opening Br. at 78, 81; *see also* Monsanto Reply Br. at 54 (arguing that Guo used "numerous controls" that Coghlan applied to an "uncontrolled environment").

The majority's criticism is precisely what this Court has held does not create a *Frye* issue. The failure to apply appropriate "controls" or to protect against the possibility of "cross contamination" are "matters of weight and not admissibility" under *Frye* because they're about the "application of the science to [a] *particular case*," not the validity of the science in general. *See Copeland*, 130 Wn.2d at 273-74 (emphasis added); *see also, e.g.*, *Lakey*, 176 Wn.2d at 920 (application of "controls" goes to weight); *State v. Cauthron*, 120 Wn.2d 879, 889, 846 P.2d 502 (1993) (excluding evidence because of "insufficient controls" is "inappropriate").

Copeland illustrates this distinction. The defendant there argued that DNA testing, although generally accepted, still failed *Frye* because "the FBI fail[ed] to follow … standards and controls" in *his* case. *Id.* at 262, 270. Just as the court below took issue with Coghlan using Guo's method outside the laboratory, Copeland took issue with the "transfer[ing] of DNA technology from medical diagnostic use to forensic use." *Id.* at 274. And just as the court here faulted Coghlan for making assumptions about the source of PCBs,

Copeland criticized the FBI's assumption that its database was "representative." *Id.* at 272-74.

But these critiques were all about the "application" of an accepted method, not the method's general acceptance. *Id.* at 277. Thus, the potential "[p]itfalls" of "cross contamination" or the "lack of controls" were "questions for the jury." *Id.* at 274.

Third, latching on to a footnote in Monsanto's brief (at 77 n.14), the majority held that Coghlan's purported failure to heed "stated limitations" in the Guo study rendered his analysis inadmissible under *Frye*. Op. 51. But the failure to follow any limitations would go to weight (or ER 702), not *Frye*. *See L.M.*, 193 Wn.2d at 141 & n.1 (Gonzalez, J., concurring) (expert's disregard for study's express limitations should have led to exclusion under ER 702, but agreeing with majority that it didn't present a *Frye* issue).

Regardless, there was no failure here. The majority criticized Coghlan for not "independently determin[ing] the partition and diffusion coefficients" for carpet. Op. 52 (quoting Ex. 1649 at 151). But the Guo paper itself didn't make those independent calculations; it simply stated that doing so would yield an even "more accurate" figure. Ex. 1649 at 95. By demanding that Coghlan

make independent calculations to pass *Frye*, the court held him to a higher standard than the scientific community held Guo.

The majority also found problematic that the Guo paper directed that "care should be taken when applying the test results to seemingly similar materials in real-world situations." Op. 51. But that language expressly contemplates that Guo's results *will* be applied in "real-world situations"; it simply cautions that they be used with "care." The majority never explained how he failed to use care. And any such problem would, once more, be a question of weight, not admissibility. *Copeland,* 130 Wn.2d at 274.

Fourth, the majority (echoing the criticism of Monsanto's experts) faulted Coghlan for acknowledging that he was unaware of peer-reviewed literature using carpet samples to estimate air levels. Op. 51. But what matters for *Frye* is that Guo's paper *was* subject to peer-review and generally accepted. Because Coghlan simply applied Guo's work (albeit in reverse), he didn't need to re-validate it. To hold otherwise would mean that each "discrete and ever more specific" application of a method must be generally accepted, but this Court has said the opposite. *See L.M.*, 193 Wn.2d at 130 (opinion admissible because scientific community accepted that

toxins can cause birth defects even though the community had not "seriously research[ed]" whether the toxin at issue could cause the plaintiff's birth defect). And were it otherwise, nothing but peer-reviewed papers would be admissible.

Moreover, Coghlan explained that, although there may be no peer-reviewed articles on carpet in particular, "[t]here is nothing novel, new, or 'unprecedented' in using results of chamber tests to conduct indoor air modeling." CP7452 (citing California Department of Public Health study describing collecting samples from schools to use to estimate air exposures for toxins).

And that's not just Coghlan's say-so. After *Erickson*, an entire evidentiary hearing in a parallel Sky Valley case (*Rose*) was devoted to whether Coghlan's methods are generally accepted. At the hearing, three other industrial hygienists concurred that Coghlan's methods were standard for the field and grounded in a wealth of scientific literature. As the court summed it up: "[T]here is ample peer-reviewed literature supporting the conclusion that 'calculating PCBs in the air from a known adsorbent source' is not novel." Nov. 4, 2024 Op., *Rose v. Pharmacia*, 18-2-58239-3 SEA, at 40. The court identified ten articles supporting Coghlan's work and observed that

Monsanto's experts didn't challenge this conclusion "in any meaningful way." *Id.*[3]

Finally, the majority also criticized Coghlan for "agree[ing]" that no one had done the "reverse experiment" of putting a "piece of PCB-contaminated carpet in a chamber" and then measuring the "resulting PCB concentrations in the air." Op. 51. Monsanto didn't make this argument, and it fundamentally misunderstands the science. Sinks don't release PCBs at the same rate they absorb them, so conducting this test would prove nothing pertinent to this case. *See* Ex. 1649 at 69, 101. Coghlan's decision not to perform an irrelevant test does not fail *Frye*.

Remediation analysis. Coghlan's other two opinions relied on an EPA study of PCB levels before and after remediation in New York schools. Monsanto didn't even raise a *Frye* challenge to these opinions in the trial court, resting instead solely on ER 702. CP3915. Presumably, that's because they're based on experience-based

[3] This Court may consider these detailed findings of fact under *Frye*. *See Copeland*, 130 Wn.2d at 255-56 ("The reviewing court will undertake a searching review which may extend beyond the record and involve consideration of scientific literature as well as secondary legal authority."). Because the decision is not available on Westlaw, we have attached it to this brief for the court's convenience.

observations and rudimentary math, not novel scientific techniques. Nonetheless, in an internally contradictory opinion, Division One deemed one of these opinions inadmissible under *Frye*.

Consider first the opinion that Division One (correctly) blessed. For this opinion, which Division One called a "direct comparison," Coghlan simply opined that the range of PCBs at the New York schools represented the range of potential PCB levels in Sky Valley. Coghlan grounded this opinion in the schools being "remarkably similar" in their construction and ventilation. Op. 58. Division One appropriately held that this opinion did not implicate *Frye* at all because it did not "apply any novel calculations." Op. 59. Although Monsanto's experts criticized Coghlan's comparison because, in their view, the schools were not sufficiently similar, Division One held that those complaints went only to the weight of Coghlan's testimony. Op. 59. Monsanto has not sought review of that holding in this Court.

Coghlan's other opinion based on the same study was equally straightforward. Coghlan used basic division to determine by what factor PCB levels decreased in the New York schools after

remediation. So, a drop from 1,000 ng/m^3 to 100 ng/m^3 yielded a "remediation factor" of 10. Op. 56 n. 28. Relying on the same similarities in the design of the New York schools and Sky Valley and now also on similar remediation processes in the schools, Coghlan then multiplied post-remediation air samples taken from Sky Valley by the range of remediation factors. CP7456; RP1785-90, 1800; Ex. 3786. For example, if a post-remediation sample from Sky Valley showed 50 ng/m^3, Coghlan multiplied that by 10 to get a 500 ng/m^3 pre-remediation estimate. The multiple "remediation factors" he calculated from the study thus produced a range of potential PCB levels at Sky Valley. Ex. 3786; RP1800.

Frye doesn't apply to this opinion either. Coghlan's use of simple division to calculate a "remediation factor" employs no new novel science. *See In re Marriage of Alexander*, 368 Ill. App. 3d 192, 201 (Ill. App. Ct. 2006) ("basic math" doesn't trigger *Frye*); *S. Energy Homes, Inc. v. Washington*, 774 So. 2d 505, 518 (Ala. 2000) (same for "elementary mathematics"). Nor does his experience-based conclusion, rooted in decades of specialized work, that the buildings' designs and remediation efforts were sufficiently similar. *See, e.g.*, *Ortiz*, 119 Wn.2d at 311 (*Frye* didn't apply where the

"testimony was not based on novel scientific experimental procedures" but on "practical experience and acquired knowledge"); CP4817. That leaves only the premise of Coghlan's opinion—that doing the same thing twice (here, remediating PCBs in materially the same buildings) will generate the same results. That's common sense, not novel science.

Nonetheless, the majority accepted Monsanto's new-on-appeal argument that this opinion failed *Frye*. It embraced Monsanto's criticism that there were differences between the schools and criticized Coghlan for "assum[ing]" that the remediation was "exactly the same." Op. 57.

That critique has nothing to do with novel science.[4] As the majority itself recognized in approving Coghlan's "direct comparison," whether Coghlan was right that the schools "were sufficiently similar to SVEC to make a fruitful comparison" goes to the weight of his testimony (or ER 702), not *Frye*. *Id.* at 58-59. That's because *Frye*, to repeat, leaves it to scientists to decide only the

[4] It's also factually wrong. Rather than assume that remediation was exactly the same, Coghlan calculated a range of values based on the different remediation efforts in New York. RP1787-88.

validity of novel scientific techniques that judges (and juries) would struggle to fully understand. *Supra* 36-38. Whether two schools are sufficiently similar doesn't present that problem. *See, e.g.*, *Acord v. Pettit*, 174 Wn. App. 95, 111, 302 P.3d 1265 (2013).

The majority also appeared to be troubled by Coghlan's reference to a "remediation factor"—a term he used once at trial. Op. 57. But as explained above—and as Coghlan told the jury—the "remediation factor" was just a "simple ratio." RP1787, 1790. Coghlan's single use of the "fancy name" of "remediation factor" doesn't change that no novel science was involved. *See State v. Noltie*, 116 Wn.2d 831, 851, 809 P.2d 190 (1991) (use of "colposcope" didn't trigger *Frye* because it was "little more than a magnifying glass").

* * *

Division One's critiques—about PCBs from shoes or differing remediation efforts across schools—are simple concepts that a jury can evaluate, aided by cross-examination and defense expert testimony. It's not the stuff of a *Frye* challenge. This Court should reverse the exclusion of Coghlan's opinions.

CONCLUSION

This Court should affirm the court of appeals' holding that the plaintiffs are entitled to punitive damages under Missouri law. The Court should reverse the decisions to bar punitive damages for post-sale failure to warn, to apply the WPLA's statute of repose, and to exclude Coghlan's opinions.

I certify under RAP 18.17 that this brief contains 9,997 words, excluding the parts of the document exempted from the word count by RAP 18.17(c).

Respectfully submitted,

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November 22, 2024

CERTIFICATE OF SERVICE

I hereby certify that on the date stated below, I caused the foregoing brief to be served via Filing Portal and email to the last known address of all counsel of record.

I certify under penalty of perjury under the laws of the state of Washington and the United States that the foregoing is true and correct.

November 22, 2024

/s/ Deepak Gupta
Deepak Gupta

APPENDIX

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF KING

ROSE et al, Plaintiffs, vs. PHARMACIA LLC, Defendant.	**No. 18-2-58239-3 SEA** **FINDINGS OF FACT AND CONCLUSIONS OF LAW RE: COGHLAN'S OPINIONS**

> Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

Anderson v. Akzo Nobel Coatings, Inc., 172 Wn.2d 593, 601, 260 P.3d 857 (2011) (quoting *Frye v. United States*, 54 App. D.C. 46, 47, 293 P. 1013 (1923)). Defining this imprecise line is the essence of the task before this Court, which must determine whether certain opinions advance by Plaintiffs' expert, Mr. Kevin Coghlan, should be presented to the jury because they have left the experimental stage and entered the demonstrable stage, or whether they should be excluded as unreliable or junk science. After conducting a three-and-a-half day evidentiary hearing, reviewing thousands of pages declarations and exhibits, and hearing extensive

arguments,[1] this Court concludes that each of Mr. Coghlan's opinions rest squarely on scientifically accepted theories and methodologies and/or techniques and that Pharmacia's experts' critiques go to how Mr. Coghlan applied these generally accepted methods and/or techniques, which is properly analyzed under other evidence rules designed to ferret out unreliable and unhelpful testimony. This Court DENIES Pharmacia's Motions.

I RELEVANT BACKGROUND

1) "Polychlorinated biphenyls (PCBs) are synthetic chemicals manufactured in the United States between about 1930 and 1977 for use in various industrial and commercial applications because of their non-flammability, chemical stability, plasticizer, and electrical insulation properties." Ex. P-1670 at 19 (citation omitted). PCBs were used in numerous products, but at issue in this case is their use in fluorescent light ballasts (FLBs) and caulk. They were produced commercially with mixtures of chlorinated biphenyl compounds, which are referred to a congeners. *See id.* There are 209 possible PCB congeners, and "[m]ost of the PCB mixtures manufactured for commercial use in the United States are known by the trade name Aroclor." *Id.* It is not disputed that Pharmacia's predecessor, Monsanto, was the sole manufacturer of PCBs in the United States. "Manufacture of PCBs were banned in the United States with final rules published by the United States Environmental Protection Agency in May, 1979." *Id.* at 20.

2) This is one of numerous cases where Plaintiffs allege various injuries based on alleged exposure to PCBs while they were students, parents, teachers, and/or employees at Sky Valley Educational Center (SVEC) in Monroe, Washington. All totaled, there are

[1] A list of all the materials, testimony and exhibits is attached as Appendix A.

approximately 200 plaintiffs involved in these suits, and the current case addresses fifteen (15) of those plaintiffs. Several of these cases have already gone to trial, and the Court of Appeals has issued one published opinion which addressed numerous legal and evidentiary issues. *See Erickson v. Pharmacia*, 548 P.3d 226 (2024). That opinion figures prominently in this Motion.[2]

4) Plaintiffs seek to admit the testimony and conclusions of Mr. Coghlan regarding his estimated ranges of historical PCB air concentrations at SVEC between 2011-2016, the relevant time periods in this case.

5) Defendants initially moved to exclude Mr. Coghlan's testimony on the following grounds: (1) that Mr. Coghlan's opinions would not assist the trier of fact as required by Rule 702 because he could not testify to a reasonable degree of scientific certainty that any Plaintiff was exposed to any particular level of PCBs, and (2) that Mr. Coghlan's three methods of estimating possible historic airborne levels of PCBs were novel, not generally accepted, and failed to meet the requirements of *Frye* and ER 702. *See* Defendants' Motions to Exclude Mr. Kevin Coghlan (*Rose* Dkt. 708; *Grant* Dkt. 363).[3] In support, Pharmacia only provided the Court with prior trial testimony, and did not include any declarations from any experts. Rather than rule solely on that record, the Court allowed both parties to create as robust a record as

[2] After this Court concluded the multi-day evidentiary hearing in this matter, our State Supreme Court granted review of *Erickson*, on a limited set of issues, one of which relates to this Order.

[3] These motions were filed before the Court consolidated these cases; thus, the reference to different dockets.

they wished through a *Frye* hearing. This the first time any court in any of these cases has conducted a *Frye* hearing with respect to Mr. Coghlan's opinions.[4]

6) After Division One issues its opinion in *Erickson*, Pharmacia filed supplemental briefs arguing, *inter alia*, that (a) two of Mr. Coghlan's opinions regarding PCB air levels at SVEC were inadmissible under *Erickson*; and (b) that the exclusion of those two opinions and the lack of any evidence regarding similarities and differences between the New York schools and Sky Valley rendered the third opinion inadmissible. *See* Dkt. No. 1181. These are the issues before the Court.

7) In relevant respects, *Erickson* held that (1) Coghlan's "methodology of using data from the *Guo* Study to determine historical PCB levels in the air, particularly when it is unknown if the PCB source was stable, does not enjoy the same general acceptance as the theory of source-sink dynamics" and therefore runs afoul of *Frye*; *id.* at 256; (2) "Coghlan employed a novel method that is not generally accepted in the scientific community" by using "data from New York schools to calculate a 'remediation coefficient' and estimate adjusted SVEC air levels in a completely different setting," and therefore *Frye* was not satisfied; *id.* at 257; and (3) that "estimating historical PCB levels at SVEC was a direct comparison, rather than application of any methodology to the SVEC data," and therefore his comparison with New York Schools was not subject to *Frye* and the trial judge did not abuse its discretion by permitting the testimony. *Id.* at 257. Judge Dwyer dissented from the first two of these

[4] In a previous trial that this Court presided over (*Heit*), the Court granted Pharmacia's request for a Frye hearing on Mr. Coghlan's carpet-based opinions. When the time came for the hearing, Pharmacia chose not to proceed with the hearing.

conclusions, concluding that Pharmacia's objections were appropriately analyzed under ER 702 by the trial judge in *Erickson*. *See id.* 266-270.

8) The record developed before this Court and the record before the court in *Erickson* is completely different. In *Erickson*, the trial court did not have the benefit of having a multi-day evidentiary hearing where the Court could hear from the experts themselves, subject to cross-examination, who could explain in detail what opinions they hold or how certain methodologies/techniques were conducted or should have been conducted. In fact, Pharmacia's experts were entirely different, save for one. In *Erickson*, Pharmacia put forth the declarations of John Woodyard, Russel Keenan, PhD, and Shannon Gafney, PhD, each of whom criticized Mr. Coghlan's methods and application of data to those methods. In this matter, only Mr. Woodyard provided testimony, and the Court did not hear from either Keenan or Gafney. Thus, the *Erickson* court's recitation of those individuals' critiques are not before this Court. *See, e.g.*, 548 P.3d at 254-55 & 257.[5] Likewise, in *Erickson*, the plaintiffs in that case only provided a report and declaration from Mr. Coghlan, while these Plaintiffs presented numerous other experts and additional scientific literature for the Court to consider. Given the stark difference in the records created between the two cases, this Court is not bound by any of the factual-based conclusions drawn by the *Erickson* court.

9) The law does not require this Court to blindly follow one court's decision to allow or exclude an expert because each record stands on its own. *See, e.g.*, *Stedman v. Cooper*, 172 Wn. App. 9, 18, 292 P.3d 764 (2012) ("The fact that an appellate court has affirmed a

[5] As explained below, unlike *Erickson*, which uncritically accepted Mr. Woodyard's critiques, the Court disregards the entirety of his testimony because, after cross-examination, it became apparent to the Court that Mr. Woodyard is too biased to be credited.

decision allowing [an expert's] testimony does not, of course, necessarily mean that the trial court erred by excluding his testimony in this case."). Both parties agreed at oral argument that this Court was to evaluate Mr. Coghlan's opinions based on the record before it, and not simply follow *Erickson*. For example, Pharmacia argued, in contradiction to *Erickson*, that Coghlan's "direct comparison" method should be excluded under both *Frye* and ER 702, even though the *Erickson* court only analyzed the issue under ER 702.[6] Despite this representation, Pharmacia asks this Court to conclude that it is "bound" by Erickson with respect to its conclusions regarding *Frye*. Dkt. No. 1531, Attachment B at 51 (¶ 222).

10) Pharmacia attempts to thread this inconsistent needle by asserting that the principle espoused in *Stedman*—that one court is not bound by another court's decision to exclude an expert—only applies to an analysis under ER 702. The Court rejects such reasoning as inconsistent with *Frye*. Our Supreme Court explained:

> *Frye* envisioned an evolutionary process with novel scientific techniques passing through an experimental stage during which they would be scrutinized by the scientific community until they arrive at a demonstrable stage. However, science never stops evolving and the process is unending. Each scientific inquiry becomes more detailed and nuanced. As one commentator has noted, there is a difference between the quest for truth in the courtroom and in the laboratory. Law must resolve disputes finally and quickly, whereas science may consider a multitude of hypotheses indefinitely.

Anderson v. Azko Nobel Coatings, Inc., 172 Wn.2d 593,607, 260 P.3d 857 (2011) (citations & quotations omitted). In other words, an adverse ruling *Frye* does trap lack of general acceptance

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[6] Pharmacia's position in this regard has vacillated. When *Erickson* supports its position, like here, it demands strict adherence to *Erickson*. *See* Dkt. No. 1531 at Attachment B at ¶ 222. When *Erickson* does not support its position, it asks this Court to disregard *Erickson* as mere dicta. *See* Dkt. No. 1270 at 6-7.

in amber because science evolves and what was once not generally accepted, can become generally accepted.

11) Pharmacia looks at this issue the wrong way. In its proposed order, it asks this Court to find that "Plaintiffs failed to offer any evidence during the *Frye* hearing in this case tending to show that the state of scientific evidence has changed *since the Court of Appeals issued its decision* in *Erickson*." *See* Dkt. No. 1531 at Attachment B at 51 (¶ 222) (emphasis added). This framing ignores the fact that *Erickson* was relying on a record made years ago that consisted of four experts, one for Plaintiffs, and three for Pharmacia, that does not remotely resemble the record created in this case. No one knows what the *Erickson* majority would have done if presented with all the information that was provided to this Court.

12) Given the vast difference between the respective records, the Court is not "bound" by *Erickson*'s determination that certain of Mr. Coghlan's methods fail to satisfy *Frye*. Our Supreme Court has noted that scientific theories can go from not generally accepted to generally accepted rather quickly. *See, e.g.*, *State v. Copeland*, 130 Wn.2d 244, 267, 922 P.2d 1304 (1996) ("At one time a significant dispute existed among qualified scientists [regarding use of DNA evidence], from the present vantage point were able to say that the significant dispute was short-lived."); *see also* 5B Wash. Prac., Evidence Law & Prac., § 702.20 (6th Ed. 2024) ("The effect of prior case law does not work in reverse. If the appellate courts have held that a certain theory or principle is too questionable to satisfy the *Frye* rule, the appellate courts may be willing to revisit the issue if the underlying science improves. DNA analysis is a prominent example."); *L.M. ex. rel. Dussault v. Hamilton*, 193 Wn.2d 113, 141 n.1, 436 P.3d 803 (2019) (González, J., concurring in result only) ("the majority's affirmation of the trial court's *Frye* determination in this case . . . does not foreclose the possibility of a successful

challenge to the theory at a future *Frye* hearing, as the underlying science continues to develop."). That said, this Court will not completely disregard *Erickson* as it provides helpful guidance for this Court in analyzing the legal issues that must be addressed.

II THE EVIDENTIARY HEARING

13) This Court held a hearing on September 9-10, and October 2, 2024, where the Court heard from numerous expert witnesses and admitted numerous exhibits. Argument of counsel, which lasted all morning, were made before the Court on October 3, 2024.

Witnesses Testifying at the Evidentiary Hearing.

14) **Dr. Keri Hornbuckle, Ph.D.** Dr. Hornbuckle, who was called by Plaintiffs, is a professor of civil and environmental engineering as well as a professor of occupational and environmental health at the University of Iowa. Ex. P-5122; Ex. P-5123 at 1. She obtained her B.A. in chemistry from Grinnell College and her Ph.D. in civil and environmental engineering from the University of Minnesota. *Id.* Dr. Hornbuckle is also the Director of the Iowa Superfund Research Program, *id.*, which is a National Institute of Health-funded research center comprised of engineers and toxicologists who have focused on PCBs since the program's founding in 2006. *Frye* Hr'g Tr. at 1140:17–20. The program currently focuses its work on airborne PCBs, including PCBs in schools. *Id.* at 1140:22–23.

15) Dr. Hornbuckle has been studying PCBs for approximately 35 years. *Id.* at 1140:15; *see also* Ex. P-5123 at 2. It has been the major topic of her research, including her Ph.D. research. *Frye* Hr'g Tr. at 1140:15–17. Dr. Hornbuckle has conducted field and laboratory studies on the sources and dispersion of PCBs in the environment since 1988, led teams of researchers developing mathematical predictions for emissions of PCBs from surfaces since 1995, and conducted surface and airborne studies of PCB emissions in homes, buildings,

and schools in the last 10 years. Ex. P-5123 at 2; *see also Frye* Hr'g Tr. at 1142:16–1143:12. In the course of that work, Dr. Hornbuckle and her research team have published 400 studies on questions of exposures, emissions, and toxicology. Ex. P-5123 at 2.

16) Dr. Hornbuckle's work has been funded by various federal agencies, including the Environmental Protection Agency (EPA) and the National Science Foundation. *Frye* Hr'g Tr. at 1141:2–5. She has consulted with the EPA on studies seeking to understand the chemistry of PCBs; the behavior of PCBs, especially in air; and in interpreting complex signals from PCBs in the environment. *Id.* at 1141:6–11. She has also served on international committees relating to PCBs in the environment. *See id.* at 1141:12–19; *see also* Ex. P-5123 at pp. 3-4. It is not a stretch to conclude that Dr. Hornbuckle is one of the most qualified and accomplished experts in the United States regarding PCBs in school environments. The Court found her testimony helpful and entirely credible.

17) **Dr. Lars Gunnarsen, Ph.D.** Dr. Gunnarsen, who was called by Plaintiffs and appeared over Zoom from Denmark, holds a master's degree in mechanical engineering and an industrial Ph.D. in indoor climates from the Danish Technical University. *Frye* Hr'g Tr. at 1215:6–8; Ex. P-5137; Ex. P-5136. He spent the first four years of his career as a consultant designing ventilation systems in buildings, and after starting his Ph.D., he has been focused on research ever since. *Frye* Hr'g Tr. at 1215:8–12. Since 1990, Dr. Gunnarsen has been a publicly employed researcher; first at the Danish Building Research Institute and then at Aalborg University. *Id.* at 1215:13–16. That career lasted 33 years until he assumed professor emeritus status. *Id.* at 1215:16–18. During his career, Dr. Gunnarsen authored approximately 230 scientific publications, more than 50 of which were published in peer-reviewed international journals. *Id.* at 1215:20–25; *see also* Ex. P-5181. Many of these articles relate to PCBs and

concern the behavior and risk presented by PCBs in indoor environments. *See* Ex. P-5181; Ex. P-5141; Ex. P-1807; Ex. P-5142; *Frye* Hr'g Tr. at 1216:1–1219:10. With respect to consulting on PCBs outside of research, Dr. Gunnarsen's work has been focused on remediation and renovation of buildings to ensure they are healthy and safe. *See Frye* Hr'g Tr. at 1219:11–1220:11. Dr. Gunnarsen had not prior involvement in these SVEC cases. The Court found his testimony helpful and entirely credible.

18) **Dr. John Price, Ph.D. C.I.H, C.S.P.** Dr. Price, who was called by Plaintiffs, is a certified industrial hygienist who holds a B.S. and M.S. in chemical engineering from Northeastern University, a S.M. in environmental sciences from Harvard University, and a Ph.D. in law and public policy from Northeastern University. Ex. P-5147; Ex. P-5146. Before retiring, Dr. Price was Director of the Occupational Environmental Health and Safety Program at Northeastern University. *Frye* Hr'g Tr. at 1253:1–3. As a certified industrial hygienist, Dr. Price has 40 years of experience working on industrial hygiene projects, including projects involving PCBs. *Id.* at 1254:10–14. This experience includes a major re-lighting and re-lamping program at Northeastern University during the 1990s, in which Dr. Price and other industrial hygienists had to ensure workers were protected while removing light ballasts from the premises. *Id.* at 1254:15–22. Other projects concerned the disposal of hazardous waste, the removal of PCB-containing caulk from buildings, and addressing indoor air quality concerns within buildings. *Id.* at 1254:23–1255:8. Dr. Price had no prior experience with these SVEC cases, and the Court found his testimony helpful and entirely credible.

19) **Dr. Brent Altemose, Ph.D. C.I.H., C.S.P.** Dr. Altemose, who was called by Plaintiffs, is a certified industrial hygienist with a B.S. in mechanical engineering from Penn State University, a M.S. in industrial hygiene from the University of North Carolina, Chapel

Hill, and a Ph.D. in environmental and occupational health from Rutgers University. Ex. P-5158; Ex. P-5157. Dr. Altemose has 29 years of industrial hygiene and occupational safety field experience. *Id.* That experience includes conducting and managing industrial hygiene risk assessments and exposures in various industries, and providing technical expertise and solutions in the areas of safe chemical management, new processes/equipment/produce development, indoor air quality, and safety/industrial hygiene standards interpretation. *Id.*

20) **Mr. Kevin Coghlan, M.S. C.I.H.** Mr. Coghlan, who was called by Plaintiffs, is a certified industrial hygienist and Principal Scientist and Chief Operating Officer of Environmental Health & Engineering (EH&E). Ex. P-5225 at 1; Ex. P-5227 at 1-2; Ex. P-5228 at 2. Mr. Coghlan has a B.S. in Biology from Fairfield University and a master's degree in industrial hygiene from the University of Massachusetts. *Frye* Hr'g Tr. at 1390:19–23. He has been employed with EH&E since 1993, and has over 35 years of experience assessing exposures to various contaminants, including PCBs, in indoor spaces and developing solutions for mitigating the hazards presented by those contaminants. *Id.* at 1390:24–1391:4. In that time, Mr. Coghlan has managed several hundred indoor environmental and workplace investigations, mostly related to airborne contaminants. *Id.* at 1391:5–8. He has directed and assisted in over 30 projects specifically involving PCBs in building materials (whether in caulk, light ballasts, or transformers). *Id.* at 1391:8–11.

21) Mr. Coghlan has been retained for his work by government entities, cities, universities, and school districts across the country on PCB issues. *Id.* at 1392:4–15. These include the EPA, the State of Washington, the State of Vermont, the City of Spokane, the Burlington School District, and Westport Community Schools, among others. *See* Ex. P-5225 at 2.

22) Mr. Coghlan has also served as a peer reviewer for the very first study commissioned by the EPA on the emission rates of PCBs from caulk and fluorescent light ballasts. *Id.* at 1391:12–16. These studies are known as the "Guo studies" and consist of four parts. *Id.* at 1391:12–19. The first part concerned emissions from caulk and light ballasts, the second concerned source-sink dynamics and the accumulation of PCBs in building materials exposed to PCB-contaminated air (hereafter *Guo* study), and the third and fourth parts concerned various remedial measures. *Id.* at 1391:19–1392:1; *see also* Ex. P-1628; DX-006. One of the "Guo studies" figures prominently in this Court's analysis. The Court found Mr. Coghlan's testimony helpful and entirely credible.

23) **Dr. Maureen Reitman, Sc.D., P.E., NAE, FSPE**. Dr. Reitman, who was called by Pharmacia, is Group Vice President and Principal Engineer of Exponent, a consulting company. *See* DX-028. Dr. Reitman is a material scientist and polymer expert. *Frye* Hr'g Tr. at 1505:11-23. She confined her opinions to those of a material scientist. *Id.* at 1569:16:18 ("my opinions are about the principles of material science."). Thus, she offered no opinions on industrial hygiene or environmental engineering. PCB remediation is not something Dr. Reitman has ever done. *Frye* Hr'g Tr. at 1564:7–8. Dr. Reitman has never received a grant to study PCBs, has never been a contributing author for any EPA publications on PCBs, and has never been a consultant or peer reviewer for the EPA on any publications concerning PCBs. *Id.* at 1564:9–16. She has never published any peer-reviewed articles concerning PCBs. *Id.* at 1565:2–4.

24) Dr. Reitman was first retained by Monsanto to serve as an expert in its PCB cases in 2014. *See id.* at 1563:22–25. Prior to this, she has never given any presentations or seminars where the focus was on PCBs. *Id.* at 1565:5–7. In her work in these SVEC cases, Dr.

Reitman has not performed any kind of hazard analysis on the use of PCBs. *Id.* at 1565:8–18. Dr. Reitman brings no specific expertise on PCBs, even within the confines of her background, education, and experience, which is as a polymer scientist, not an industrial hygienist. *See id.* at 1576:6–13. And even in the context of source-sink dynamics and partition coefficients, Dr. Reitman offers her opinions as a polymer scientist, not an industrial hygienist. *See id.* at 1583:8–1584:1. Dr. Reitman is not an industrial hygienist, so she could not address whether having a need to validate methods used for exposure reconstruction would invalidate almost all exposure reconstructions. *Id.* at 1571:6–23. While the Court found Dr. Reitman's testimony credible and helpful in understanding the various terms of art used in "modeling" from a material scientist's point of view, *see, e.g.* Ex. DX-052, p. 6; her lack of expertise in industrial hygiene and environmental engineering made her testimony of limited utility to this Court because her expertise does not fit within the relevant scientific communities for *Frye* purposes.

25) **Dr. Nadia Moore, Ph.D., DABT, C.I.H., ERT**. Dr. Moore, who was called by Pharmacia, is Principal Toxicologist, Environmental, Health & Safety at JS Held. *See* DX-047 at 1. She has never received a grant to study PCBs, she has never been a contributing author for any publications on PCBs, and she has never been a consultant or peer reviewer for the EPA on any publications concerning PCBs. *Frye* Hr'g Tr. at 1618:18–1619:4; *see also id.* at 1619:5–10 (confirming that she has never served as a consultant to the ATSDR on PCBs or published on PCBs). Although she is a certified industrial hygienist, Dr. Moore has never done any PCB-specific remediation projects. *Id.* at 1619:11–17.

26) Dr. Moore first became a certified industrial hygienist in late 2020. *Id.* at 1618:5–7. At approximately the same time, she first started working as an expert for Monsanto in these SVEC cases. *Id.* at 1618:8–12. Dr. Moore could not answer whether retrospective

exposure reconstructions are generally accepted in the field of industrial hygiene. *Frye* Hr'g Tr., 1626:3–15. When asked whether she had ever measured or tested for PCBs (whether in an indoor or outdoor environment), Dr. Moore testified that she had never done so in a non-litigation context. *See id.* at 1619:24–1621:3. Even including her litigation experience, Dr. Moore could only point to being "involved with a team that did that … [e]arlier this year." *Id.* at 1620:6–10.

27) Dr. Moore did not agree that the scientific principles, guidance, and information contained within the American Industrial Hygiene Association's (AIHA) White Paper on PCBs marked as Ex. P-2305 is reliable within the field of industrial hygiene. *Id.* at 1623:3–17. Dr. Moore was also unable to agree with the statement in the AIHA White Paper on PCBs that PCB exposures have been associated both directly and indirectly with several acute and chronic health effects. *Compare Frye* Hr'g Tr., 1623:18–1624:7 *with* Ex. P-2305, p. 11. Dr. Moore was further unable to agree with the statement in the AIHA White Paper on PCBs that reported adverse human health effects from PCB exposures include damage to the hepatic, endocrine, dermal, ocular, immunological, neurological, and reproductive systems, as well as cancer endpoints. *Compare Frye* Hr'g Tr., 1624:7–1625:6 *with* Ex. P-2305, p. 11. Dr. Moore also does not agree that PCBs are continuously released into the air from intact functioning PCB-containing light ballasts. *Compare Frye* Hr'g Tr., 1621:4–17 *with* Ex. P-1721, p. 11.

28) The Court finds its curious that Dr. Moore, who comparatively speaking with Plaintiffs' experts is new to the field of industrial hygiene, would not agree with statements contained in the AIHA White Paper, which the Court finds, based on the testimony of other industrial hygienists in this case, to be an authoritative source document for those practicing in the field of industrial hygiene field. This refusal to agree with these consensus statements, as

well as the fact that she only became an industrial hygienist at or around the time she began working for Pharmacia in these PCB-related cases, casts some doubt over the validity of her opinions with respect to her industrial hygiene related opinions. That said, Dr. Moore is clearly qualified in other areas, such as toxicology, but toxicological issues are only tangentially related to the issues before this Court.

29) **Mr. John Woodyard, P.E.** Mr. Woodyard, who was called by Pharmacia, has spent his career doing what he "loosely" terms "environmental engineering." *Frye* Hr'g Tr. at 1643:17–18. He is not an industrial hygienist or a toxicologist, *id.* at 1688:18-21, and he is not someone who works on preserving or ensuring occupational and environmental health and safety in the workplace or the community, *id.* at 1688:22–1689:6. Mr. Woodyard considers the latter to be in "the domain of industrial hygienists and toxicologists." *Id.* at 1689:3–5. By his own telling, Mr. Coghlan, Dr. Hornbuckle, and Dr. Gunnarsen are in a "different profession" than him. *Id.* at 1689:7–12. Mr. Woodyard has been retained as an expert by Monsanto for over a quarter of a century, starting such work around 1998. *Frye* Hr'g Tr. at 1685:19-1986:4.

30) Mr. Woodyard cannot recall ever being a contributing author for any EPA publication on PCBs, he does not believe he has ever been a consultant to the EPA on any of its publications concerning PCBs, and he has never served as a peer-reviewer for the EPA on anything related to PCBs. *Id.* at 1683:4–12. Despite authoring a book on PCBs marked as Ex. P-3929 discussing health effects from exposure to PCBs, Mr. Woodyard refuses to acknowledge or state the truth of the words in his book. *See id.* at 1684:1–1685:16. Despite being aware of the EPA's research on the subject at Ex: P-1721, p. 11, Mr. Woodyard does not agree that PCBs are continuously released into the air from intact functioning PCB-containing

light ballasts. *Id.* at 1689:24–1691:7. Mr. Woodyard claims that PCB remediation in schools is generally not necessary. *Id.* at 1686:7–1688:8.

31) The Court does not find Mr. Woodyard's testimony helpful because the Court finds that he is too biased and therefore not credible. During his direct examination, Pharmacia chose to bolster his credentials by refereeing to several books/manuals he authored and/or co-authored. One of those books/manuals, published in 1989, was titled "*PCB Management under TSCA*."[7] *See* Ex. DX-055, p. 3 & Ex. P-3929. During cross-examination, Mr. Woodyard was asked about statements in this book/manual regarding health affects related to PCBs. *Frye* Hr'g Tr. at 1683:3-1684:23. Despite placing his name on the book, Mr. Woodyard refused to acknowledge the legitimacy or correctness of the statements made in the book/manual he co-authored. This, combined with the fact, that after this book was published, he began working for Monsanto and has continued doing for over twenty-five years, signals to the Court that Mr. Woodyard backtracked on statements made in his own published literature because those statements are at odds with Monsanto/Pharmacia's litigation position that PCBs are not harmful to humans. This troubles the Court because in a hearing such as this, where this Court is trying to ascertain the general acceptance of scientific knowledge, the Court would expect to see experts who approach science in an unbiased manner. Mr. Woodyard does not do that.

32) The Court finds his bias is too great to lend credibility to his testimony. His refusal to acknowledge factual statements made in a book/manual he co-authored suggests to this Court that he places his client's positions over intellectual integrity and consistency. It

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[7] "TSCA" is an acronym for the Toxic Substances Control Act, which is a federal law that regulates toxic substances, such as PCBs. *See generally* 15 U.S.C. ¶ 2601 *et seq*.

would be one thing for him to have explained to the Court that the science underlying that portion of the book/manual has changed, and therefore those statements are no longer supported by science. Rather than engage in that exercise, he instead suggested that because he did not author that portion of the book/manual, he was not responsible for its contents. Mr. Woodyard's attempt to distance himself from a book/manual he co-authored undermines entirely his credibility in the eyes of the Court.

33) In addition, the Court also was concerned by the fact that while on the one hand Mr. Woodyard criticized Mr. Coghlan for not heeding certain warnings about the use of certain EPA data set out in the *Thomas* study, while on the other hand he questioned the validity of EPA's position regarding the release of PCBs from the light ballasts, etc. This reveals that Mr. Woodyard cherry-picks authoritative sources, such as EPA documents, to support his desired outcome. *Cf. Lakey v. Puget Sound Energy, Inc.*, 176 Wn.2d 909, 919, 296 P.3d 860 (2013) ("Carpenter's admission that he selectively used data created the appearance that he attempted to reach a desired result, rather than allow the evidence to dictate his conclusions."). For these reasons, the Court finds that Mr. Woodyard is too biased and therefore does not credit any of his testimony because his bias renders his testimony unhelpful to this Court.[8]

34) **Mr. Kurt Herman, M.Eng., P.G.** Mr. Herman, who was called by Pharmacia, is a Principal at Gradient. DX-046.0001. He is an environmental engineer and a licensed professional geologist. *Frye* Hr'g Tr. at 1718:14-20. He has worked on projects for Monsanto for about five to ten years. *Id.* at 1771:2–4. Mr. Herman has never published on PCBs, *id.* at

[8] The Court's credibility finding in no way impacts Mr. Woodyard's ability to testify to in this matter. The factfinder will be free to assess Mr. Woodyard's credibility, and it would be inappropriate for this Court to not allow the jury to make its own credibility determinations.

1771:5–7, never received a grant to study PCBs, and never been a contributing author, consultant, or peer reviewer for the EPA on any publications relating to PCBs. *Id.* at 1772:9–20. Mr. Herman has also never served on any U.S. governmental or international board to evaluating PCBs. *Id.* at 1771:21–1772:1. While Mr. Herman says he was part of a team that performed an exposure assessment and risk assessment to develop a risk-based remediation approach for PCBs, he cannot recall if that project involved indoor air. *Id.* at 1772:2–8.

35) Mr. Herman testified that he has never entered a building and worked on a PCB-specific remediation project involving indoor air; has collected few, if any, indoor environmental samples for PCB analysis (in fact, he typically does not perform sampling as part of his work); and he has never personally deployed an air sampler to test for PCBs in indoor air. *Id.* at 1771:8–20. Mr. Herman is not an industrial hygienist, so he could not address whether retrospective reconstructions or the concept of protection factors are generally accepted in the field of industrial hygiene. *Id.* at 1777:10–17. The Court found Mr. Herman's testimony to be credible and helpful in the limited areas it applies.

III ANALYSIS

36) Trial courts must exclude expert testimony if it does not satisfy both *Frye* and ER 702. *Lakey*, 176 Wn.2d at 918. This Court acts as a "gatekeeper," letting in expert opinion that is both generally accepted and helpful, and keeping out testimony that is neither. As our Supreme Court explained:

> The primary goal is to determine whether the evidence offered is based on established scientific methodology. Both the scientific theory underlying the evidence and the technique or methodology used to implement it must be generally accepted in the scientific community for evidence to be admissible under *Frye*. If there is a *significant* dispute among *qualified* scientists in the relevant scientific community, then the evidence may not be admitted, but scientific opinion need not be unanimous.

Anderson, 172 Wn.2d at 603 (citations & quotation omitted; emphasis in original). *Frye* "applies where either the theory and technique or the method of arriving at the data relied upon is *so novel* that it is not generally accepted by the relevant scientific community." *Anderson* at 611 (emphasis added). "*Frye* does not require that the specific conclusions drawn from scientific data . . . be generally accepted in the scientific community." *Id.*

37) In this case, the relevant "specific conclusions" are the ranges of airborne PCB concentrations Mr. Coghlan derived from three different analytical approaches, that were done in the context of one overarching methodology. Consequently, Pharmacia's experts' concerns about Mr. Coghlan's ranges being too broad to be helpful, *see, e.g.*, *Frye* Hr'g Tr. at 1745:21-1746:3; is not a *Frye* issue, but rather an issue to be addressed under other evidence rules.

38) An important threshold question—which frames this Court analysis and review of the experts—is what is the relevant scientific community by which to gauge the general acceptance of the methodologies employed by Mr. Coghlan. "One enduring criticism of *Frye* has been the court's failure to define the scientific community by which to judge acceptance of novel scientific methods. This problem becomes complicated because various overlapping scientific disciplines use the same information and techniques." *State v. Murry*, 13 Wn. App.2d 542, 549, 465 P.3d 330 (2020) (citation omitted), *overruled on other grounds by, State v. Canela*, 199 Wn.2d 321, 505 P.3d 1166 (2022). Answering this critique, *Murry* determined *Frye*'s general acceptance standard "is satisfied, in our opinion, if the principle is generally accepted by those who would be expected to be familiar with its use." *Id.* (citation & quotation omitted); *see also id.* at 550 ("we hold that scientists familiar with the use of the scientific principle in question constitute the relevant scientific community for purposes of a *Frye*

analysis."). Based on the this, the Court must scrutinize closely the qualifications and opinions offered by each expert to determine whether they are qualified to opine about the specific scientific principles employed by Mr. Coghlan.

A. Retrospective Exposure Reconstruction.

38) Mr. Coghlan seeks to offer opinions as to what the historical levels of airborne PCBs were at SVEC between summer/fall 2011 until 2016. During the period of 2011 to early May 2014, there is no contemporaneous data, such as air sampling data, from which to evaluate the historical level of concentrations in the air. After that point, there is data from which to analyze the then-current levels of PCBs in the air. *See generally* Ex. DX-021 at 2. To estimate potential ranges of exposures, Mr. Coghlan employed a multi-line approach to come up with potential ranges of exposures and he did so in the overall context of conducting a retrospective exposure assessment.

39) "One of the primary functions of an industrial hygienist is the estimation of worker exposure from the workers' contact with chemical and physical agents." Ex. P-5148 at 13. Industrial hygienists often conduct, or participate in with other disciplines such as toxicologists and epidemiologists, what are known as "risk assessments," which measure exposure and health effects related to exposure. *See id.* "Determination of the actual exposure is the stock-in-trade of industrial hygienists." *Id.* This is often done in real-time to create action plans to protect workers from harmful exposures to chemicals and other dangerous agents. When, as here, contemporaneous data is either lacking or incomplete, industrial hygienists routinely turn to a practice commonly referred to an "exposure reconstruction."

40) At the highest level, Mr. Coghlan undertook what is known in the relevant field of industrial hygiene as a retrospective exposure assessment or exposure reconstruction. This

work is essentially a predictive model that allows industrial hygienists to estimate past exposure levels to certain contaminants. *See, e.g.*, Frye Hr'g Tr. at 1314:22-1315:11. As the American Industrial Hygiene Association (AIHA), an authoritative association in the field of industrial hygiene, explains in its "*Guidelines on Occupational Exposure Reconstruction*," such assessments are often necessary in a variety of settings, including in "toxic tort cases," and are often used after-the-fact of exposure where contemporaneous information may not be available or is otherwise lacking. Ex. P-5149 at 2.

41) Retrospective exposure reconstructions are generally accepted in the field of industrial hygiene. *Frye* Hr'g Tr. at 1403:14–1405:1 (Coghlan); Ex. P-5228, p. 3; *Frye* Hr'g Tr. at 1263:12–1265:20 (Dr. Price); Ex. P-5149; *Frye* Hr'g Tr. at 1314:22–1315:11 (Dr. Altemose). None of Pharmacia's experts qualified to speak on this issue—industrial hygienists—challenged the general acceptance of such assessments/reconstructions. The only industrial hygienist advance by Pharmacia, Dr. Moore, avoided answering whether such reconstructions were generally accepted, instead noting that it would depend on "what's being done . . . to understand if its valid." Frye Hr'g Tr. at 1626:3-10. The Court finds that such assessments are not novel and lie within the heartland of what industrial hygienists do.

42) Following an exposure assessment at SVEC, which identified PCBs as the contaminant of concern, Mr. Coghlan conducted a retrospective exposure assessment for the occupants of the building. *Frye* Hr'g Tr. at 1397:7–1398:3. In so doing, consistent with best practices, Mr. Coghlan reviewed hundreds of thousands of pages of environmental consulting and testing documents, including documentation regarding the ventilation system and the building itself, documentation from the Monroe School District concerning PCB testing and

remediation of the school, as well as communications from governmental agencies such as the EPA and the Snohomish Health District concerning PCBs at SVEC. *Id.* at 1398:4–24.

43) In addition, on three separate occasions, Mr. Coghlan went to SVEC to inspect the school building and grounds, and he collected numerous environmental samples that were tested for PCBs, dioxins, and furans. *Id.* at 1398:25–1399:12. At the third inspection in August 2020, a single ballast was recovered that contained PCBs, Aroclor 1016, from a light that was still functional, and the ballast was still functional, as well. *Id.* at 1399:13–22.

44) Prior to the initial site inspection, Mr. Coghlan met with teachers and staff from SVEC to understand what their concerns were and to learn of observations they may have had while working at the school. *Id.* at 1400:3–12. This is an important part of conducting an appropriate reconstruction. Through the course of this litigation, Mr. Coghlan reviewed numerous declarations and depositions of the SVEC building occupants, including teachers, parents, and students, who provided observations of the SVEC building, including reports of seeing dripping from lights in the school. Mr. Coghlan spoke to Dr. Cynthia Yost, a former teacher at SVEC regarding the steps she took when the PCB problem was first identified. *Id.* at 1400:13–1401:17.

45) Because there was little to no contemporaneous data being taken in 2011–2015,[9] such as ongoing sampling or testing in multiple rooms where the PCB problem was being

[9] The earliest PCB testing data from SVEC appears to be from May 2014, was done by EHSI, and only involved three separate rooms in the Annex building. It is important to note that the SVEC campus is made up of multiple buildings, and while testimony established that PCBs could migrate through walls (drywall), there is no testimony that it can migrate through the air from one building to the next. Thus, the Court concludes that Mr. Coghlan's decision to not rely on data from three rooms in the Annex building does not undercut the reliability of his opinions and techniques and/or methods.

identified, only limited testing and samples collected in parts of the building, one of which was done weeks after a light ballast failure and after the room had been ventilated and cleaned by staff, no one can say exactly what level of PCBs the SVEC building occupants were exposed to during that time. *Frye* Hr'g Tr. at 1401:18–1402:9. For example, samples taken by PBS Engineering & Environmental in 2016 were collected after significant remediation[10] occurred, including but not limited to removing light ballasts, adjusting/repairing the ventilation system, cleaning, and some carpet removal. *Id.* at 1402:12–19.

46) Recognizing the environmental data collected was likely not representative of the level of PCBs these building occupants were exposed to, based on his professional judgment as an industrial hygienist with almost thirty-five years' experience, Mr. Coghlan started the process of doing a retrospective exposure reconstruction to estimate what a range of exposures to PCBs would have been for the building occupants of SVEC. *Id.* at 1402:20–1403:13. As supported by the AIHA, the Consumer Product Safety Commission, and literature such as the *Thomas* and *Guo* studies, Mr. Coghlan explored multiple ways of assessing and developing ranges of exposure to help gain an understanding of what the exposures to the SVEC building occupants likely were well before remediation was implemented. *Id.* at 1403:14–1406:14; Ex. P-5233; Ex. P-5150; Ex. P-5248; Ex. P-1670; Ex. P-1628; DX-006.

47) The first line of an exposure estimate approach that Mr. Coghlan undertook was looking at what the *Thomas* study had published. *Id.* at 1406:15–19. The *Thomas* study was performed under a consent order by the EPA, due to several violations by New York City

[10] Remediation can include the removal of PCB-containing materials such as FLBs or caulk, or the encapsulation of PCB-containing materials. It can also include the removal of so-called "sinks," which are materials that PCBs adsorb into. More on this concept later.

related to PCBs, and the EPA used the New York City school system to do research on PCBs in schools. *Id.* at 1406:20–25. Because it required the EPA to have significant oversight of the design, implementation, and analysis of the study, Mr. Coghlan looked at the PCB levels the EPA was finding in the schools in New York City. *Id.* at 1407:1–8.

48) Due to the similarities in building design, occupancy, and similar sources of PCBs emitting from FLBs into the indoor air and also contained in caulk in the New York City schools and the SVEC, Mr. Coghlan felt that the similarities between the schools were sufficient to say that the data from one school can be used to get estimate as to what may have happened at SVEC. *Id.* at 1407:9–1408:8. This is what the Court will refer to as Mr. Coghlan's "direct comparison" approach.

49) In the *Thomas* study, air testing was performed prior to, during, and after remediation. One of the study's results found that prior to remediation with the light fixtures still in the classroom, the PCB air levels measured as high as 2,950 ng/m^3. After removal of the light fixtures, the air levels reduced to around 81 ng/m^3, showing what happens to PCB air levels when various remedial measures such as improved ventilation or removing the source of the PCBs are implemented. *Id.* at 1408:9–1409:20.

50) The next approach Mr. Coghlan took was calculating ratios using the measured pre- and post-remediation PCB air levels for each of the New York City schools. Looking at the remediation done at the New York City schools, some of which had already been conducted at SVEC by the time PCB air levels were measured, Mr. Coghlan made comparisons between what the EPA found at each of the New York City schools prior to remediation and what was measured after remediation. From these measurements, Mr. Coghlan calculated a simple ratio, or protection factor, implementing the various remediation measures taken at the schools. He

did this for all the schools in the study and developed a range of protection factors. He then applied the ratio from the school with the lowest measured improvement to the lowest post-remediation PCB level found at SVEC, and the ratio from the school with the highest measured improvement to the highest post-remediation PCB level found at SVEC. *Frye* Hr'g Tr. at 1409:21–1410:13, 1414:25–1415:15. From there, Mr. Coghlan generated a range of values showing what the PCB air levels would likely have been if the air measurements were taken prior to any remediation being done. *Id.* at 1415:15–19. The Court will refer to this approach as the "remediation data" approach.

51) Mr. Coghlan used testing data from a June 2016 pilot study at SVEC to validate this approach. Like the EPA's pre- and post-remediation findings at the New York City schools regarding PCBs air levels, the June 2016 data at SVEC showed that the PCB air levels reduced tenfold when comparing air test measurements taken before and after the PCB-containing light fixtures were removed from the classroom. *Frye* Hr'g Tr. at 1413:11–1414:24 (Coghlan); Ex. P-1481. Dr. Price reviewed Mr. Coghlan's utilization of the results of the pre- and post-abatement air levels of PCBs from the *Thomas* study as a benchmark for estimating pre-remediation levels of PCBs at SVEC, as well as the testing data from June 2016 pilot study at SVEC, and validated Mr. Coghlan's method of historical exposure reconstruction using the Thomas study. *See Frye* Hr'g Tr. at 1267:20–1271:14; Ex. P-1670; Ex. P-1481; Ex. P-5228, ¶¶ 19-20.

52) Mr. Coghlan's third approach, which the Court will refer to as his "carpet and caulk-based opinions," utilized partitioning coefficient equations, as described in the *Guo* study, and carpet samples that were taken from SVEC prior to substantial remediation efforts, to estimate the historical pre-remediation PCB air levels at SVEC. *Frye* Hr'g Tr. at 1416:16–

1417:3, 1417:21–23; Ex. P-1628. Prior to renovation of the East pod building at SVEC in late 2015, Dr. Yost, a former teacher at the school, along with another teacher took carpet samples from a classroom in the pod building, put the carpet samples in double Ziploc bags, which were stored in Dr. Yost's basement in separate paper bags until the samples were transferred to Mr. Coghlan's possession in January of 2019. *Frye* Hr'g Tr. at 1417:25–1418:17; *see also* 1418:18–1420:25 (there was no floor tile or floor mastic underneath the carpet citing Ex. P-1854, p. 114).

53) Using the carpet samples obtained by Dr. Yost, Mr. Coghlan applied the findings from the *Guo* study regarding the source-sink effect and the adsorption of airborne PCBs into various building materials, including carpet. *Id.* at 1423:23–1424:6; DX-006. Mr. Coghlan used the *Guo* study to determine how much airborne PCBs would adsorb into the carpet, then he applied this information to the levels of PCBs that were found in the carpet samples collected from SVEC. From this, he calculated a simple proportion to determine what level of PCBs one would expect to find in the air, based on what was found in the carpet samples from the East pod of SVEC. *Frye* Hr'g Tr., 1424:6–20; DX-006.

54) In addition to Dr. Guo's studies, Mr. Coghlan's partitioning coefficient methodology is supported by numerous other peer reviewed literature. *Frye* Hr'g Tr. at 1424:21–1427:10; Ex. P-4788; Ex. P-4789; Ex. P-3756; Ex. P-5244; Ex. P-5222; Ex. P-5245; Ex. P-1302; Ex. P-5246; Ex. P-1690. Mr. Coghlan also utilized caulk samples that were collected by PBS to estimate historical levels of PCBs in the air. *Frye* Hr'g Tr. at 1427:11–15. Very low levels of Aroclors 1016 and 1242 were detected in these caulk samples, which is uncommon because these Aroclors were not typically used as plasticizers. The only way those Aroclors could get into caulk would be if they came from another source of Aroclors 1016 and

1242, such as FLBs. *Id.* at 1427:15–25. Mr. Coghlan took the data from the caulk samples and used another partitioning coefficient equation to estimate PCB air levels similarly to how he estimated PCB air levels from the carpet samples. *See id.* at 1428:1–22; DX-006.

55) The multi-line evidence approach taken by Mr. Coghlan to reconstruct historical exposure estimates based on what the PCB air levels were prior to remedial measures was based on the work as described in his testimony and did not account for ballast exposures or dermal/incidental ingestion exposures. *Frye* Hr'g Tr. at 1429:1–8. While the Court will address each particular "line," below, the Court concludes that Mr. Coghlan's use of multiple lines of evidence to engage in an overall reconstruction of potential exposures is consistent with basic industrial hygiene principles and nothing about his overall approach is novel.

56) To the extent Pharmacia's experts criticize Mr. Coghlan for not relying on contemporaneous data, such as wipe samples and limited air testing conducted in specific locations, the Court finds that those critiques go to weight and credibility, not admissibility and are better addressed through the crucible of cross-examination, not wholesale exclusion.

i. Direct Comparison.

56) The first line of evidence Mr. Coghlan used in his retrospective exposure reconstruction was a direct comparison between figures reported at New York schools based on an EPA study and SVEC—the *Thomas* study. The Court finds that the relevant scientific community for purposes of analyzing Mr. Coghlan's "direct comparison" approach is that occupied by industrial hygienists. The Court determines that this approach does not implicate *Frye*, and that under ER 702 Mr. Coghlan's opinions in this regard would be helpful to jury in addressing the issues it must resolve in this case.

57) *Erickson* held that Coghlan's "direct comparison" approach was not a "methodology" subject to *Frye*. *Id.* at 257 ("We evaluate this evidence under ER 702, not under the *Frye* test."). Pharmacia asks this Court to revisit this ruling, which is legal in nature. The Court agrees with Pharmacia that because there is a completely different evidentiary record in this case, it is appropriate for this Court to review the legal question of whether *Frye* is implicated without regard to how *Erickson* analyzed the matter.

58) After hearing the evidence, it is plain to the Court that Mr. Coghlan did not employ any scientific methodology or technique by comparing schools in New York City to SVEC. All he did was make a permissible inferential leap from a data set, which did not require employing any particular methodology. If this Court were to accept Pharmacia's view of the world, then basically every opinion by every expert would be subject to analysis under *Frye* because every time an opinion is made by a process of considering multiple factors a "methodology" or "technique" is being employed. For example, a doctor who opines that an arm fracture was caused by bicycle accident based on (1) the fact of accident, and (2) an x-ray showing a fracture, is employing a methodology in the strictest sense of the word. But again, *Frye* does not concern itself with such basics, and only comes into play when the science is novel.

59) There is nothing novel about comparing one school to another school to determine potential levels of airborne PCBs. Similar evidence is routinely allowed in courtrooms, without a *Frye* challenge. For example, in an asbestos case, there may not be contemporaneous air sampling data to estimate an exposure level for a bystander on a particular type of Navy vessel, such as an aircraft carrier, when asbestos-containing insulation was being removed. That does not mean, however, than an expert is engaging in novel science when they,

by comparison, opine as to the airborne levels of asbestos for similar work being performed on a Navy submarine. That an aircraft carrier and a submarine are not identical, and that there may very well be variables, does not turn a direct comparison into novel science. Pharmacia's view of what is a methodology for purposes of *Frye* is too broad. This Court concludes that, as a matter of law, *Frye* is not implicated with respect to Mr. Coghlan's "direct comparison" approach and the appropriate method of analysis is under ER 702.

60) Under ER 702, scientific evidence is admissible if it "will assist the trier of fact to understand the evidence or to determine a fact in issue[.]" Washington courts "construe helpfulness to the trier of fact broadly." *Philippides v. Bernard*, 151 Wn.2d 376, 393, 88 P.3d 939 (2004). "Scientific evidence will assist the jury whenever it involves matters beyond common understanding and will not mislead them." *Moore v. Harley-Davidson Motor Co. Grp., Inc.*, 158 Wn. App. 407, 417, 241 P.3d 808 (2010).

61) The Court finds that the historical levels of PCBs in the air at SVEC is outside the common knowledge the jury and there is nothing misleading about Mr. Coghlan's "direct comparison" approach. He testified that there were sufficient similarities between the New York schools and SVEC, such as the time of construction of the buildings, the PCB sources, ventilation systems, etc., for him to make a fruitful comparison between the two. *See* Ex. 5228 at ¶18 & *Frye* Hr'g Tr. at 1407:9-1408:8; *see also Erickson* at 258. This Court agrees with *Erickson* that concerns about the differences between the New York schools and SVEC, "go to the weight of Coghlan's testimony . . . rather than its admissibility." *Id.* The Court finds that Mr. Coghlan's direct comparison approach would assist the jury in determining the levels of PCBs in the air at SVEC prior to remediation.

ii. Remediation-based opinions.

62) The second line of evidence that Mr. Coghlan used in his retrospective exposure reconstruction utilized data about PCB air concentrations, both pre- and post-remediation, from the *Thomas* study to estimate pre-remediation levels at SVEC by utilizing protection factors. The Court finds that the relevant scientific community for purposes of *Frye* is industrial hygiene because that is the field of experts who understand the principles and techniques employed by Mr. Coghlan.

63) Before addressing the merits, this Court must first address *Erickson*, which concluded Mr. Coghlan "employed a novel method that is not generally accepted in the scientific community." 548 P.3d at 257. In so concluding, the court relied exclusively on Mr. Woodyard's criticisms of Mr. Coghlan's approach. *See id.*[11] As explained above, this Court finds Mr. Woodyard too biased to be credible. And to the extent *Erickson*, *sub silentio*, relied on Drs. Keenan or Gaffney, neither of their opinions were presented to this Court, either by declaration or live testimony. Given this, the Court is not bound by *Erickson*'s conclusion in this regard. That said, because *Erickson* did conclude, as a legal matter, that Mr. Coghlan's opinion in this regard was subject to *Frye*, the Court will analyze the issue under *Frye*.

64) Mr. Coghlan, Drs. Price and Altemose, all industrial hygienists, each testified that the concept of adjusting post-remediation levels to estimate pre-remediation levels of airborne contaminants using another similar site is generally accepted in the field of industrial hygiene. *Frye* Hr'g Tr. at 1410:14–1411:20 (Mr. Coghlan); Ex. P-5228, p. 7; Ex. P-5149; *Frye* Hr'g Tr. at 1266:5–1267:13, 1302:13–21 (Dr. Price); *Frye* Hr'g Tr. at 1315:12–1316:12,

[11] Mr. Woodyard is not a doctor, he does not have a Ph.D. *See* Ex. DX-055 at 1; *see also* Dkt. No. 1531, Attachment B at ¶ 44.c. (referring to witness as Mr. Woodyard).

1333:24–1334:8 (Dr. Altemose). Even Pharmacia's lone industrial hygienist, Dr. Moore, agreed "this can be done, but in order to use one site as another site, you need to characterize that those sites are equivalent." *Frye* Hr'g Tr. at 1626:16–24. None of Pharmacia's other experts, except perhaps Mr. Herman, are qualified to criticize Mr. Coghlan's use of industrial hygiene principles and theories because given their specialties, they would not be expected to be familiar with the principles involved. For example, Dr. Reitman acknowledge that questions regarding "adjusting post-remediation levels to estimate pre-mediation levels" was "outside of my scope." Frye Hr'g Tr. at 1568:11-18.

65) During the hearing, and its proposed findings, Pharmacia relied heavily on Mr. Herman to critique Mr. Coghlan's remediation-based approach. *Frye* Hr'g Tr. at 1727:14-1752:25 & Dkt. No. 1531, Attachment B at ¶¶ 153-155, 171, 174-181, & 185-186 (relying on Mr. Herman). While Mr. Herman understands the concepts of modeling, he lacks the qualifications to address modeling in the context of industrial hygiene. For example, on cross-examination he acknowledged he was not qualified to opine on the use of "protection factors" because "I am not an industrial hygienist," which is a key element of Mr. Coghlan's remediation-based approach. *See Frye* Hr'g Tr. at 1776:14-17.

66) While Mr. Herman leveled numerous critiques of Mr. Coghlan's use of the *Thomas* study, he acknowledged that he was speculating as to what effect, if any, some of his critiques would have on Mr. Coghlan's results. For example, after Mr. Herman said Mr. Coghlan's opinion was not reliable because there may not be similarities between the sequence of remediation that occurred in the New York schools and SVEC, the Court made the following inquiry:

Q. You have two sources of PCBs. Why does it matter which one goes out first [during remediation] if they're all gone and you test, say, six months later?

A. The answer is we don't know because they haven't checked to see what the effect would be changing the sequence. It could have an effect. We just don't know based on the data that they collected from these studies—

Q. So it could have no effect or it could have an effect, we don't know?

A. Exactly. But you need to understand that before you can rely on it. That's the point I am trying to make.

Frye Hr'g Tr. at 1741:4-18. This answer troubled the Court, and undermines Mr. Herman's other critiques because it left the impression Mr. Herman was simply trying to discredit Mr. Coghlan's opinion through a speculative death-by-a-thousand-cuts approach without explaining *why* his critique matters from the perspective of an industrial hygienists or even from a modeling perspective.

67) Even assuming, however, Mr. Herman is qualified to render opinions best suited for industrial hygienists, *Frye* does not require unanimity in the relevant scientific field, and only concerns itself with "*significant* disputes among *qualified* scientists in the relevant scientific community." *Anderson* at 603 (quotation omitted; emphasis in original). That a single expert, who is not an industrial hygienist, disagrees with industrial hygienists on the general acceptance or reliability of the use of a particular methodology does not qualify as a "significant dispute" under *Frye*. Were that the case, ER 702 and other evidence rules would have little to no role to play in the analysis. That is not what Washington law contemplates. The Court concludes that Mr. Herman's critiques, some of which are reasonable and supported by non-speculative explanations, are better analyzed under ER 702 and other evidence rules, not *Frye*. The Court concludes that there is no "significant dispute" within the field of industrial

hygiene that Mr. Coghlan's adjustment of post-remediation levels to estimate pre-remediation levels of airborne contaminants using another similar site is generally accepted in the field of industrial hygiene.

68) The Court also finds that, as a matter of fact, that the New York schools are substantially similar enough to allow Mr. Coghlan to rely on that data to undergird his opinions in this regard. In the field of industrial hygiene, they type of precision demanded by Pharmacia's non-industrial hygiene experts (*i.e.*, identicality, exactness, etc.), simply does not apply within this scientific field. Pharmacia's own industrial hygienist, Dr. Moore agreed, noting only that one must "characterize [ ] those sites [as] equivalent." *Frye* Hr'g Tr. at 1626:16–24. The relevant facts in this regard are not the buildings' construction, numbers of rooms, remediation sequences, etc., but rather for purposes of this opinion what matters is the source of the PCBs and what was remediated. At the hearing, Mr. Coghlan explained the similarities between what was done in the New York schools and SVEC with respect to remediation and the similarities between the PCB sources. *See* Frye Hr'g Tr. at 1409-1410:7. Given these similarities, Mr. Coghlan then "developed a range of protection factors" and applied it to the "data that was collected by PBS, because, again, that was collected after a lot of remedial activity had occurred." *Id.* at 1410:8-13; *see also* Ex. P-5228 at ¶¶ 15–17.

69) The *Thomas* study itself supports Mr. Coghlan's ultimate conclusion in this regard—airborne PCB levels go down after remediation. The *Thomas* study concluded that "[b]ased on information from the five New York City schools, it appears mitigation efforts can be successful in substantially reducing indoor air concentrations and exposures to PCBs." Tr. Ex. 1670 at 113. In other words, the *Thomas* study supports the basic theory underlying Mr. Coghlan's approach—that if there is a PCB source in a building, one can reasonably expect a

substantial reduction in the amount of PCBs that are in the air by removing sources that emit PCBs into the air. In this Court's view, it is not novel science to theorize that removing a source that emits PCBs from a building will reduce the overall amount of PCBs that is in the air in the same building. That is commonsense logic. Just like removing malodorous garbage from your kitchen will reduce the bad smell from the garbage that goes into air in the room, the same holds true for PCBs. There is nothing novel with this theory.

70) Nor is the use of protection factors novel. Mr. Coghlan and Dr. Price both testified that the concept of protection factors is generally accepted in the field of industrial hygiene. *Frye* Hr'g Tr. at 1411:21–1413:10 (Coghlan); Ex. P-5228, p. 6; Ex. P-5247; *Frye* Hr'g Tr. at 1265:21–1266:4 (Dr. Price). None of Pharmacia's experts disputed the general acceptance of the use of such factors in the field of industrial hygiene. Dr. Moore did not offer any testimony on this topic and Mr. Herman, as noted above, testified that opining on protection factors was outside his scope of expertise because it fell within the field of industrial hygiene. The Court finds that utilizing protection factors is generally accepted in the field of industrial hygiene and while Mr. Coghlan's use of those factors in this situation might be novel, he has relied on generally accepted principles in applying those factors here. This is permissible under *Frye*. *See, e.g.*, *Anderson* at 603 ("Once a methodology is accepted in the scientific community, then application of the science to a particular case is a matter of weight and admissibility under ER 702[.]") (quotation & citation omitted).

71) With respect to reliability and validation, the Court finds that, as a matter of fact, the June 2016 pilot study at SVEC validates Mr. Coghlan's approach to using pre- and post-remediation pilot studies conducted at the New York City schools. *Frye* Hr'g Tr. at 1413:11–1414:24 (Coghlan); Ex. P-1481; *Frye* Hr'g Tr. at 1269:21–1271:14 (Dr. Price). Given this

validation, the Court finds his opinions in this regard are reliable for purposes of *Frye*. As Mr. Coghlan explained:

> So this is very similar to what was done in that room we just discussed a little earlier in the New York City schools, where they had high levels of PCBs, nearly 3,000 nanograms per cubic meter, removed the light fixture and the levels dropped to about 80 or 81 nanograms per cubic meter. So a very significant reduction. A very similar process happened here in the annex building at Sky Valley in June of [2016]. They were trying to understand if, indeed, the light fixtures were the problem or still the problem. And they used this, what I call pilot study, as a way to evaluate what the exposures were prior to them doing anything—doing some remediation and then testing afterward. Very similar to what was done in the New York City school study.

Frye Hr'g Tr. at 1413:17–1414:9. This validates Mr. Coghlan's approach because it demonstrates that once the light fixtures were removed during the June 2016 pilot study, levels went down tenfold, similar to the New York City schools pre- and post-remediation findings. *Frye* Hr'g Tr. at 1414:17–24. This Court has already ruled that June 2016 pilot study is admissible "circumstantial evidence of what exposure levels reasonably could have been in other areas of SVEC." *See* Dkt. No. 1371 at 26-27.

72) To rebut the usefulness of such a comparison for validation/reliability purposes, Pharmacia points out that Mr. Coghlan acknowledged that the pilot study was conducted under conditions that are not representative of the conditions during normal operations at SVEC because the door was duct-taped shut, windows were closed and the ventilation system was altered. *See* Dkt. No. 1531, Attachment B at ¶ 184. Be that as it may, that does not undermine this Court's factual conclusion as to validation because the fact remains that the reduction in PCB air levels is consistent with what was seen in the New York schools. That is the central point with respect to validation. Pharmacia is free, on cross-examination, to explore these issues with Mr. Coghlan. While framed as a methodological critique, Pharmacia's real

challenge does not challenge the technique used, but rather the application of that technique. Those critiques are better addressed through other evidentiary rules, such as ER 702.

73) For example, Pharmacia has argued that Mr. Coghlan selected just two data points to estimate PCB levels, rather than using all the datasets from the EPA study of New York schools, including those related to School Four. This argument does not challenge the general acceptance of the methods and techniques used by Mr. Coghlan, but rather they are simply arguments that Mr. Coghlan improperly applied that science or rests his conclusions on incomplete data. Washington law makes clear that when scientific evidence is challenged as novel, this Court must carefully consider the *underlying basis* for the challenge. If the challenge itself is deficient—that is, if it does not properly challenge the underlying scientific methods or principles as novel—then *Frye* does not apply. *Advanced Health Care, Inc. v. Gusvott*, 173 Wn. App. 857, 875, 295 P.3d 816 (2013) (because the challenging experts "did not dispute the underlying scientific principle" the challenged expert used in formulating the causation opinions, *Frye* did not apply).

74) On this record, it is not contested that adjusting post-remediation levels to estimate pre-remediation levels of airborne contaminants using another similar site is generally accepted in the field of industrial hygiene. It is also undisputed that Mr. Coghlan applied this method in a reliable way within his field of industrial hygiene to reconstruct exposures at SVEC by using protection factors to calculate a simple ratio, which is also generally accepted in the field of industrial hygiene. The Court finds that even if Pharmacia's challenge is properly considered under *Frye*, *Frye*'s general acceptance standard is satisfied. Consequently, the Court denies Pharmacia's *Frye* challenge to Mr. Coghlan's adjusting post-remediation levels to

estimate pre-remediation levels of airborne PCBs at SVEC using data from the New York schools.

75) This does not, however, end the analysis because even if *Frye* is satisfied this Court must still consider whether other evidentiary rules, including ER 702, compel exclusion. *See, e.g.*, *Anderson* at 606. The Court finds that Mr. Coghlan's opinions in this regard are both probative and relevant given the issues involved in this case, and his opinions are non-speculative because they are well-explained and based on sound science that is generally accepted within the field of industrial hygiene. In addition, discussion of PCB air concentration, and the effects remediation may have on those concentrations are outside a juror's common understanding and therefore allowing Mr. Coghlan to render these opinions would be helpful to the jury under ER 702 because it will assist the jury in understanding the impact remediation efforts may have had on airborne concentrations of PCBs at SVEC. Pharmacia is free, through cross-examination, to explore any criticisms it may have of Mr. Coghlan's remediation-based opinion.

iii. Carpet- and caulk-based opinions.

76) The third line of evidence that Mr. Coghlan used in his retrospective exposure reconstruction was to measure the amount of PCBs taken from certain carpet and caulk samples from SVEC to estimate potential ranges of historical airborne PCBs concentrations at SVEC by utilizing a partition coefficient equation derived from the EPA's *Guo* study. Given the techniques and methods used, the Court finds that the relevant field for purposes of *Frye* is a mix of industrial hygiene, environmental engineering, and those with knowledge of how PCBs act in indoor settings. This method requires an understanding of certain concepts that bring in various disciplines that do not fit neatly into specific scientific fields.

77) Mr. Coghlan's underlying theory for purposes of this opinion is source-sink dynamics, which everyone agrees is generally accepted in the relevant scientific fields. "The 'source-sink dynamics' approach investigates the mechanism by which PCBs transfer or migrate from a primary source to other secondary materials, or 'sinks." *Erickson* at 253. More relevant here, the "sources" at issues in this case would be PCB-containing FLBs and caulk, and the "sinks" would be carpet and caulk.[12] In the simplest terms, PCBs can be emitted from FLBs and caulk, then go into the air and "sink" down and be adsorbed by other materials, such as carpet.[13]

78) In *Erickson*, the court characterized Pharmacia's *Frye* challenge as targeted at "the novel science [of] calculating PCB levels in the air from *a known adsorbent source*." *Erickson* at 254 (emphasis added). After hearing Pharmacia's experts' critique Mr. Coghlan over almost two days, and counsel's closing argument, it became apparent to the Court that Pharmacia's *Frye* challenge in this case is more specific than how it was described in *Erickson*. Rather than challenge the general acceptance of "calculating PCB levels in the air from a known adsorbent source," Pharmacia's challenge was primarily focused on whether "calculating PCB air levels" from *carpet*, as opposed to other adsorbent sources is generally accepted.

79) For example, Dr. Reitman spent considerable time explaining how PCBs may interact differently depending on a carpet's specific design. *See, e.g.*, *Frye* Hr'g Tr. at 1518:17-

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[12] It is undisputed that PCB-containing caulk can act as both a "source" and a "sink."

[13] There is a difference between "**ab**sorption" and "**ad**sorption." That latter refers to when a material is sorbed onto another substance, the former refers to when a material is sorbed into another substance. Collectively, these concepts fall under the general rubric of "sorption." *See* Ex. DX-052 at 6.

1520:12. Likewise, Pharmacia's counsel was laser-focused on cross-examination on the lack of articles regarding using *carpets*, as opposed to other solid materials, to estimate air concentrations of PCBs. *See, e.g.*, Frye Hr'g Tr. at 1166:6-9 (Dr. Hornbuckle); 1232:10-17 (Dr. Gunnarsen); 1274:2-18 (Dr. Price); 1319:19-23 (Dr. Altemose); *see also Frye* Hr'g Tr. at 1978:17-1979:5 (counsel pointing out in argument "nobody talked about any reported literature where carpet was involved."). Pharmacia's focus is too narrow and better analyzed under ER 702 because substantial amounts of peer-reviewed literature support the methodology of calculating historical PCBs levels from known adsorbent sources. This method of analysis is not novel.

80) Dr. Hornbuckle testified that there are numerous peer-reviewed scientific studies using solid materials (*i.e.*, adsorbent sources) to predict air concentrations in lieu of air sampling. *See* Frye Hr'g Tr. at 1145:24–1149:12 (citing Ex. P-5126, Tr. Ex. P-5127 as examples). Most importantly, Dr. Hornbuckle testified there are many peer-reviewed scientific studies that have used solid materials to estimate historical concentrations and trends of PCBs in air, which is what Mr. Coghlan did here. *Frye* Hr'g Tr. at 1149:13–1154:21 (citing Ex. P-3756; Ex. P-5124; Ex. P-5130; Ex. P-5131; Ex. P-5132; Ex. P-5133; Ex. P-5134). Mr. Coghlan also cited additional peer-reviewed scientific literature supporting the methodology he employed. Ex. P-5228 ¶ 10 (citing Ex. P-4788, Ex. P-3756, Ex. P-5244, Ex. P-5222, Ex. P-5245, Ex. P-1302, Ex. P-5246, Ex. P-1690). And while Pharmacia's experts sought to distinguish those studies, one of them challenged, in any meaningful way, the basic method/technique of calculating historical PCBs levels in indoor air from known adsorbent sources. Based on this, the Court finds that Mr. Coghlan's use of a "sink" to back-calculate historical levels of PCBs in the air at SVEC is not so novel as to implicate *Frye*.

81) The Court finds that while there are no peer-reviewed articles that relate specifically to calculating historical airborne concentrations of PCBs from carpet sinks, as opposed to other sinks, there is ample peer-reviewed literature supporting the conclusion that "calculating PCBs in the air from a known adsorbent source" is not novel, despite *Erickson*'s conclusion to the contrary. *See, e.g.*, Ex. P-4788 (*Dodson*). For example, Mr. Coghlan explained that *Dodson* and the supporting information for the article marked as Ex. P-4789 did exactly what he did but used dust instead of carpet or caulk:

> Well, in this article they were looking at dust partitioning, so instead of carpets or caulk, they were looking at dust. But the concept was exactly the same. And they were trying to understand, you know, the amount of material that would absorb to dust in homes. And one of the things that they did in their supplemental material to this particular article was developed a chart that does exactly what I did at Sky Valley, where they say, 'Based on a partition coefficient.' In this case, they used what's called the Octanol air partition coefficient, but conceptually it's exactly the same as the material air partition coefficient. And they applied that to estimate levels that you would expect to find in the air of the home once you know what is actually found in the dust.

Frye Hr'g Tr., 1425:6–1427:10. Mr. Coghlan reiterated this point in rebuttal in response to a question from this Court. *Id.* at 1808:25–1811:6 (citing Ex. P-4789, p. 20). When given the opportunity to re-examine Mr. Coghlan on this point (and others), Pharmacia did not challenge the lack of novelty, rather it only focused on the potential variability of the range of results from *Dodson*. *See id.* at 1811:20-1812:18. In other words, it focused on the conclusions derived from *Dodson*, as opposed to the methodology used by *Dodson*. This is critical because "the application of accepted techniques to reach novel conclusions does not raise *Frye* concerns." *Lakey*, 176 Wn.2d at 919.

82) To the extent Pharmacia contends that Mr. Coghlan's opinions violate *Frye* because no one has ever done exactly what he did here—estimate historical PCBs levels from

carpet—the Court rejects that premise as inconsistent with Washington law. "*Frye* does not require every deduction drawn from generally accepted theories to be generally accepted. Other evidentiary requirements provide additional protections from deductions that are mere speculation." *L.M. ex rel. Dussault v. Hamilton*, 193 Wn.2d 113, 129, 436 P.3d 803 (2019) (quotation & citation omitted). "Once a methodology is accepted in the scientific community, then application of the science to a particular case is a matter of weight and admissibility under ER 702." *Anderson*, 172 Wn.2d at 603. Here, the relevant methodology is utilizing sinks to predict historical airborne concentrations of PCBs, and that Mr. Coghlan applied that methodology to carpet, as opposed to dust, pine needles, moss, etc., does not implicate *Frye*. While Pharmacia's experts may contend that there are too many variables in carpets to render Mr. Coghlan's underlying data reliable, or that use of the *Guo* data makes his conclusion unreliable, Dr. Hornbuckle disagrees. See *Frye* Hr'g Tr. at 1172:7-1776:20. Again, while experts may disagree, *Frye* is only implicated when there is a significant dispute among qualified experts. In this battle of the experts, for Frye purposes, this Court credits Dr. Hornbuckle's views given her extensive knowledge of PCBs and the science at issue here. In this case, the industrial hygienists, as well as the environmental engineers, all agree that Mr. Coghlan's methodology was not novel and generally accepted.

83) Pharmacia' relatedly attacks Mr. Coghlan's opinions based on the inputs he placed into his mathematical equation. Mr. Coghlan, Drs. Hornbuckle, Gunnarsen, Price, and Altemose all testified that utilizing partitioning coefficient equations is generally accepted within the scientific community as a reliable technique/method to estimate the chemical concentrations in indoor environments. *Frye* Hr'g Tr. at 1421:12–19 (Coghlan); *Frye* Hr'g Tr. at 1161:7–11, 1209:2–6 (Dr. Hornbuckle); *Frye* Hr'g Tr. at 1225:19–1226:6, 1247:20–23 (Dr.

Gunnarsen); *Frye* Hr'g Tr., 1259:20–24, 1302:4–8 (Dr. Price); *Frye* Hr'g Tr., 1313:2–13, 1333:15–19 (Dr. Altemose). Pharmacia's experts did not suggest otherwise. Drs. Gunnarson, Price, and Altemose all testified that partitioning coefficient equations have been utilized to estimate chemical concentrations in the air spanning from decades to centuries. *Frye* Hr'g Tr. at 1225:12–18 (Dr. Gunnarsen); *Frye* Hr'g Tr. at 1258:21–1259:12 (Dr. Price); *Frye* Hr'g Tr., 1311:2–16, 1334:18–1336:6 (Dr. Altemose).

84) None of the Pharmacia's experts suggested that the use of partitioning coefficient equations to estimate the chemical concentrations in indoor environments is somehow novel or relatively new. In fact, Pharmacia's counsel acknowledged "that everyone agrees [the] use of partitioning coefficients" is "generally accepted." *Frye* Hr'g Tr. at 1975:1-6. This concession is well-taken because as Dr. Altemose testified, partitioning coefficients go back as far as the early 1800s first known as Henry's law:

> So Henry was actually the name of the person who came up with it. It was a paper related to that, but, you know, I know it more from some of the literature and from some of the modeling where Henry's law has to do with, if you know the concentration—there's going to be an equilibrium between the concentration of a chemical in a liquid and in the air. So in this case we're talking about solid in the air. Henry's law is specifically talking about a liquid in the air, but it's the same equation. It's a constant—which, in this case, we're calling a partitioning coefficient, but they just call it Henry's constant in this—but that is the partitioning coefficient, and then you have the concentration in the liquid and then you have the concentration in the air. And it's actually fairly commonly used—at least in modeling in industrial hygiene, we are often looking at what the concentration—if we are trying to model exposure. And a lot of the chemicals we're dealing with exposure to in industrial hygiene are liquids, so that's why it comes up a lot. We might have a liquid spill or we might have a vat of the liquid, you know, it's open to the atmosphere. And if we want to make some estimate, like if we want to use a model to calculate how much might get into the air, like we're designing a process or designing control to come up with decreasing the exposure from that process, we might want to calculate what that—what that partition coefficient is going to be, what's the concentration in the air versus the liquid, is going to be.

Frye Hr'g Tr., 1311:2-16, 1334:18–1336:6. The Court finds that as a matter of fact, the method/technique of using partition coefficients to estimate indoor air concentrations of chemicals has a long historical pedigree and is generally accepted across numerous scientific disciplines, including industrial hygiene. There is no novelty in using such equations to do what Mr. Coghlan did.

85) Pharmacia did not challenge partitioning coefficient equations as novel. Rather, Pharmacia's objections involved *how* Mr. Coghlan applied this methodology in this case. During argument the Court had the following colloquy with Pharmacia's counsel:

> Q. And your position is the methodology that doesn't have and equilibrium constant is inherently flawed and, therefore not generally accepted because no one else has done it. Is that, in a nutshell—I'm not trying to trick you?
>
> A. Yeah.

Frye Hr'g Tr. at 1976:12-17. Mr. Herman confirmed this by admitting that the principles associated with partitioning models and equations are generally accepted within the scientific community as it relates to estimating contaminants in the air while stating: "but the devil is in the details on how the method is applied." *Frye* Hr'g Tr. at 1773:17-25; *see also* 1774:17-1775:6 ("The devil is in the details. I think the concepts are generally accepted, it's the implementation. That depends on site-specific situations."). Mr. Herman agrees that Aroclors 1242 and 1016 can be in the air in an indoor environment that has FLBs. *Frye* Hr'g Tr. at 1775:12–21. When asked to explain how the Aroclors 1242 and 1016 got on the caulk bulk samples—that Mr. Coghlan used in one of the partitioning coefficient equations—Mr. Herman testified that: "I don't disagree with Mr. Coghlan on that phenomenon, it's just his application of his methods." *Frye* Hr'g Tr. at 1775:22–1777:9. Pharmacia's other experts similarly attacked

Mr. Coghlan's implementation of this well-accepted methodology within the scientific community for PCBs specifically and for many other chemicals too.

86) Mr. Coghlan explained in detail how he applied the first partitioning coefficient equation using carpet samples:

> So I looked at Dr. Guo's Study No. 2, which deals with the source sink effect and the absorption of PCBs from the air into various building materials. He tested 20 common types of materials, two of which were two very different types of carpet. And so I took both of those types of carpet into my analysis. I didn't just pick one. And I used both to establish what would—using the information he generated in that study about how many—how much PCBs will actually absorb into the carpeting, and then I applied that to what we actually found in the carpeting at Sky Valley. So it was a simple way of looking at, if you had this much in the air and you found this much in your carpet in the test that Guo—Dr. Goo was running, if you looked at that, you can then do a simple proportion to what you would expect to find in the air if you found the type—the amount of PCBs that were detected in the actual carpet samples collected from the East pod at Sky Valley.

Frye Hr'g Tr., 1423:23–1424:20; *see also* Ex. P-5228 ¶¶ 11-13 (citing DX-006). Mr. Coghlan also testified about another partitioning coefficient equation using bulk caulk samples with Aroclor 1242 and 1016 that are associated with FLBs. *Frye* Hr'g Tr. at 1427:11–1428:22; *see also* Ex. P-5228 at ¶ 14.

87) When asked whether Mr. Coghlan used a partitioning coefficient equation in a scientifically reliable way to estimate historical concentrations and trends of PCBs in the air at Sky Valley, Dr. Price testified that:

> Yes. I think [Mr. Coghlan] used empirical data developed by the EPA with Dr. Guo's research. And I think he basically considered all the different boundary conditions and used the—you know, the methodology appropriately.

Frye Hr'g Tr. at 1259:25–1260:7 (emphasis added).

88) Drs. Hornbuckle, Gunnarsen and Altemose also testified that Mr. Coghlan used a partitioning coefficient equation in a scientifically reliable way to estimate historical

concentrations and trends of PCBs in the air at SVEC. *Frye* Hr'g Tr. at 1161:12–15 (Dr. Hornbuckle); *Frye* Hr'g Tr. at 1226:7–13 (Dr. Gunnarsen); *Frye* Hr'g Tr. at 1313:14–1314:1 (Dr. Altemose). Dr. Hornbuckle testified that Mr. Coghlan's work in this case relies on well-accepted theories within the scientific community for PCBs specifically and for many other chemicals too. *Frye* Hr'g Tr. at 1143:17–22.

89) Dr. Hornbuckle, whose testimony this Court credits, authored a report and an addendum establishing that Mr. Coghlan's methodologies are not only generally accepted in the scientific community, but also are reproducible with published data. *Frye* Hr'g Tr. at 1159:18–1161:6 (Dr. Hornbuckle); Ex. P-5120; Ex. P-5121. The Court finds that because Mr. Coghlan's methods and results are reproducible with published data they are therefore reliable for purposes of *Frye*.

90) The Court also finds that the greater weight of the evidence supports the conclusion that Mr. Coghlan used a partitioning coefficient equation in a scientifically reliable way to estimate historical concentrations and trends of PCBs in the air of Sky Valley. *Frye* Hr'g Tr. at 1161:12–15 (Dr. Hornbuckle); *Frye* Hr'g Tr. at 1226:7–13 (Dr. Gunnarsen); *Frye* Hr'g Tr. at 1259:25–1263:3 (Dr. Price); Ex. P-5169; Ex. P-5148; Ex. P-5149; *Frye* Hr'g Tr., 1313:14–1314:1 (Dr. Altemose). And that the partitioning coefficient equations used by Mr. Coghlan for carpet and caulk generally accepted in the field of industrial hygiene. *Frye* Hr'g Tr., 1422:5–8 (Coghlan); *Frye* Hr'g Tr., 1263:4–7 (Dr. Price); *Frye* Hr'g Tr., 1314:10–21 (Dr. Altemose). The greater weight of the evidence also leads this Court to find that the equilibrium coefficients used by Mr. Coghlan for the carpet and caulk are generally accepted in the field of industrial hygiene. *Frye* Hr'g Tr., 1422:9–14 (Coghlan); *Frye* Hr'g Tr., 1263:8–11 (Dr. Price). They are also generally accepted in the field of environmental engineering. *Frye* Hr'g Tr.,

1159:18–1161:6 (Dr. Hornbuckle); Tr. Ex. P-5120; Tr. Ex. P-5121. These disciplines make up the core of the scientific field for purposes of *Frye*.

91) Based on all of this, the evidence presented at the evidentiary hearing clearly establishes that Mr. Coghlan's use of partitioning coefficient equations to estimate historical concentrations and trends of PCBs in the air at SVEC are generally accepted in the scientific community, reliable, and capable of reproduction. The *Frye* challenge is denied.

92) The issue before this Court highlights the difficult task this Court must perform under *Frye* because it asks this Court to determine, for purposes of assessing "general acceptance," what is the specific technique and/or methodology the Court should be focusing on. Candidly, the relevant appellate court decisions do not provide specific insight into the fine distinction this Court is being asked to draw in this case by the parties—methodology/technique versus application. This Court is not the first jurist to recognize the difficultly *Frye*'s general acceptance standard creates for courts. *See, e.g.*, *Reese v. Stroh*, 128 Wn.2d 300, 314, 907 P.2d 282 (1995) ("What is the methodology being considered—augmentation therapy or Prolastin augmentation therapy?") (C. Johnson, J. concurring).[14]

93) Is Coghlan applying the theory of "source sink dynamics," which everyone agrees is generally accepted? Is his methodology/technique an application of a partition coefficient equation, which is also generally accepted? And even if both are true, does *Frye* concern itself with whether the inputs, and more specifically here the equilibrium coefficient,

[14] In *Reese*, Justice Johnson would have eschewed *Frye*'s general acceptance test in the context of civil cases and adopt instead the U.S. Supreme Court's analytical framework articulated in *Daubert v. Merrel Dow Pharms., Inc.*, 509 U.S. 579 (1993), which addresses "general acceptance" but in the context of other non-exclusive factors, such as "reliability and relevance." *Reese* at 311-314 & 315-16 (Johnson, J., concurring).

he places into his partition coefficient equation are also generally accepted, or does ER 702 and other evidentiary rules designed to keep out unreliable and speculative testimony provide the proper mode and method of analysis for the inputs? As to the last question, which is the central question before this Court as it relates to Mr. Coghlan's carpet and caulk-related opinions, Plaintiffs take the position that ER 702 should do the work at this stage, while Pharmacia takes the position that, *Frye* should do the work at this level. Plaintiffs are correct on both the facts and the law.

94) During the hearing in this matter, it became apparent to the Court that Pharmacia's experts did not question the general acceptance in the scientific community of (1) source sink dynamics, and (2) the use of partition coefficient equations to determine the level of a substance in the air from a solid source. Rather, their criticisms of Mr. Coghlan's use of these scientifically accepted principles were more focused on, for example, the differences between carpet types and how that would impact how PCBs interact with those carpets, the lack of controls over the carpet from which his conclusions are based (cross contamination), and the inputs into this mathematical formula (use of Guo's data). In this Court's view, each of these concerns goes to Mr. Coghlan's application of generally accepted methods and techniques, and therefore *Frye* is not implicated.

95) Nonetheless, the Court reads *Erickson* to hold that anytime an expert uses a mathematical formula where each input is not reliable, *Frye* is implicated. *See id.* at 256 (referring to "novel equation" used by Coghlan) & *id.* at 257 (use of "remediation coefficient" was a "novel method"). Even if *Frye* is implicated, the Court concludes that Mr. Coghlan's theory and methodology/technique is generally accepted in the relevant scientific fields for all the reasons described above.

96) Here, all the relevant experts agreed that the use of a partition coefficient equation, which is the technique Mr. Coghlan undisputedly used to form his opinions, is generally accepted in the fields of industrial hygiene and environmental engineering. Where the dispute lies is in Mr. Coghlan's use of certain data to create the numbers that go into the partition coefficient. This is a challenge to his application of the partition coefficient equation, not to his technique of methodology.

97) Nothing in *Lake Chelan Shores Homeowners Association v. St. Paul Fire & Marine Insurance Co.*, 176 Wn. App. 168, 313 P.3d 408 (2013), counsels a different result. To be sure, the case has some superficial appeal because it involved the use of a mathematical formula. This is, however, where the similarities end. There, the court was assessing the use of a formula, "which did not come from any scientific literature" and no witness was able "to identify any other person or literature stating [the expert's] formula is a proper equation for estimating rot progression." *Id.* at 177.

98) Here, in sharp contrast, Mr. Coghlan used a partition coefficient equation, which everyone in the relevant scientific fields agree is generally accepted and appropriate for determining historical levels of airborne PCBs from a stationary source. Unlike *Lake Chelan*, the only criticism from Pharmacia's experts is to how Mr. Coghlan applied his partition coefficient equation, not the use of such a calculation itself. Moreover, unlike the equation at issue in *Lake Chelan*, which could not be validated, here the testimony of Drs. Hornbuckle and Gunnarsen, as well as neutral industrial hygienists, all support the conclusion that Coghlan's methodology has been validated and is therefore reliable. Thus, unlike in *Lake Chelan*, Plaintiffs put forward experts who did conclude that Mr. Coghlan's "formula is a proper equation" for estimating historical air levels of PCBs.

99) Further, in *Lake Chelan*, the proponent of the testimony at issue made no serious effort to refute the other side's contention that the formula in question was not generally accepted. *See id.* at 179 ("St. Paul pointed to an absence of evidence that the bases of the opinions offered by LCS's expert were generally accepted and LCS failed to respond."). Here, Plaintiffs have not simply rolled over; rather, they have provided the Court with numerous experts and peer-reviewed articles supporting their position. In *Lake Chelan*, the "critical issue" was "whether the use of such a formula, and in particular [the expert's] formula, to backdate the onset of the collapse condition is generally accepted in the scientific community." *Id.* at 179. Pharmacia does not challenge the formula; rather, it complains only about the inputs into the formula. Based on the record before this Court, *Lake Chelan* does not support the conclusion that Mr. Coghlan's use of a partition coefficient equitation to determine historical levels of airborne PCBs at SVEC should be excluded under *Frye*.

100) Washington courts have made clear that *Frye* "is concerned only with whether the expert's underlying theories and methods are generally accepted. The result—the conclusion reached by the expert in the case at hand—is by definition fact specific and need not be generally accepted in the scientific community." *Ruff v. Dep't of Labor & Indus.*, 107 Wn. App. 289, 300, 28 P.3d 1 (2001) (overruled on other grounds by *Anderson*, 172 Wn.2d 593, 260 P.3d 857 (2011)). This Court finds that because the Pharmacia's challenge is that Mr. Coghlan employed the challenged methodologies in an improper or unscientific manner, its complaints go to the weight and credibility—not the admissibility—of Mr. Coghlan's opinions.

101) Once a methodology is generally accepted in the relevant scientific community, "concerns about the possibility of error or mistakes in the case at hand can be argued to the factfinder." *State v. Russel*, 125 Wn.2d 24, 41, 882 P.2d 747 (1994). It bears repeating, that Mr.

Herman candidly acknowledged on cross-examination that his criticism were not based on an improper methodology, but rather on how Mr. Coghlan *applied* that methodology. As Herman explained, he does not criticize Mr. Coghlan's use of source-sink dynamics, nor his use of a partition coefficient equation, rather he has concerns with the inputs Mr. Coghlan placed into his formula because, in his opinion, "the devil in in the details." While the Court agrees the devil is in the details, the Court also determines that the "details" are properly subject to an ER 702 analysis, as opposed to a *Frye* analysis, when both the theory and methodology/technique are generally accepted and the results have been proven to be reliable by verification. Our Supreme Court has recognized that "[r]equiring general acceptance of each discrete and ever more specific part of an expert opinion would place virtually all opinions based upon scientific data into some part of the scientific twilight zone." *L.M.* at 130 (quotation & citation omitted).

102) Because Mr. Coghlan based his carpet and caulk-related opinions on a generally accepted theory (source sink dynamics) and applied a generally accepted technique/methodology (partition coefficient equation), his opinions pass the *Frye* hurdle. The contrary conclusion of the *Erickson* majority can be readily explained because (1) *Erickson* did not have the benefit of live testimony to explain and elaborate on the scientific theory and techniques at issue, (2) did not have the breadth of evidence that was presented to this Court, (3) did not address or explain Mr. Coghlan's use of a partition coefficient equation other than to accept Pharmacia's criticism of using the *Guo* data as an input into the partitioning coefficient equation, and (4) accepted as credible the testimony of Mr. Woodyard, and others who did not testify before this Court. Based on all that has been put before this Court, this Court respectfully declines to follow *Erickson*'s conclusion that Mr. Coghlan's carpet-based opinions cannot withstand scrutiny under *Frye*.

103) Having concluded that *Frye* does not preclude Mr. Coghlan's opinions, this Court must next address whether ER 702, or other evidence rules, should prevent the jury from hearing Mr. Coghlan's opinions. As an initial matter, the Court finds that understanding the possible amount of PCBs in the air at SVEC is not something within the common understanding of the jury and Mr. Coghlan's opinions will assist the jury in determining what levels, if any, of PCBs were in the air at SVEC during the relevant time periods and is therefore helpful under ER 702. *See, e.g.*, *Anderson* at 600. Also, given the solid scientific foundation upon which Mr. Coghlan's opinions rest, the Court finds that his opinions are not overly speculative or too conclusory for the jury to assess.

104) While Pharmacia legitimately questions the storage practices of Dr. Yost and whether such storage practices might result in cross-contamination, they level no similar criticisms against Mr. Coghlan's collection practices regarding caulk that came from SVEC. In any event, this Court agrees with *Erickson* that concerns regarding cross-contamination go to weight not admissibility. 549 P.3d at 258 n.30. Likewise, Pharmacia criticizes Mr. Coghlan for not deferring to testing performed by outside consultants for the school district in 2016. This too, in this Court's view, goes to weight not admissibility. *See id.* ("These concerns about his testing procedures relate to weight, not admissibility.").

105) Criticisms about the range of airborne concentrations Mr. Coghlan wishes to present to the jury go to weight not admissibility because he decidedly did not testify that the PCBs in the air were on the high range or low range; rather, he simply states a potential range of airborne concentrations of PCBs for the jury to consider. The jury is free to accept to reject his ranges. Pharmacia will have ample opportunity at trial, through cross-examination and the use of its own experts, to convince the jury that Mr. Coghlan's ranges are not reflective of the

conditions that existed at SVEC in, for example, 2011 when there is no contemporaneous sampling data. They are also free to show the jury that Mr. Coghlan's carpet-based ranges do not, for example, apply to rooms that did not contain carpeting. Similarly, Pharmacia's concerns that different types of carpet may yield different results, and therefore reliance on *Guo*'s data makes Mr. Coghlan's opinions unreliable is better made to the factfinder and by the presentation of counter experts. Mr. Coghlan's use of *Guo*'s data does not render his opinions too speculative or unreliable, and this is particularly so here where, as explained above, Dr. Hornbuckle was able to validate Mr. Coghlan's opinions. Finally, Pharmacia's concern that Mr. Coghlan assumes, without demonstrably proving, that all the PCBs in the carpet and caulk came from the air, as opposed to other potential sources, does not render his opinions overly speculative or conclusory.

106) In the end, while Pharmacia may have legitimate criticisms about Mr. Coghlan's opinion, those criticisms are not fatal to the admission of Mr. Coghlan's opinions under ER 401, 403 or 702. This Court need not, in its gatekeeping role, step in and usurp the jury's factfinding role because Mr. Coghlan's opinions are not junk science, but rather based on an established theory and methodology/technique in the relevant scientific field.

IV CONCLUSION

The Court DENIES Pharmacia's Motions. Mr. Coghlan may, subject to the crucible of cross-examination, offer all his opinions in this matter because those opinions satisfy both *Frye* and/or the other evidence rules designed to keep out unreliable and speculative testimony.

DATED this 4th day of November, 2024.

Judge Michael K. Ryan

APPENDIX A

1. Motion of Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC to Exclude Evidence and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan;

2. Declaration of Allison K. Krashan in Support of Motion of Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC to Exclude Evidence and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan, with Exhibits;

3. Plaintiffs' Opposition to Defendants' Motion to Exclude Testimony of Kevin Coghlan;

4. Declaration of Kevin M. Coghlan, M.S., C.I.H., in Support of Plaintiffs' Oppositions to Monsanto Defendants' Motion to Exclude Testimony of Kevin Coghlan, with Exhibits;

5. Declaration of Darrell L. Cochran in Support of Plaintiffs' Opposition to Defendants' Motion to Exclude Testimony of Kevin Coghlan, with Exhibits;

6. Reply of Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC in Support of Their Motion to Exclude Evidence and Testimony By and Related to Kevin Coghlan;

7. Reply Declaration of Allison K. Krashan in Support of Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan, with Exhibits;

8. Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Supplement to the Motions to Exclude Evidence and Testimony By and Related to Plaintiffs' Causation Experts Based on *Erickson*;

9. Declaration of Emily J. Harris in Support of Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Supplement to the Motions to Exclude Evidence and Testimony By and Related to Plaintiffs' Causation Experts Based on *Erickson*, with Exhibits;

10. Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Supplement to the Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan Based on *Erickson*;

11. Declaration of Emily J. Harris in Support of Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Supplement to the Motion to Exclude Evidence

and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan Based on *Erickson*, with Exhibits;

12. Plaintiffs' Supplemental Brief re: *Erickson* in Support of Their Opposition to Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Supplement to the Motions to Exclude Evidence and Testimony by and related to Plaintiffs' Causation Experts;

13. Plaintiffs' Supplemental Brief re: *Erickson* in Support of Their Opposition to Defendants Monsanto Company, Solutia Inc. and Pharmacia LLC's Motion to Exclude Evidence and Testimony by and Related to Plaintiffs' Expert Kevin Coghlan;

14. Declaration of Kevin M. Coghlan, M.S., C.I.H. in Response to Defendants' (1) Supplement to Motion to Exclude Evidence and Testimony by and Related to Plaintiffs' Expert Kevin Coghlan; (2) Supplement to Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Causation Experts; and (3) Motion for Summary Judgment for Lack of Evidence of PCB Exposure Sufficient to Cause Plaintiffs' Injuries, with Exhibits;

15. Declarations of the following Plaintiffs' Experts in Response to Defendants' (1) Supplement to Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Causation Experts, and (2) Motion for Summary Judgment for Lack of Evidence of PCB Exposure Sufficient to Cause Plaintiffs' Injuries, with Exhibits:

    a. James Dahlgren, M.D.;
    b. Keri C. Hornbuckle, Ph.D., with Praecipe and Corrected Exhibits;
    c. Pamela J. Mahoney, Ph.D.;
    d. Lisa M. Mani, M.D., M.B.A.;
    e. Richard Perrillo, Ph.D.;
    f. Chad J. Prusmack, M.D., DAANS, IFMCP;
    g. Mark S. Raney, D.O., FAAFP; and
    h. Kenneth R. Spaeth, M.D., M.P.H., M.O.E.H.

16. Declaration of Henry G. Jones in Response to Defendants' (1) Supplement to Motion to Exclude Evidence and Testimony by and Related to Plaintiffs' Expert Kevin Coghlan; (2) Supplement to Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Causation Experts; and (3) Motion for Summary Judgment for Lack of Evidence of PCB Exposure Sufficient to Cause Plaintiffs' Injuries, with Exhibits;

17. Defendants Reply in Support of Their Supplement to the Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan Based on *Erickson*;

18. Declaration of Emily J. Harris in Support of Defendants Reply in Support of Their Supplement to the Motion to Exclude Evidence and Testimony By and Related to Plaintiffs' Expert Kevin Coghlan Based on *Erickson*, with Exhibit;

19. Defendants Reply to the Supplement to the Motions to Exclude Evidence and Testimony by and related to Plaintiffs' Causation Experts Based on *Erickson*;

20. Testimony of Kevin Coghlan, M.S., C.I.H.;

21. Testimony of Keri Hornbuckle, Ph.D.;

22. Testimony of Lars Gunnarsen, Ph.D.;

23. Testimony of John Price, Ph.D., C.I.H., C.S.P.;

24. Testimony of Brent A. Altemose, Ph.D., C.I.H., C.S.P.;

25. Testimony of Kurt Herman, M.Eng., P.G.;

26. Testimony of John Woodyard, P.E.;

27. Testimony of Nadia Moore, Ph.D., DABT, C.I.H., ERT;

28. Testimony of Maureen Reitman, Sc.D., P.E., NAE, FSPE;

29. All exhibits admitted during the *Frye* Hearing; and,

30. The arguments of counsel.