

## Neely v. Union Carbide Corp.

Court of Appeals of Texas, Fourteenth District, Houston

March 2, 2021, Opinion Filed

NO. 14-18-01027-CV

### Reporter

2021 Tex. App. LEXIS 1514 \*

RONDA G. NEELY, INDIVIDUALLY AND ON BEHALF OF THE ESTATE OF JANET S. GOEHRING, DECEASED, MICHELLE PATRICK, INDIVIDUALLY, AND ROYCE GREGORY GOEHRING, INDIVIDUALLY, Appellants v. UNION CARBIDE CORPORATION, Appellee

**Prior History:** [\*1] On Appeal from the 11th District Court Harris County, Texas. Trial Court Cause No. 2007-32446-ASB.

## Core Terms

exposure, mesothelioma, studies, asbestos, clothes, products, fibers, asbestos exposure, causation, laundering, doubled, bags, work clothes, calculated, drilling, reliable, disease, washed, epidemiological, scientific, exposed, dust, mud, exposure to asbestos, no evidence, centimeter, cumulative, additives, substantial factor, sweeping

**Judges:** Panel consists of Justices Bourliot, Poissant, and Wilson. (Wilson, J., concurring) (Poissant, J., dissenting).

**Opinion by:** Frances Bourliot

## Opinion

### PLURALITY OPINION

Appellants, Ronda Neely, Michelle Patrick, and Royce Goehring, the adult children of decedent Janet Goehring, brought this wrongful death action against appellee Union Carbide Corporation, alleging that asbestos fibers designed, manufactured, or marketed by Union Carbide were a substantial factor in causing Janet's fatal mesothelioma. The trial court granted Union Carbide's motion for summary judgment, which asserted that appellants could produce no evidence that a Union Carbide product was a substantial factor in causing Janet's mesothelioma. In a single issue, appellants now challenge that ruling on appeal. We affirm.

### I. Governing Law

#### A. No-evidence Summary Judgment

To defeat a no-evidence motion for summary judgment, the responding party must present evidence raising a genuine issue of material fact supporting each element contested in the motion. [Timplte Indus., Inc. v. Gish](#), 286 S.W.3d 306, 310 (Tex. 2009). When reviewing a trial court's grant of such a motion, we consider the evidence presented in the [\*2] light most favorable to the party against whom summary judgment was rendered, crediting evidence favorable to that party if reasonable jurors could and disregarding contrary evidence unless reasonable jurors could not. *Id.* We indulge every reasonable inference and resolve any doubts in the nonmovant's favor. [Cantey Hanger, LLP v. Byrd](#), 467 S.W.3d 477, 481 (Tex. 2015). We review a no-evidence summary judgment de novo. See [Joe v. Two Thirty Nine Joint Venture](#), 145 S.W.3d 150, 156-57 (Tex. 2004). A no-evidence summary judgment is improperly granted if

the respondent presents more than a scintilla of probative evidence to raise a genuine issue of material fact on each challenged element. *King Ranch, Inc. v. Chapman*, 118 S.W.3d 742, 751 (Tex. 2003). More than a scintilla of evidence exists when the evidence "rises to a level that would enable reasonable and fair-minded people to differ in their conclusions." *Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 711 (Tex. 1997).

## B. Toxic Tort Causation

Causation in toxic tort cases is often discussed in terms of general and specific causation. See, e.g., *id.* at 714. "General causation is whether a substance is capable of causing a particular injury or condition in the general population, while specific causation is whether a substance caused a particular individual's injury." *Id.* In its motion for summary judgment, Union Carbide challenged that appellants could not provide evidence establishing specific [\*3] causation—whether **asbestos** fibers designed, manufactured, or marketed by Union Carbide were a substantial factor in causing Janet's mesothelioma. Union Carbide does not raise a general causation challenge. As the parties acknowledge, the proper framework for analysis of specific causation here is set forth in two Texas Supreme Court opinions: *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765 (Tex. 2007) (an asbestosis case), and *Bostic v. Georgia-Pacific Corp.*, 439 S.W.3d 332 (Tex. 2014) (a mesothelioma case).

In *Flores*, the supreme court considered the proper standards for reviewing the sufficiency of the evidence on specific causation in asbestosis cases. The court held that to establish causation in fact against a particular defendant, a plaintiff must prove that the defendant's product was a substantial factor in causing the plaintiff's asbestosis, and mere proof that the plaintiff was exposed to some **asbestos** fibers traceable to the defendant is insufficient. *Flores*, 232 S.W.3d at 766, 770. In defining the word "substantial" in this context, the court explained that it "denote[s] the fact that the defendant's conduct ha[d] such an effect in producing the harm as to lead reasonable men to regard it as a cause, using that word in the popular sense, in which there always lurks the idea of responsibility." *Id.* at 770 (quoting *Restatement (Second) of Torts* § 431 cmt. a (1965)).

The [\*4] *Flores* court also explained that while evidence of the frequency, regularity, and proximity of exposure is necessary to establish causation, it is not sufficient

absent quantitative evidence about the dose or level of exposure. *Id.* at 772.<sup>1</sup> While a plaintiff need not establish causation with "mathematical precision," a plaintiff must produce "[d]efendant-specific evidence relating to the approximate dose to which the plaintiff was exposed, coupled with evidence that the dose was a substantial factor in causing the **asbestos**-related disease." *Id.* at 773. Regarding the use of epidemiological studies as proof, the court reiterated prior guidance that such studies can be considered in toxic tort cases so long as they are properly designed and executed and the plaintiff can show that his or her exposure or dose level was comparable to or greater than those in the studies. *Id.* 771-72 (citing *Havner*, 953 S.W.2d at 720-21). The court further noted that to be useful, such studies must show the exposure level in question at least doubled the risk of contracting the disease. *Id.* at 772 (citing *Havner*, 953 S.W.2d at 715, 717-18).

The court ultimately held the evidence was insufficient in *Flores* because the plaintiff presented no evidence of the approximate quantum of the particular [\*5] defendant's fibers to which he had been exposed or any evidence that such exposure sufficiently contributed to the aggregate dose of **asbestos** the plaintiff inhaled, such that it could be considered a substantial factor in causing his asbestosis. *Id.* at 772. The court further noted the lack of epidemiological studies in evidence showing at least a doubling of the risk. *Id.*

While recognizing that mesothelioma can be caused by a much lower level of exposure to **asbestos** than can asbestosis, the supreme court in *Bostic* extended and amplified the standards established in *Flores* for use in

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<sup>1</sup>The "frequency, regularity, and proximity test," first promulgated by the United States Fourth Circuit Court of Appeals in *Lohrmann v. Pittsburgh Corning Corp.*, 782 F.2d 1156, 1162-63 (4th Cir. 1986), is a frequently used test for causation in **asbestos** cases in many jurisdictions. See *Flores*, 232 S.W.3d at 769 (calling the test "[p]erhaps the most widely cited standard for proving causation in **asbestos** cases"). The Texas Supreme Court, however, rejected use of this test in Texas "as it provides none of the quantitative information necessary to support causation under Texas law." *Id.* at 772; see also *Georgia-Pac. Corp. v. Stephens*, 239 S.W.3d 304, 312 (Tex. App.—Houston [1st Dist.] 2007, *pet. denied*). Texas's **asbestos**-liability framework has been called "the most stringent" of any state. *Rost v. Ford Motor Co.*, 151 A.3d 1032, 1049 (Pa. 2016); see also *In re Asbestos Prod. Liab. Litig.* (No. VI), No. 11-60070, 2012 WL 760739, at \*8 & n.10 (E.D. Pa. Feb. 17, 2012).

the mesothelioma context. [Bostic, 439 S.W.3d. at 338.](#) In doing so, the court noted that both diseases are dose-related, meaning that the risk of contracting each disease rises along with the level of exposure. [Id. at 338-39.](#) The court therefore again rejected the "any exposure theory" in favor of the substantial factor test. [Id.](#)

Like the court in *Flores*, the *Bostic* court also emphasized the role of epidemiological studies and other scientific evidence in toxic tort cases. "Where direct evidence of specific causation is unavailable, specific causation may be established through an alternative two-step process whereby the plaintiff establishes general causation [\*6] through reliable studies, and then demonstrates that his circumstances are similar to the subjects of the studies." [Id. at 351.](#) In other words, proof of a doubling of the risk must "be shown through reliable expert testimony that is based on epidemiological studies or similarly reliable scientific testimony." [Id. at 350.](#) As to what makes an epidemiological study reliable, the court noted that the confidence level must be at least 95 percent, the confidence interval must not include the number 1, and the study should be peer reviewed or at least published. [Id. at 347](#) (citing *Havner, 953 S.W.2d at 713-727*).<sup>2</sup> The court explained that the doubling of the risk requirement goes toward the preponderance of the evidence burden of proof and "strikes a balance between the needs of our legal system and the limits of science." [Id. at 349](#) (citing *Havner, 953 S.W.2d at 718*).

The *Bostic* court further emphasized that in cases involving exposure from multiple sources, proof of a doubling of the risk from a particular defendant's product alone may not suffice to establish substantial factor causation. [Id. at 350.](#) The plaintiff in such cases also may need to present evidence regarding his or her aggregate exposure to **asbestos**. [Id. at 351, 353.](#) In a hypothetical, the court suggested that a defendant's product may [\*7] not be considered a substantial factor in causing a plaintiff's disease even when the plaintiff's risk was more than doubled by that exposure if other exposures increased the risk by a factor of 10,000. [Id. at](#)

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<sup>2</sup>The confidence interval of a study is basically the range of relative risk that would be expected if a study were repeated. See *Havner, 953 S.W.2d at 723*. A relative risk of 2.0 equates to a doubling of the risk of getting a specific disease from a certain exposure level. [Id. at 716](#). If a study's confidence interval includes the number 1 in its range of expected values, that study would not be considered statistically significant for purposes of determining specific causation. See [id. at 723](#).

[352.](#) The test is whether reasonable persons would regard the defendant's product as a cause of the disease. [Id. at 353.](#)

The court held that the evidence of causation in *Bostic* was legally insufficient, specifically noting that the plaintiff's expert on specific causation urged that any exposure to **asbestos** was a contributing cause of plaintiff's mesothelioma. [Id. at 354-55.](#) The plaintiff made no effort to quantify his aggregate exposure even though evidence established he had other exposures than just to the defendant's product and his experts acknowledged that mesothelioma is "dose-related." [Id. at 355, 359.](#) The court also found the epidemiological studies on which the plaintiff relied wanting, as they did not establish a statistically significant link between mesothelioma and the type of exposure the plaintiff claimed or support the plaintiff's position that any exposure would be a cause in fact. [Id. at 356-58.](#)

## II. The Summary Judgment Evidence

In their response to Union Carbide's motion, appellants offered several pieces of evidence, including [\*8] Janet's medical records; the depositions of all three of Janet's children (Ronda, Michelle, and Royce); Royce's affidavit; and an expert affidavit from Dr. Richard Cohen. The plaintiffs posited that Janet contracted mesothelioma because of exposure to **asbestos** fibers designed, manufactured, or marketed by Union Carbide when she washed Royce's clothing during periods in which he worked with products containing those fibers.

### A. Royce's Affidavit and Deposition

Royce explained that he had worked with and around **asbestos** drilling mud additives for periods of time while living with his mother from 1975 to 1979 and in 1986. From 1975 to 1977, Royce had a summer job unloading 50-pound bags of drilling mud additives from freight cars onto a flatbed truck. He identified the bags as including bags of six different products: Flosal, Visquik, Visbestos, IMCO Superbest, IMCO Shurlift, and Super Visbestos.<sup>3</sup> Royce said that the freight cars also contained bags of additives that were not **asbestos** but the majority were **asbestos** additives. In fact, he said most of the bags in the freight cars were of those six products. However, he

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<sup>3</sup>As will be discussed in more detail below, appellants presented evidence that all of these products except Flosal were Union Carbide products.

did not recall what percentage each product was of the whole number of [\*9] bags because he did not pay a lot of attention to the bags. Indeed, he acknowledged he did not recall the specific names of the products until his lawyer showed him photographs. Royce described the work as very dusty, with several busted bags in each car allowing the asbestos powder to cover the other bags, fill the air inside the car, coat his hair, shirt, and jeans, and even get inside his pockets. Royce said that they generally got called in two or three times a week, would unload for a day, day and a half, or so, and then would get a day or two off in between. He said that the work was steady throughout the summers.

In 1978, and again for a short period in 1986, Royce worked for Flournoy Drilling Company as a floor hand on oil drilling rigs. Each day, one of his job duties entailed tearing open bags of asbestos drilling mud additives and pouring the contents of the bags into the rig's mud system. He recalled using a significant amount of the same six products mentioned above while on the rigs in 1978, explaining that certain procedures might require "anywhere from 15 to 200 bags" of the six products. He particularly recalled using a lot of Flosal in 1978. When he returned to Flournoy [\*10] for a short period in 1986, Royce recalled using only Super Visbestos. He explained that sometimes he would add the products into a hopper and other times he had to carry the bags up a flight of stairs to pour the products directly into the mud tank. The additives were usually stored in a ten-foot by twenty-foot "mud house," and Royce's clothes would become covered in the asbestos powder. During his shift, Royce also would be responsible for cleaning up used bags by flattening and stacking them, a process that generated even more dust. He said that everyone on the rigs complained about the dust.

Beginning in late 1978, Royce went to work as a warehouseman for Mutual Supply & Rental. Asbestos mud additives were stored in the warehouse, and Royce's jobs included moving and stacking the products, sweeping the floors daily, and delivering supplies to drilling rigs. He recalled the same six products as being ones stored at the warehouse. Again, he stated this was a dusty job as bags often would break open and he would get asbestos dust on his clothes daily.

Royce also stated that throughout each of these periods, Janet would wash his work clothes two or three times a week in a small laundry [\*11] room. She first would shake the asbestos-covered clothes out, which

"would create a huge dust cloud in the laundry room." She also would turn the clothes upside down and empty the powder from the pockets. Janet often would comment to Royce about how dusty the clothes were. Once the clothes were in the washer, Janet would sweep the powder from the floor, which would cause some of the powder to become airborne again. She might be required to perform this routine more than once on the days she washed Royce's work clothes. She also swept the room on other days once the dust had had a chance to settle to the floor.

### **B. Ronda's and Michelle's Depositions**

Ronda testified that Janet would complain about how dusty Royce's clothes were and that it was ruining her washing machine. Ronda also described the small laundry room and stated she saw Janet washing Royce's work clothes on multiple occasions, shaking out the clothes and emptying dust from the pockets. Ronda also testified that her father had worked as a parts salesman and possibly went to oil field locations on occasion, but his clothes were rarely dirty.

In her deposition, Michelle also recalled Janet washing Royce's work clothes. Michelle [\*12] said that the clothes were "very, very dirty" and left dust all over the place, and her mom would tell her to leave the room and stay out because it was so dusty in there. Janet washed Royce's work clothes separately because she did not want to mix them with the rest of the family's clothes. Michelle also said that after her parents divorced, Janet lived for a time with a boyfriend who was a welder. As to Janet's work history, Michelle noted that at different times, Janet had worked for a daycare, a car dealership, a law firm, a drilling company, and the Houston Grand Opera. Although Michelle was not able to provide much information about what Janet did for these employers, Michelle stated that for several Janet worked in the employer's offices or did administrative work. Janet's medical records reflected that she once told her doctors that her parents had worked for a steel mill, but there is no evidence in the record about what they did at the mill.

### **C. Expert's Affidavit**

Cohen stated that he is board certified in General Preventative Medicine and Occupational Medicine and has a graduate degree in public health, specializing in epidemiology. He has engaged in private practice in

occupational [\*13] medicine and industrial toxicology for over thirty years and has been a clinical professor in occupational and environmental medicine since 1998 at the University of California San Francisco School of Medicine. Cohen reported that he has reviewed medical literature on asbestos and industrial health and safety relating to asbestos "throughout the decades." In an exhibit to his affidavit, Cohen listed the literature on which he relied in forming his opinions, stating that the studies and articles were all either peer-reviewed published studies or "generally accepted and reliable statements and standards issued by governmental entities and other medical/public health organizations." Cohen attached three epidemiological studies to his affidavit as exhibits. Further, for purposes of this case, Cohen reviewed Janet's death certificate and medical records, the appellants' depositions and Royce's affidavit, Royce's social security records, and an expert report by Dr. James Bruce that does not appear in the record.

Cohen notes that Janet was diagnosed with mesothelioma in 2005 and her death certificate from 2006 lists mesothelioma as the underlying cause of death. Cohen then recounts Royce's [\*14] and Janet's exposure to asbestos drilling mud additives and draws conclusions about Janet's risk of contracting mesothelioma through that exposure. Cohen highlights details from Royce's deposition and affidavit about the work he did with the asbestos additives and concludes that Royce "encountered heavy, significant and repeated exposure to airborne asbestos and clothing contamination." Cohen supported these conclusions with material arranged in three charts, listing scientific studies and other reference materials that he identified as relating to asbestos exposure from dumping, sweeping and cleanup, and loading and handling. The charts show exposure levels for those tasks in terms of fibers of asbestos per cubic centimeter of air breathed.<sup>4</sup>

As for Janet's exposure, Cohen recounts the testimony that she washed Royce's work clothes two or three times a week during the relevant time periods in a small laundry room, shook out the clothes first, and swept up

the resulting dust. Cohen provided another chart that he represents shows "documented asbestos exposures associated with laundering asbestos contaminated work clothing." Cohen also compared Janet's exposure to that found for laundering [\*15] exposures in a laboratory simulation. In the simulation, the eight-hour exposure rate was determined to be an average of 0.13 fibers per centimeter of air breathed. Cohen asserted, however, that due to Janet working in a much smaller space than used in the simulation and there being no evidence of exhaust ventilation in the laundry room as opposed to the regular air exchanges recorded for the simulation, Janet's exposure from laundering would be significantly higher at 1.49 fibers per centimeter of air breathed (an over elevenfold increase in the exposure calculated for the laboratory simulation). Cohen also noted Janet had additional exposure from sweeping up the asbestos dust, which, based on studies of similar exposures, he calculated as an additional 1 fiber per centimeter of air breathed, for a total average exposure of approximately 2.5 fibers per cubic centimeter of air breathed.

To determine Janet's cumulative exposure level from laundering Royce's work clothes, Cohen calculated that she laundered Royce's asbestos-covered work clothes for eight hours a day, 2.5 days a week, over a total of 2.1 years, with an average exposure level of 2.5 fibers per centimeter. This calculus [\*16] resulted in an aggregate or cumulative exposure of 2.63 fiber years per cubic centimeter or "2.63 fiber-cc/years."

Cohen further explained that "mesothelioma is a low dose disease, with no known threshold of asbestos exposure below which there is no risk. Even an exposure below 0.2 fiber-cc/years can be a substantial factor in the development of the disease." Cohen supported these assertions with a brief discussion of studies in which low exposures were found to have caused mesothelioma. He also noted that "[s]ince 1965, it has been repeatedly and consistently demonstrated in the medical and scientific literature that family members whose sole asbestos exposure resulted from asbestos dust brought into the home on another family member's clothing have developed mesothelioma." Cohen, however, did not cite any specific studies as supporting this statement.

Cohen concluded that Janet's exposures, as described by her children, "were substantial contributing factors for increasing [her] risk for asbestos-related disease" and, in fact, "more than doubled her risk of developing mesothelioma." He supported these conclusions by

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<sup>4</sup> Asbestos exposure levels are commonly referred to in terms of fibers per cubic centimeter of air. Cumulative exposure levels are typically calculated in terms of "fiber years." If a person works regular work days in an environment where they are breathing two asbestos fibers per cubic centimeter of air and they do so for seven years, it would be said that their cumulative exposure was fourteen fiber years per cubic centimeter or, as Cohen wrote it, 14 fiber-cc/years.



reference to epidemiological studies that he says, "show a greater [\*17] than doubling of the risk of malignant mesothelioma with cumulative asbestos exposures well below the 2.63 f-cc/years experienced by Janet." The studies he references were listed in a fifth chart attached to his affidavit and cited in an attached bibliography of supporting materials. Cohen lists and discusses studies showing more than a doubling of the risk of mesothelioma from lifetime exposure at or even below 0.1 f-cc/years.<sup>5</sup>

### III. Analysis

In its motion, Union Carbide asserted that appellants could produce no evidence that a Union Carbide product was a substantial factor in causing Janet's mesothelioma and, more specifically, that appellants "lack evidence of the dose of asbestos attributable to Union Carbide to which Mrs. Goehring was allegedly exposed and have no scientifically reliable expert testimony or epidemiological evidence demonstrating that such dose more than doubled her risk of developing mesothelioma." We begin by discussing the evidence on Janet's exposure to Union Carbide products and then we will turn to the scientific evidence appellants presented.

#### A. Evidence of Exposure

##### 1. The Union Carbide Products

As an initial matter, the parties dispute which of the six products [\*18] Royce identified by name as ones he

worked with were actually shown to be Union Carbide products. Evidence, of course, showed that Janet was exposed to the same products as Royce when she washed his work clothes. Royce mentioned six asbestos drilling mud additives by name: Flosal, Visquik, Visbestos, IMCO Superbest, IMCO Shurlift, and Super Visbestos. Evidence showed that Flosal was produced by other defendants that are no longer in the lawsuit. Union Carbide does not contest that appellants timely presented evidence that Visbestos, IMCO Superbest, IMCO Shurlift, and Super Visbestos were Union Carbide products. Union Carbide asserts, however, that the evidence submitted to show that Union Carbide produced Visquik (i.e., Union Carbide's answers to interrogatories) was untimely filed with the trial court and therefore should not be considered on appeal.

Under the rules governing summary judgments, except with leave of court, a nonmovant must file responsive evidence not later than seven days before the hearing on the motion. *Tex. R. Civ. P. 166a(c)*. Consequently, unless the record indicates the trial court granted leave or actually considered the evidence, we generally presume the trial court did not consider [\*19] untimely filed summary judgment evidence. See, e.g., [\*Benchmark Bank v. Crowder\*, 919 S.W.2d 657, 663 \(Tex. 1996\)](#). Such an indication may arise from a recital in the summary judgment order, a separate written order, or an oral statement during the summary judgment hearing. [\*B.C. v. Steak N Shake Operations, Inc.\*, 598 S.W.3d 256, 259-60 \(Tex. 2020\)](#).

Here, appellants point to language in the summary judgment order in which the trial court stated that "having heard the Motion, any Response, and arguments of counsel, if any, [the court] is of the opinion that the Motion is meritorious and should in all things be GRANTED." Appellants submit that in stating it "heard . . . any Response," the trial court indicated it considered the late-filed evidence, which was attached to a supplemental response to the motion for summary judgment. We agree. In *B.C.*, the supreme court cited with approval [\*Stavron v. SureTec Insurance Co.\*, No. 02-19-00125-CV, 2019 WL 6768125, at \\*6 \(Tex. App.—Fort Worth Dec. 12, 2019, no pet.\) \(mem. op.\)](#), in which the court of appeals found similar language in a summary judgment order to be an indication that the trial court granted leave for the late-filed evidence. [\*598 S.W.3d at 261 n.27\*](#). As the *Stavron* court noted, "Courts of appeals have found that late-filed summary judgment evidence was considered by a trial court when . . . an order granting summary judgment stated that it

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<sup>5</sup> In support of his statement that "an exposure below 0.2 fiber-cc/years can be a substantial factor," Cohen cited a 2014 study showing 2.69 times the risk from a median exposure of 0.2 f-cc/years. He also discusses a study in which an average lifetime exposure of .11 was determined to account for 64% of cases in an area where the subjects had no other asbestos exposure. Other studies he cites show 2.1 times the risk for less than a 0.1 f-cc/years exposure, 7.9 times the risk from less than a 0.16 f-cc/years exposure, 4.2 times the risk from a 0.5 to 0.99 f-cc/years exposure, 8.3 times the risk from a 0.1 to 1.0 f-cc/years exposure, and 21.9 times the risk from a 0.5 to 1.5 f-cc/years exposure. Cohen did not provide the confidence levels or confidence intervals for most of these studies, although, as will be discussed below, he did attach three of the studies as exhibits.

had considered the response' [\*20] to which that evidence was attached." [2019 WL 6768125, at \\*6](#) (quoting [Foussadier v. Triple B Servs., LLP, No. 01-18-00106 CV, 2019 WL 2127604, at \\*4 \(Tex. App.—Houston \[1st Dist.\] May 16, 2019, pet. filed\)](#) (mem. op.)). Accordingly, the evidence that Union Carbide produced Visquik is part of the summary judgment evidence and reviewable on appeal.

Union Carbide additionally suggests that there is no evidence Royce used Visquik made with Union Carbide asbestos as opposed to another company's asbestos. In its answers to interrogatories, Union Carbide acknowledged that it "packaged . . . very small amounts [of Calidria asbestos] for Dresser-Magcobar under the trade name Visquik." Union Carbide neither explains what it meant by "very small amounts" nor points to any evidence that Visquik was made using asbestos from any other manufacturer or, if so, what percentage was made by Union Carbide. As stated above, in the summary judgment context, we indulge every reasonable inference and resolve any doubts in the nonmovant's favor. See [Cantey Hanger, LLP, 467 S.W.3d at 481](#). In the absence of evidence to the contrary, it is reasonable to infer from Union Carbide's answers to interrogatories that it was the only producer to package Visquik and that it packaged the Visquik with which Royce worked.

## 2. Parsing the Evidence of Exposure to Union Carbide Products

Appellants presented significant [\*21] evidence of Janet's exposure to asbestos drilling mud additives including ones produced by Union Carbide. As discussed in detail above, Royce identified five Union Carbide asbestos drilling mud additives as ones he frequently worked with (1) during a summer job in the years 1975 to 1977 unloading 50-pound bags from freight cars, (2) while working on drilling rigs in 1978 and 1986, and (3) when working as a warehouseman beginning in late 1978. Royce explained in detail how his work clothes would become coated with asbestos dust from these products each day, and Royce and his sisters testified that during each of these stints, Janet regularly washed Royce's work clothes, first shaking the dust out of the clothes in a small laundry room and then sweeping it up. This evidence established Janet's exposure to specific Union Carbide products on a regular basis over an extended period of time in close proximity to where she was working. In other words, this evidence suffices to pass the frequency, regularity, and

proximity test. See [Flores, 232 S.W.3d at 769-70](#) (citing [Lohrmann, 782 F.2d at 1162-63](#)).

As explained above, however, Texas jurisprudence requires more than that; it requires quantitative evidence regarding the level of exposure, i.e., "[d]efendant-specific [\*22] evidence relating to the approximate dose to which the plaintiff was exposed, coupled with evidence that the dose was a substantial factor in causing the asbestos-related disease." [Id. at 772](#). And in cases involving exposure from multiple sources, a plaintiff also must produce evidence of aggregate or cumulative exposure and the ratio or percentage of that aggregate exposure attributable to the specific defendant's products. See [Bostic, 439 S.W.3d at 350](#); [Flores, 232 S.W.3d at 772-73](#). Union Carbide argues that appellants' evidence was lacking in that it did not specifically quantify Janet's exposure to asbestos from Union Carbide products—the dose amount—and failed to account for the ratio of that exposure to Janet's aggregate or cumulative exposure to asbestos. Union Carbide thereby challenges both the specific factual statements Royce made regarding Janet's exposure level and the calculations of their expert, Cohen, based on those statements.

According to Union Carbide, the problem with Royce's testimony lies in his spotty recounting of the details of the asbestos products with which he worked. As Union Carbide emphasizes, Royce stated that he worked with asbestos drilling mud additives "including" the six he identified by name (five of which [\*23] were Union Carbide products) but did not testify that he worked only with those six asbestos products. Royce also acknowledged that he remembered those specific products only once his lawyers showed him photographs of bags of those products. Union Carbide also points out that Royce did not offer even an estimate on how much of each product he handled.

It is certainly understandable that Royce would lack total recall of the products and the amounts of each product he worked with decades earlier. See [Bostic, 439 S.W.3d at 344](#) (noting inherent difficulties of proof in asbestos cases given the long latency period for asbestos-related diseases); [Flores, 232 S.W.3d at 772-73](#) (same). However, Royce did provide many details. In regard to the work he did in the summers of 1975, 1976, and 1977, Royce specifically stated that the majority of the bags of drilling mud additives he worked with were asbestos and that the majority of the bags were the six he named, including the five shown by other evidence to be produced by Union Carbide: Visquik, Visbestos,

IMCO Superbest, IMCO Shurlift, and Super Visbestos.

As for his time spent working on oil rigs in 1978 for Flournoy Drilling Company, Royce stated that he used a "significant amount" of all six of [\*24] the products he named. He made similar statements about the products he handled as a warehouseman beginning in late 1978. Although Royce did not expressly rule out the possibility that he worked with other asbestos products in those jobs, he also did not explicitly state that he did work with other asbestos products. Those six were the ones that he recalled. The only product Royce recalled using When he returned to the Flournoy oil rigs in 1986, was Super Visbestos, a Union Carbide product.

For each of these work experiences, Royce recounted how dusty his clothes would get while working with the bags of asbestos drilling mud additives. And through all of these experiences, Janet washed Royce's clothes two to three times a week, shaking the dust from the clothes in the small laundry room and sweeping up the dust. Although Royce said that Janet might have had to repeat her clothes-washing process more than once on the days that she washed his work clothes, there was no specific evidence regarding how much time she would spend doing so or how long the dust from the process would remain airborne.

While dose must be quantified, exposure-level evidence is not required to be mathematically [\*25] precise. See Bostic, 439 S.W.3d at 353; Flores, 232 S.W.3d at 773. Royce did not exhibit perfect recall of the products he used, but reasonable people could interpret his statements as indicating that the majority of asbestos which with he worked in those jobs, and thus the majority of the asbestos that he brought home and to which Janet was exposed, came from Union Carbide products. To require someone to remember precise percentages of how many bags of each product they used decades before would not be reasonable and is not the law. See generally Bostic, 439 S.W.3d at 344; Flores, 232 S.W.3d at 772-73. To the extent Royce spoke inconsistently or without certainty at times would be matters for a jury to assess and do not render his testimony no evidence under the summary judgment standards of review. See Cantey Hanger, LLP, 467 S.W.3d at 481; Timpte Indus., 286 S.W.3d at 310.

Regarding Janet's cumulative asbestos exposure, Union Carbide highlights the fact that one of the six products Royce identified as ones he worked with frequently, Flosal, was manufactured by other defendants. The summary judgment record contains no

evidence indicating exactly what percentage of Janet's total exposure from washing Royce's clothes came from Union Carbide products as opposed to Flosal. There is also no indication that the percentage of the total attributable to Flosal [\*26] was particularly high compared to the other products. While Royce recalled using a lot of Flosal while working for Flournoy in 1978, he also testified that he used a "significant amount" of all six products, and he noted that he only recalled using Super Visbestos, a Union Carbide product, on his second stint with Flournoy Drilling Company. It therefore does not appear that Flosal played an out-sized role in the asbestos exposure of either Royce or Janet.

Union Carbide also asserts appellants failed to account for other asbestos exposures Janet may have suffered. See Bostic, 439 S.W.3d at 350 ("[W]hen evidence is introduced of exposure from . . . other sources, proof of more than a doubling of the risk may not suffice to establish substantial factor causation."). The record, however, contains little evidence of such exposures in this case, much less at levels approaching the exposure Janet received from washing Royce's work clothes. Union Carbide notes that Janet's husband worked in parts sales for oilfield customers, but there is scant evidence he was regularly exposed to asbestos or brought it home on his clothing. Ronda, in fact, testified that her father's clothes were rarely dirty. There was some evidence [\*27] that Janet's parents may have worked at a steel mill at one time and that after her divorce she lived with a boyfriend who worked as a welder, but there is no indication in the record about what her parents did at the mill or whether any of these three people were exposed to asbestos or, if they were, whether they brought it home and exposed Janet. Union Carbide does not suggest that any of the other evidence about Janet's life and work history contained any indication of other asbestos exposures. In the summary judgment context, we disregard evidence contrary to that of the nonmovant unless reasonable jurors could not. Timpte Indus., 286 S.W.3d at 310.

Having reviewed the historical, factual evidence on Janet's exposure, we now turn to consideration of Cohen's expert affidavit and the epidemiological materials on which he relied. See Bostic, 439 S.W.3d at 350 (requiring that proof of a doubling of the risk must "be shown through reliable expert testimony that is based on epidemiological studies or similarly reliable scientific testimony").

### 3. The Expert and Scientific Evidence



Although Cohen calculated a dose level for Janet's exposure, there are numerous difficulties with his affidavit and the studies on which he relies that render his opinion [\*28] unreliable. Unreliable expert testimony is, legally, no evidence. See [\*Gunn v. McCoy\*, 554 S.W.3d 645, 661-63 \(Tex. 2018\)](#). "An expert's opinion may be considered unreliable if it is based on assumed facts that vary materially from the actual facts, or if it is based on tests or data that do not support the conclusions reached." [\*Id.\* at 662](#). Such "testimony may also be unreliable if 'there is simply too great an analytical gap between the data [relied upon] and the opinion proffered.'" [\*Id.\* at 663](#) (quoting [\*Hous. Unltd. Metal Processing v. Mel Acres Ranch\*, 443 S.W.3d 820, 835 \(Tex. 2014\)](#)). Moreover, if no basis for an opinion is offered, or the basis offered provides no support, the opinion is not probative evidence. [\*Id.\* at 662](#).

In his affidavit, Cohen calculated Janet's lifetime **asbestos** exposure from washing Royce's work clothes at 2.63 fiber years per cubic centimeter. He also concluded that this exposure "more than doubled her risk of developing malignant mesothelioma" and "constituted a significant contributing factor in the development of her malignant mesothelioma and subsequent death." Cohen did not account for the fact that Union Carbide did not make all of the **asbestos** products with which Royce worked and, by extension, to which Janet was exposed; instead, Cohen spoke to Janet's exposure as a unified whole.

Cohen's analysis depended heavily [\*29] on his use of a laboratory simulation that attempted to determine the exposure level for laundering contaminated clothes. According to Cohen, results of this simulation, which were not attached to his affidavit, showed that launderers would experience an 8-hour time-weighted average exposure of 0.13 fibers per centimeter of air breathed. Cohen, however, took this number and multiplied it by over 11 times to calculate the level of **asbestos** to which Janet was exposed each day that she washed Royce's clothes at an 8-hour time-weighted average exposure of 1.49 fibers per centimeter of air breathed. Cohen's only explanation for this over-elevenfold increase was that Janet worked in a smaller space and there was no evidence about whether the laundry room in which she worked had ventilation, whereas the room in the simulation had regular exchanges of air. Cohen did not offer any specific calculations to support the elevenfold increase, much less show that he used any reliable method to reach this conclusion.

Cohen also did not offer any analysis regarding the actual time for which Janet was exposed to **asbestos** fibers. He calculated an 8-hour time-weighted average exposure for Janet apparently [\*30] by referencing the 8-hour time-weighted average determined in the laboratory simulation, but there is no evidence that the duration of Janet's exposure on the days she washed Royce's clothes was comparable to the duration of exposure considered in the simulation. Testimony suggested that Janet washed Royce's clothes two or three times a week and might have had to repeat her laundry process more than once on those days. There is no evidence in the record on whether Janet's laundering process took her ten minutes, an hour, or any specific period of time.

Cohen then went further and added an additional 1 fiber per centimeter of air breathed for Janet's exposure based on the fact that she also swept up the **asbestos** dust after handling the clothes. Cohen again did not offer any specific calculations or methodology in support of this additional exposure but simply referenced a chart attached to his affidavit listing various studies and lab simulations for sweeping and cleanup. Again, Cohen did not provide the actual studies or many pertinent details to support his conclusion. In ultimately determining Janet's cumulative exposure level from laundering Royce's **asbestos**-covered work clothes, [\*31] Cohen calculated that she laundered Royce's work clothes 2.5 days a week, over a total of 2.1 years, with an 8-hour time-weighted average daily exposure of 2.5 fibers per centimeter (apparently rounding up from the 2.49 fibers per centimeter he actually calculated).

Cohen asserted that "mesothelioma is a low dose disease" and "[e]ven an exposure below 0.2 fiber-cc/years can be a substantial factor in the development of the disease." He supported these assertions with a brief discussion of studies in which low exposures were found to have caused mesothelioma, but he did not provide copies of the studies themselves. He also did not provide risk ratios found in the named studies with the exception of one, and he did not provide the confidence levels or confidence intervals for any of the studies he names on this point. See [\*Bostic\*, 439 S.W.3d at 347](#) (listing risk ratio, confidence level, and confidence interval as hallmarks of reliability for epidemiological studies); [\*Havner\*, 953 S.W.2d at 713-727](#) (same). Cohen cited no studies to support his assertion that "it has been repeatedly and consistently demonstrated in the medical and scientific literature that family members whose sole **asbestos** exposure resulted from **asbestos** dust brought into [\*32] the

home on another family member's clothing have developed mesothelioma."

In support of his ultimate conclusion that Janet's exposures to Royce's work clothes "more than doubled her risk of developing mesothelioma," Cohen cited five studies. One of these studies, he neither attached to his affidavit nor provided any information beyond the fiber years per cubic centimeter found by the study and the risk ratio calculated. He did not explain the subject matter or conditions considered in the study or provide its confidence level or confidence interval. See generally E.I. du Pont de Nemours & Co. v. Hood, No. 05-16-00609-CV, 2018 WL 2126935, at \*18 (Tex. App.—Dallas May 8, 2018, no pet.) ("An expert's assurance that a study establishes causation does not make it so.") (mem. op.) (citing In re Allied Chem. Corp., 227 S.W.3d 652, 656 (Tex. 2007)).

Cohen did provide copies of four studies on which he relied: N. Offermans, et al., "Occupational **Asbestos** Exposure and Risk of Pleural Mesothelioma, Lung Cancer, and Laryngeal Cancer in the Prospective Netherlands Cohort Study," 56 J. of Occupational and Env'tl. Med. 6 (2014); A. Lacourt, "Pleural Mesothelioma and Occupational Coexposure to **Asbestos**, Mineral Wool, and Silica," Am. J. Respiratory and Critical Care Med. (2013); K. Rödelberger, et al., "**Asbestos** and Man-Made Vitreous Fibers [\*33] as Risk Factors for Diffuse Malignant Mesothelioma: Results From a German Hospital-Based Case-Control Study," 39 Am. J. Indus. Med. 262 (2001); and Y. Iwatsubo, et al., "Pleural Mesothelioma: Dose-Response Relation at Low Levels of **Asbestos** Exposure in a French Population-based Base-Control Study," 148 Am. J. Epidemiology 139 (1998). Apart from citing these studies, however, Cohen does not offer any analysis of how they support his conclusions about Janet's **asbestos** exposure and mesothelioma.

Moreover, although each of these studies confirms that mesothelioma may be caused by low-dose **asbestos** exposures, none of the studies appeared to look at conditions similar to those Janet experienced. See Flores, 232 S.W.3d at 771-72. For example, none of the studies separated out exposures by fiber type. Evidence in the summary judgment record indicates that the Union Carbide products at issue contained chrysotile fibers, but none of the attached studies specifically looked at that type of fiber. See Yates v. Ford Motor Co., 113 F. Supp. 3d 841, 857-61 (E.D.N.C. 2015) (rejecting expert's testimony utilizing the Rödelberger and Iwatsubo studies in part because they did not

distinguish between **asbestos** fiber types); Butler v. Union Carbide Corp., 712 S.E.2d 537, 542-43 (Ga. App. 2011) (rejecting expert's testimony relying on Iwatsubo study because it failed [\*34] to provide scientifically reliable evidence regarding exposure to only chrysotile **asbestos**); Smith v. Kelly-Moore Paint Co., Inc., 307 S.W.3d 829, 837-39 (Tex. App.—Fort Worth 2010, no pet.) (rejecting expert's reliance on the Rödelberger and Iwatsubo studies in part because they were "inconclusive regarding the effect of exposure to only chrysotile fibers [and did] not support a minimum threshold dose for chrysotile only exposure that would increase one's risk of developing mesothelioma"); see also Rödelberger, *supra*, at 263 ("It has been demonstrated that . . . the type of **asbestos** [is] important for the quantification of the risk. [A] reliable dose-response relationship between the concentration of long amphibole fibers and the risk of mesothelioma has been consistently established . . . , while no relationship was observed for chrysotile fibers."); Iwatsubo, *supra*, at 141 ("We could not examine mesothelioma risk according to fiber types because our study design . . . did not allow us to identify those subjects whose exposure was only to chrysotile fibers.").<sup>6</sup>

Cohen failed to account for the fact that not all of Janet's **asbestos** exposure traced to Union Carbide products. The opinions expressed in Cohen's affidavit also depended on unsupported factual assumptions, unrevealed and unexplained calculations and methodologies, [\*35] studies for which he did not provide necessary information, and other studies that were not demonstrated to be sufficiently similar to Janet's exposure to support causation. Accordingly, under the standards set forth by the Texas Supreme Court, Cohen's affidavit is unreliable and no evidence of causation. See Gunn, 554 S.W.3d at 661-63; Bostic, 439 S.W.3d at 347-53; Flores, 232 S.W.3d at 770-73; Havner, 953 S.W.2d at 717-23.

#### IV. Conclusion

In response to Union Carbide's no-evidence motion for

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<sup>6</sup>In the Offermans study, the authors note that: "**Asbestos** research has been ongoing for decades and evidence has been accumulated that, regardless of fiber type, **asbestos** causes mesothelioma and lung, laryngeal, and ovarian cancer." *Supra*, at 6. Although they cite other studies for this proposition, they do not further explain the comment and offer no data or analysis of exposure to different fiber types.

summary judgment, appellants failed to present scientifically reliable expert testimony or epidemiological evidence demonstrating that Janet's exposure to Union Carbide **asbestos** products more than doubled her risk of developing mesothelioma. Accordingly, the trial court did not err in granting summary judgment for Union Carbide.

We affirm the trial court's judgment.

/s/ Frances Bourliot

Justice

**Concur by:** Randy Wilson

## Concur

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### CONCURRING OPINION

I concur in today's judgment, but I respectfully decline to join the plurality opinion.

Goehring, individually (collectively the "Goehring Parties") appeal the trial court's no-evidence summary judgment dismissing their wrongful-death action against appellee Union Carbide Corporation.

Presuming, without deciding, that the trial court considered Union Carbide's answers to interrogatories as [\*36] part of the summary-judgment evidence, the Goehring Parties have not shown that the trial court erred in granting Union Carbide's motion for a no-evidence summary judgment. This court need not and should not address whether the language of the summary-judgment order shows that the trial court considered Union Carbide's answers to interrogatories as part of the summary-judgment evidence.<sup>1</sup>

/s/ Randy Wilson

Justice

**Dissent by:** Margaret "Meg" Poissant

## Dissent

### DISSENTING OPINION

Appellants appeal from the trial court's ruling granting appellee Union Carbide's no evidence motion for summary judgment in this multiple defendant wrongful death case based on Janet S. Goehring's death from mesothelioma.

The majority affirms the trial court's ruling, concluding that appellants "failed to present scientifically reliable expert testimony or epidemiological evidence demonstrating Janet's exposure to Union Carbide **asbestos** products more than doubled her risk of developing mesothelioma." Because I believe appellants have shown the requisite causation through reliable expert testimony, I respectfully dissent.

Appellants' causation expert, Richard Cohen, M.D., M.P.H., gave his opinions on causation by affidavit, which was [\*37] attached to appellants' response to Union Carbide's no-evidence motion for summary judgment. Dr. Cohen attested that Janet died of malignant mesothelioma from exposure to **asbestos** dust from her son Royce's work clothes. In his report, he notes, based on deposition and affidavit testimony, that Royce's clothes were covered in **asbestos** dust from **asbestos**-containing drilling mud products from jobs in which he was exposed to significant quantities of **asbestos** products, during a six-year period-1975, 1976, 1977, 1978, 1979, and 1986. In Dr. Cohen's opinion, the **asbestos** exposure experienced by Janet from handling and washing her son's work clothes, covered in **asbestos**-containing drilling mud products, including Union Carbide's Super Visbestos and Visbestos, removing the dust from his pockets, and sweeping up the dust from the floor after shaking the clothes, more than doubled her risk of developing mesothelioma and further, constituted a significant contributing factor in the development of her mesothelioma and subsequent death.

The bases for Dr. Cohen's opinions include the scientific literature referenced in his affidavit, as well his review of exposure evidence from the deposition testimony [\*38] and job related social security records of Janet's son (Royce), the affidavit of Janet's son (Royce), the deposition testimony of Janet's daughters (Michelle and Rhonda), the medical records of treating physicians, the expert medical report of James Bruce, M.D., the death certificate of Janet, and his knowledge, skill, experience

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<sup>1</sup> See *ante* at 13-15.

and training as a medical doctor and expertise in asbestos-related industrial hygiene issues. Dr. Cohen supports his opinions with more than one epidemiological study. Dr. Cohen's training and experience were not disputed by Union Carbide.

Dr. Cohen attaches to his affidavit several exhibits. Exhibit 1 sets forth substantial contributing factors for increasing Janet's risk for asbestos-related disease as described by her children Royce, Michelle, and Rhonda and quantified in Tables 1-5 (*i.e.*, Table 1 warehouse, loading, and handling; Table 2 dumping; Table 3 sweeping and cleanup; Table 4 laundry exposure; and Table 5 studies verifying low dose exposure resulting in mesothelioma). The industrial hygiene, scientific, and regulatory literature which he relies upon are cited in Exhibit 2. His curriculum vitae is attached as Exhibit 3, and his expert testimony history [\*39] is set forth in Exhibit 4.

The crux of the majority's "difficulty" with Dr. Cohen's causation opinion stems from his calculation of Janet's cumulative lifetime asbestos exposure of 2.63 f/cc/years. In his report, Dr. Cohen details precisely how he derived this number. Specifically, based on the job-related social security records, and deposition and affidavit testimony of Royce, he calculates a minimum exposure for Royce of 25.2 months during which time Janet laundered his asbestos contaminated work clothes 2-3 times weekly in an 8 x 8 x 10 (640 cubic feet) laundry room that included a door and window that were usually closed with no exhaust ventilation or evidence of air turnover in the room. Additionally, Janet shook out the clothing prior to washing it and swept the resulting dust from the floor after each session.

Relying on documented studies of asbestos exposures associated with laundering asbestos contaminated work clothing, as set forth in Exhibit 1, Table 4, (the "laundry exposures"), Dr. Cohen opines the observed levels of exposure are comparable to those associated with tasks performed by "heavily exposed asbestos tradesmen, including insulators." Dr. Cohen extrapolated the [\*40] relevant data from the studies, accounting for the difference between Sahmel's experimental conditions (*e.g.*, 2048 cubic foot room, 3.5 air changes per hour) and the actual laundering conditions encountered by Janet (*e.g.*, six year period of exposure to contaminated clothing, 2-3 times a week, 640 cubic foot room with a door and window usually closed, no evidence of ventilation or evidence of air turnover in the room, shook out clothing prior to washing and swept up the dust after each session) to arrive at an

"estimated 8-hour time averaged *from laundering alone* would be 1.49 f/cc." (emphasis added).

Additionally, Dr. Cohen observes that Janet had further asbestos exposure from sweeping up asbestos dust after each laundering session. He explains that sweeping creates excessive airborne asbestos dust. Relying on another study, which he attached as Exhibit 1, Table 3 ("Sweeping study"), Dr. Cohen calculated an "additional sweeping related 8-hour time weighted average exposure of 1 f/cc for each laundering session." In determining Janet's cumulative exposures from the laundry and sweeping, Dr. Cohen concludes:

In summary, Janet Goehring's average eight-hour time weighted asbestos exposure [\*41] for each laundering day would be approximately 2.5 f/cc. Because her son indicated she laundered two or three times weekly I will assume a laundry frequency of 2.5 weekly over the 25.2 months (2.1 years) that she laundered her sons work clothing. That would total (2.5/5 days week x 2.1 years) or 1.05 years total asbestos exposure duration. 1.05 years multiplied by an average 2.5 f/cc equals 2.63 fiber-cc/years.

In other words Janet Goehring had a cumulative lifetime asbestos exposure of 2.63 fiber-cc/years.

Contrary to the majority's assertion, Dr. Cohen's affidavit provides detailed analyses of how he extrapolated information from the relevant studies and applied it to the data supplied by Janet's children to reach Janet's estimated cumulative exposure. Here, Dr. Cohen calculated Janet's exposure levels in fibers per cubic centimeter (fibers/cc) and reported her exposures in units of an eight-hour time weighted average. Although the record does not indicate the length of time of each laundering session, Dr. Cohen's affidavit contains the following:

It is generally accepted that mesothelioma is a low dose disease, with no known threshold of asbestos exposure below which there is no risk. [\*42] Even an exposure below .2 fiber-cc/ years can be a substantial factor in the development of the disease. A recent example of this is provided in Offermans et al 2014 study of 58,279 men that5 [sic] found a statistically significant risk of mesothelioma in relation to asbestos exposure at a median lifetime cumulative exposure of 0.2 fcc/years. (Offermans NSM, et al, Occupational Asbestos Exposure and Risk of Pleural Mesothelioma, Lung Cancer, and Laryngeal Cancer



in the Prospective Netherlands Cohort Study. JOEM 2014; 56:6-19)

The scientific and medical community has yet to determine a level of exposure to asbestos below which mesothelioma will not occur. There have been numerous cases in the literature of low and/or distant exposures causing mesothelioma. These cases include but are not limited to: short, high intensity exposures; secondary exposures such as household members exposed to asbestos contaminated work clothing brought home by another household member; and low level environmental exposures wherein the victims lived considerable distances (1/2 mile) from the source of exposure. Sinninghe found that average lifetime exposures of .11 fiber cc-years accounted for 64% of pleural [\*43] mesothelioma cases in women who had no other asbestos exposure. (Environmental exposure to asbestos in the area around Goor has been established as the cause of pleural mesothelioma in women. N.ed Tischr Geneeskde 2007, 151(44):2453 9) Since 1965, it has been repeatedly and consistently demonstrated in the medical and scientific literature that family members whose sole asbestos exposure resulted from asbestos dust brought into the home on another family member's clothing have developed mesothelioma. (emphasis in original).

Moreover, Dr. Cohen's table explains Janet's mesothelioma risk:

Table 5 ("Mesothelioma: Low dose") shows odds ratios and relative risks of the causal association between malignant mesothelioma and cumulative lifetime asbestos exposure. All of the risk values are statistically significant, *and all show a greater than doubling of the risk of malignant mesothelioma with cumulative asbestos exposures well below the 2.63 f. .cc/years experienced by Janet Goehring.* (emphasis added).

It is my opinion that Janet Goehring's exposures to asbestos described by Janet Goehring's children, Royce Gregory Goehring, Michelle Goehring Patrick and Rhonda Goehring Neely, and set forth [\*44] herein and in the table attached as Exhibit 1, were substantial contributing factors for increasing Janet Goehring's risk for asbestos-related disease.

Dr. Cohen's opinion is that there is not a known minimum level of exposure below which mesothelioma

will not occur. In his affidavit, Dr. Cohen opines that Royce "likely encountered an average exposure level of 10 fibers per cc, a very large and significant asbestos exposure; his work clothing would have been heavily contaminated with asbestos dust that he brought into the home and which his mother, Janet, laundered". Royce's significant level of exposure in turn impacted Janet's exposure when she laundered his clothes. Based on his undisputed qualifications and expertise, Dr. Cohen attested that there is a "greater than doubling of the risk of malignant mesothelioma with cumulative exposures well below the 2.63 f-cc years experienced by Janet Goehring." As recognized by Justice Lehrmann in her dissent, "reliable science has now demonstrated that even low levels of exposure to asbestos are sufficient to cause the disease." Bostic v. Georgia-Pacific Corp., 439 S.W.3d 332, 367 (Tex. 2014) (Lehrmann, J., dissenting opinion in which Boyd, J. and Devine, J. joined) (substantial-factor causation requiring [\*45] a minimum threshold of proof of exposure over which the risk of developing mesothelioma is doubled, disregards direct scientifically reliable evidence that Janet's mesothelioma was caused by exposure to asbestos). See *id.* Finally, by compelling every plaintiff "to produce epidemiological studies demonstrating that exposure to every defendant's product independently more than doubled his risk of developing a disease," we ignore reliable expert testimony that the plaintiff's mesothelioma was attributable to one source and we foreclose recovery for mesothelioma plaintiffs with intermittent exposure to asbestos. *Id.* at 379-80.

I believe Dr. Cohen's calculated dose level for Janet's exposure to Union Carbide's asbestos containing products as set forth in his affidavit and the studies upon which he relies are reliable and demonstrate the required causation. As such, appellants produced more than a scintilla of evidence in their response to Union Carbide's no-evidence motion for summary judgment; the trial court's order should be reversed. Because the majority holds otherwise, I respectfully dissent.

/s/ Margaret "Meg" Poissant

Justice

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