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UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

GERALDINE BARABIN,

Plaintiff,

v.

SCAPA DRYER FABRICS, INC.,

Defendant.

CASE NO. C07-1454JLR

ORDER ON MOTIONS TO
EXCLUDE

I. INTRODUCTION

Before the court are two motions to exclude filed by Defendant Scapa Dryer Fabrics, Inc. (“Scapa”): (1) a motion to exclude two expert witness testimonies on the subject of exposure to asbestos fibers (Exposure Mot. (Dkt. # 681)); and (2) a motion to exclude four expert witness testimonies on the subject of causation (Causation Mot. (Dkt. # 683)). Plaintiff Geraldine Barabin opposes both motions. (See Exposure Mot. Resp. (Dkt. # 690); Causation Mot. Resp. (Dkt. # 689).) The court has reviewed the parties’ filings in support of and in opposition to the motions, the relevant portions of the record,

1 and the applicable law. The court also heard oral argument from the parties at a *Daubert*
2 hearing on February 6, 2018. (See 2/6/18 Min. Entry (Dkt. # 695).) Being fully advised,
3 the court GRANTS in part and DENIES in part both of Scapa's motions for the reasons
4 discussed below.

5 II. BACKGROUND

6 This matter began on December 18, 2006, when Plaintiffs Henry and Geraldine
7 Barabin (collectively, "the Barabins") filed suit against various defendants for relief
8 based on Mr. Barabin's alleged exposure to asbestos through his employment. (See Not.
9 of Removal (Dkt. # 1) ¶¶ 2-4.) Between 1968 and 2001, Mr. Barabin worked at the
10 Crown-Zellerbach Pulp and Paper Mill in Camas, Washington (the "Camas paper mill"
11 or "paper mill"). (See Causation MacKenzie Decl. (Dkt. # 684) ¶ 2, Ex. 1 ("Brodkin
12 Rep.") at 12-15.)¹ While there, he worked a variety of jobs, some of which required him
13 to manipulate dryer felts allegedly manufactured by Scapa and original-defendant
14 AstenJohnson, Inc. ("AstenJohnson").² (See *id.* at 12-14; Not. of Removal ¶¶ 3-5.) For
15 instance, he changed dryer felts, cut the felt off pins and rollers, moved felts throughout
16 the mill, and cleaned the paper machines with high pressure hoses. (Brodkin Rep. at 29.)
17 Mr. Barabin retired in 2001. (*Id.* at 15.)

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20 ¹ When referring to exhibits in the record, the court cites to the page numbers generated
21 by the CM-ECF filing system that appear on the upper right hand of the document.

22 ² Ms. Barabin and AstenJohnson recently reached settlement. (See Not. of Settlement
(Dkt. # 694).)

1 In late October and November of 2006, Mr. Barabin was diagnosed with
2 malignant mesothelioma and subsequently underwent multiple courses of chemotherapy.
3 (*Id.* at 16, 29.) Mr. Barabin passed away on March 30, 2012, due to mesothelioma. (*See*
4 *id.* at 5.) An autopsy on March 31, 2012, revealed malignant pleural mesothelioma in the
5 right cavity of the chest. (*Id.*)

6 This case originally went to trial in November of 2009, and a jury returned a
7 verdict in favor of the Barabins. (*See* Judgment (Dkt. # 355).) Scapa and AstenJohnson
8 both appealed. (*See* AstenJohnson Not. of Appeal (Dkt. # 554); Scapa Not. of Appeal
9 (Dkt. # 565).) The Ninth Circuit held that the district court failed to make the appropriate
10 determinations under *Daubert* and Federal Rule of Evidence 702 in allowing certain
11 expert testimony. *See Barabin v. AstenJohnson, Inc.*, 740 F.3d 457, 464 (9th Cir. 2014)
12 (en banc). Accordingly, the Ninth Circuit remanded the matter for a new trial. *Id.* at 467.

13 With the retrial approaching, Scapa filed the motions-at-issue to exclude various
14 expert testimonies offered by Ms. Barabin pursuant to *Daubert* and Federal Rule of
15 Evidence 702. These testimonies fall into one of two categories: (1) witnesses offered to
16 show that Mr. Barabin was exposed to asbestos from Scapa's dryer felts (*see* Exposure
17 Mot.); and (2) witnesses offered to show that Mr. Barabin's occupational exposure to
18 asbestos was a substantial factor in causing his mesothelioma (*see* Causation Mot.).

19 **A. Exposure Expert Testimonies**

20 Scapa challenges two of Ms. Barabin's expert witnesses who will testify to
21 exposure: Mr. Christopher DePasquale and Dr. Steven Compton. (Exposure Mot. at 1.)

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1 1. Mr. Christopher DePasquale

2 Mr. DePasquale is a Senior Industrial Hygienist who conducts industrial hygiene
3 and indoor air quality investigations. (Exposure MacKenzie Decl. (Dkt. # 682) ¶ 2, Ex. 1
4 (“DePasquale Rep.”) at 11.) In the field of asbestos management and control, he has
5 conducted asbestos sampling in numerous settings and performed monitoring on facilities
6 to evaluate potential for exposure. (*Id.*) For his testimony here, he reviewed deposition
7 testimonies of both parties, various interrogatory responses, and trial testimonies of Mr.
8 Barabin and previous expert witnesses. (*Id.* at 15.)

9 Mr. DePasquale summarizes Mr. Barabin’s occupational history at the Camas
10 paper mill, noting Mr. Barabin’s various roles at the paper mill that required interaction
11 with dryer felts. (*Id.* at 16-19.) He then opines that Mr. Barabin “would have had
12 significant exposures to asbestos . . . when he personally cut dryer felts, assisted in the
13 change-out of dryer felts, and when he or others used compressed air to clean off dryer
14 felts.” (*Id.* at 20.) Overall, Mr. DePasquale concludes that Mr. Barabin’s “exposures
15 would have likely been in the range of 0.1 to 5 [fibers/cubic centimeter]³ during the full
16 change out process,” with “peak exposures possibly above this range during certain
17 activities, such as the cutting and folding of used dryer felts and/or clean up of debris
18 from these activities using compressed air.” (*Id.* at 22.) When Mr. Barabin was involved
19 with the blowing of dryer felts, Mr. DePasquale concludes that “his exposures would
20 have likely been 0.1 fibers/cc or greater.” (*Id.*)

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³ Fibers per cubic centimeter (“f/cc”) is a measure of fiber count used in asbestos-fiber exposure studies.

1 Mr. DePasquale based this exposure range on various studies that analyzed
2 asbestos fiber release from dryer felts. First, he relies on a study by J.D. Wendlick
3 analyzing samples collected on April 16, 1973, at a paper mill during a dry end felt
4 change (“the Wendlick study”). (*Id.* at 20.) The samples indicated that exposures during
5 this one task “ranged from 0.02 to 0.10 f/cc.” (*Id.*) Mr. DePasquale then cites Dr. James
6 R. Millette’s studies, who analyzed the release of asbestos fibers from dryer felts when
7 blown with compressed air and found concentrations “exceeding 30 f/cc.” (*Id.* at 20-21.)
8 Another study conducted by Dr. Millette found concentrations of asbestos at 51.4 f/cc.
9 (*Id.* at 21.) Mr. DePasquale also relies on a study conducted by Materials Analytic
10 Services (“MAS”) that discovered asbestos exposure of 12.4 f/cc for a person cleaning
11 dryer felts by blowing it with compressed air, 13.7 to 14.4 f/cc for the assistant of the
12 task, and area samples ranging from 6.6 to 8.0 f/cc. (*Id.*) Lastly, Mr. DePasquale
13 reviews the study by the RJ Lee Group (“the RJ Lee study”), which blew compressed air
14 on Scapa dryer felts using a model paper machine and found exposure for the worker
15 ranged from 0.02 to 1.79 f/cc, with an average sample result of 0.4 f/cc. (*Id.* at 21-22.)

16 2. Dr. Steven Compton

17 Dr. Compton is a physicist and microscopist with experience in testing
18 “asbestos-containing products for fiber release.” (Exposure MacKenzie Decl. ¶ 4, Ex. 3
19 (“Compton Rep.”) at 2.) He reviewed Mr. Barabin’s trial testimony, various
20 interrogatory responses, Mr. Barabin’s occupational history, and other expert testimonies
21 presented in this case. (*Id.*)

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1 Additionally, Dr. Compton conducted microscopic examinations and fiber release
2 testing on a variety of textiles, including “used and unused, as well as coated and
3 uncoated” dryer felts manufactured by Scapa. (*Id.*) Dr. Compton examined these felts
4 with polarized light microscopy (“PLM”) and analyzed the debris released through
5 contact with these felts with scanning electron microscopy (“SEM”). (*Id.*) He performed
6 various tests to analyze the debris released through manipulation of dryer felts. First, he
7 conducted compressed air tests in a “closed glove box chamber,” where air hoses with 60
8 psi compressed air were directed at two dryer felt pieces for five minutes. (*Id.*) The
9 released particles were then collected. (*Id.* at 3.) Second, he collected air samples after
10 cutting dryer felt material in a closed glove box. (*Id.*) Dr. Compton employed various
11 methods to analyze the collected air samples, including the National Institute of
12 Occupational Safety and Health (“NIOSH”) Method 7400, the NIOSH 7402 procedure,
13 the International Standards Organization (“ISO”) Standard Method 10312, and the
14 Asbestos Hazard Emergency Response Act (“AHERA”) Method. (*Id.*) These tests
15 revealed that “asbestos dryer felts will release asbestos fibers when handled, regardless of
16 manufacturer or condition” and that “asbestos fibers can readily be released into the air,
17 especially when blown with compressed air or when cut.” (*Id.*)

18 Dr. Compton concedes that these studies were “not intended to replicate or
19 represent actual plant conditions where paper was being made.” (Exposure MacKenzie
20 Decl. ¶ 5, Ex. 4 (“Compton Dep.”) at 57.) In fact, he has never been to the paper mill (*id.*
21 at 25), and he has no knowledge about the conditions there, such as the amount of water
22 used, the level of ventilation, or the humidity (*id.* at 53-54). However, he notes that Mr.

1 Barabin describes “the frequent installation and removal of dryer felts” at the paper mill,
2 which involved cutting the felt and using compressed air “on a daily basis” for cleaning
3 purposes. (Compton Rep. at 2.) Moreover, Mr. Barabin recounts how he “personally
4 handled, cleaned with compressed air, and cut dryer felts in connection with his work.”
5 (*Id.*) Thus, despite not having examined the specific felts used by Mr. Barabin, Dr.
6 Compton concludes that “the handling of asbestos-containing dryer felts, cleaning with
7 compressed air, and cutting of dryer felts performed by Mr. [Barabin] . . . would have
8 released asbestos fibers into the air.” (*Id.* at 3-4.)

9 **B. Causation Expert Testimonies**

10 Scapa additionally challenges four of Ms. Barabin’s expert witnesses who will
11 testify to causation: Dr. Carl Brodtkin, Dr. Allan Smith, Dr. David Tarin, and Dr. Richard
12 Cohen. (Causation Mot. at 1.)

13 1. Dr. Carl Brodtkin

14 Dr. Brodtkin practices occupational and environmental medicine. (Brodtkin Rep. at
15 56.) He holds an M.D. from University of Colorado Medical School and an M.P.H. from
16 the University of Washington, School of Public Health. (*Id.* at 54.) For his reports, Dr.
17 Brodtkin interviewed Mr. Barabin, performed a medical examination on him, and
18 reviewed his medical records and interrogatory responses, including his autopsy and
19 post-mortem pathologic reports. (*Id.* at 2, 10.) He additionally interviewed Mr.
20 Barabin’s treating physicians, reviewed various expert reports, and considered
21 interrogatory responses from Scapa. (*See id.* at 46, 50.) Lastly, Dr. Brodtkin considered
22 the literature on occupational exposure to asbestos. (*See id.* at 41-45.)

1 In his initial report on February 26, 2007, Dr. Brodtkin concluded that Mr.
2 Barabin's "most prominent exposure" to asbestos came during his time as a paper mill
3 worker. (*Id.* at 31.) Mr. Barabin participated in various tasks that resulted in "prominent
4 direct exposure to asbestos," including his "regular manipulation of wet and dry felts . . .
5 with tugging, pulling, and cantilevering of dry felts during fitting procedures." (*Id.*)
6 Analyzing Mr. Barabin's symptoms and the literature around asbestos-related malignant
7 mesothelioma, Dr. Brodtkin concludes that "Mr. Barabin's malignant pleural
8 mesothelioma was caused by his occupational exposure to asbestos as a career paper
9 machine worker and laborer, with prior exposure to asbestos as a refinery laborer." (*Id.*
10 at 39 (internal parentheticals omitted).) Specifically, Dr. Brodtkin states that "Mr.
11 Barabin's cumulative exposures to asbestos-containing materials placed him at
12 significant risk for development of mesothelioma, with a well-demonstrated
13 dose-response associated with increasing asbestos exposure." (*Id.* at 33.)

14 On March 24, 2009, Dr. Brodtkin submitted an updated report based on additional
15 clinical data and exposure-related reports, including his review of information indicating
16 that Scapa-produced dryer felts contained chrysotile asbestos. (*Id.* at 46, 50.) This
17 additional information, Dr. Brodtkin concluded, "is fully consistent" with his previous
18 opinion that Mr. Barabin's mesothelioma is "causally associated with occupational
19 exposure to asbestos as a career paper machine worker and laborer." (*Id.* at 51.) Dr.
20 Brodtkin stated that the additional exposure-related documents confirm "that dryer felts
21 represent an historically important source of respirable asbestos exposure in pulp and
22 paper mill settings . . . [D]ryer felt material represents a component part of Mr. Barabin's

1 cumulative career asbestos exposure.” (*Id.* at 52.) Dr. Brodkin reiterates his conclusion
2 that Mr. Barabin’s exposure to asbestos fibers through the dryer felts “is a substantial
3 contributing factor in his development of malignant mesothelioma.” (*Id.*)

4 At his deposition, Dr. Brodkin was asked to clarify whether he believed that
5 “every exposure to asbestos above ambient levels is a . . . substantial factor, in causing a
6 plaintiff’s asbestos-related disease.” (Causation MacKenzie Decl. ¶ 3, Ex. 2 (“Brodkin
7 Dep.”) at 33.) He rejected that belief, emphasizing “[t]hat statement does not
8 characterize my opinion.” (*Id.*; *see also id.* at 34 (“It’s not my opinion that [de minimis
9 exposures] would increase risk for mesothelioma.”).) Indeed, when faced with a
10 hypothetical where only one out of 100 dryer felts contained asbestos, Dr. Brodkin stated
11 he could not and would not reach a causation conclusion. (*Id.* at 65-66.)

12 Instead, Dr. Brodkin explained that only an activity that would “disturb the
13 [asbestos-containing] material in such a way to generate significant airborne asbestos
14 fibers” would increase the risk of an asbestos-related disease. (*Id.* at 33-34.) He terms
15 this exposure as a “biologically significant exposure to asbestos” or an “identified
16 exposure.” (*Id.* at 43-44.) Thus, “a biologically significant exposure . . . could increase
17 risk . . . in a cumulative fashion with the total asbestos exposure.” (*Id.* at 44.)

18 Dr. Brodkin clarified that he could not express any opinion on the actual
19 quantitative level of asbestos fibers that Mr. Barabin may have been exposed to because
20 there were no real-time measurements of asbestos at the paper mill to allow a
21 quantification. (*Id.* at 25.) Nevertheless, Dr. Brodkin maintains that “[t]he paper-making
22 activities that Mr. Barabin participated in are a component part of his cumulative

1 exposure, among others, that resulted in mesothelioma.” (*Id.* at 44.) The activities that
2 Mr. Barabin participated in represented both a “substantial part of his occupational
3 history” and a high “intensity of exposure.” (*Id.* at 44-45.)

4 2. Dr. Allan Smith

5 Dr. Smith is a consultant in occupational and environmental epidemiology.
6 (Causation MacKenzie Decl. ¶ 4, Ex. 3 (“Smith Rep.”) at 2.) For his report, Dr. Smith
7 reviewed literature regarding asbestos exposure and its link to mesothelioma and studies
8 of asbestos diseases in the pulp and paper mill industry. (*See generally id.*) Dr. Smith
9 states that the scientific evidence establishes that “inhalation of asbestos dust is the main
10 cause of pleural mesothelioma” and that “[a]ll major commercial fiber types of asbestos
11 . . . cause mesothelioma.” (*Id.* at 4.) In particular, Dr. Smith points to studies of the
12 paper mill industry that documented malignant mesothelioma among workers. (*Id.* at 5.)
13 In his opinion, “all asbestos fibers contribute to the causal dose.” (*Id.* at 4.)

14 Based on the scientific evidence and Mr. Barabin’s occupational history, Dr.
15 Smith concludes that Mr. Barabin’s mesothelioma was caused by the inhalation of
16 asbestos dust. (*Id.* at 6.) Dr. Smith posits that “[w]hen someone gets mesothelioma from
17 asbestos dust inhalation, all the inhalation of asbestos containing dust up to about 15
18 years prior to diagnosis [of mesothelioma] contributed to the dose that increased the risk
19 and caused the cancer.” (*Id.*) “The dose consists of all inhalations, and all of it is
20 therefore . . . significant.” (*Id.*) Dr. Smith affirmed in his deposition that there is no
21 minimum threshold level of exposure below which asbestos does not cause
22 mesothelioma. (Causation MacKenzie Decl. ¶ 5, Ex. 4 (“Smith Dep.”) at 23.)

1 3. Dr. David Tarin

2 Dr. Tarin is a professor of pathology and a distinguished member of the University
3 of California, San Diego Cancer Center. (Causation MacKenzie Decl. ¶ 6, Ex. 5 (“Tarin
4 Rep.”) at 11.) He reviewed Mr. Barabin’s medical records, numerous pathology
5 specimens, and autopsy report, as well as Mr. Barabin’s occupational history. (*Id.* at 2,
6 4.) Additionally, he reviewed various expert reports and answers to standard asbestos
7 case interrogatories. (*Id.* at 5.) Dr. Tarin summarizes Mr. Barabin’s “long occupational
8 history of exposure to asbestos products as a paper machine worker and laborer from
9 1968-2001.” (*Id.* at 6.) He describes how Mr. Barabin engaged in “regular manipulation
10 of wet and dry felts,” including dry felt change-outs, fitting procedures, and maintenance
11 and replacement of brakes. (*Id.*)

12 Dr. Tarin received 83 microscope slides containing tissue samples collected from
13 Mr. Barabin. (*Id.* at 8.) In some samples, he observed features characteristic of the effect
14 a carcinogenic agent has on a target cell population. (*Id.*) The immunohistochemical
15 stains on the specimens “showed results typical of a mesothelioma.” (*Id.*) Dr. Tarin also
16 detected six asbestos bodies among the tissue samples, which confirmed that Mr. Barabin
17 “had at some time been exposed to airborne asbestos fibers.” (*Id.*) The microscopic
18 identification of the asbestos bodies in the lung tissue supports Dr. Brodkin’s conclusions
19 that Mr. Barabin had experienced substantial occupational exposure to asbestos fibers.
20 (*Id.*) Dr. Tarin diagnoses Mr. Barabin with malignant pleural mesothelioma of the
21 epithelioid cell type and dense fibrous tissue consistent with pleural plaque. (*Id.*) This

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1 conclusion is consistent with those reached by several other pathologists who have
2 examined Mr. Barabin. (*Id.*)

3 Based on his review of these materials, Dr. Tarin concludes that “asbestos intake
4 is the main cause of pleural mesothelioma and that the cumulative exposure to all forms
5 of this carcinogenic agent contributes to the induction and propagation of the tumor.”

6 (*Id.* at 9.) In Mr. Barabin’s case, there “is no record of alternative rarer potential causes
7 of this disease, such as extensive thoracic radiation.” (*Id.*) Accordingly, due to Mr.
8 Barabin’s “substantial, repeated, and sustained” exposure to asbestos fibers, Dr. Tarin
9 concludes, to a high degree of medical probability, that “Mr[.] Barabin’s malignant
10 pleural mesothelioma was caused by repeated occupational exposure to, and inhalation
11 of, asbestos dust.” (*Id.*)

12 In his deposition testimony, Dr. Tarin emphasized that “the cumulative load . . . is
13 responsible for causation of the disease.” (Causation MacKenzie Decl. ¶ 7, Ex. 6 (“Tarin
14 Dep.”) at 85-86.) The following exchange occurred over causation associated with the
15 individual exposures:

16 Q: [Y]ou don’t apportion causation between . . . the various types of
17 asbestos-containing materials that Mr. Barabin might have encountered
during his lifetime?

18 A: Could you be more specific, please?

19 Q: Sure . . . [Y]ou’re not going to come to court and apportion causation for
20 Mr. Barabin’s alleged exposures and saying that 20 percent of it came from
thermal insulation materials and 50 percent of it came from insulation on
21 equipment, are you?

22 A: I’m not going to be itemizing it like that. I will continue with my
explanation that it is the cumulative exposure which is responsible.

1 (*Id.* at 85-86.) Indeed, Dr. Tarin admits that “it is impossible to say which individual
2 exposure caused this disease” or to “pinpoint any individual exposure as being sufficient
3 in of itself.” (*Id.* at 99.) Dr. Tarin reiterates that his conclusion, as articulated in his
4 report, is that “it is the cumulative exposure during Mr. Barabin’s life which resulted in
5 the causation of this malignancy.” (*Id.*)

6 4. Dr. Richard Cohen⁴

7 Dr. Cohen is a licensed physician and a Clinical Professor in Occupational and
8 Environmental Medicine at the University of California, San Francisco School of
9 Medicine. (MacKenzie Decl. ¶ 8, Ex. 7 (“Cohen Rep.”) at 2.) After reviewing the
10 relevant literature and Mr. Barabin’s records, Dr. Cohen concludes that “the exposures
11 attributable to each defendant were a substantial factor in the causation of [Mr. Barabin’s]
12 mesothelioma.” (*Id.* at 5.) Because “there is no reliable scientific method for
13 determination of which asbestos exposures that a person suffered were a substantial
14 factor,” Dr. Cohen believes that “it is impossible to exclude any exposures as being a
15 substantial factor in causing the illness.” (*Id.* at 6.)

16 In Dr. Cohen’s opinion, “any exposures that an individual suffered that were in
17 addition to ambient air levels, such as those alleged in this case as to each defendant,
18 would, on a more likely than not basis, have been a substantial factor in causing the
19 alleged disease.” (*Id.*; *see also id.* at 14 (“[I]n individuals who develop these diseases, all

21 ⁴ Dr. Richard Cohen is not the same individual as Dr. Kenneth Cohen, who was the
22 expert-at-issue during the previous trial and the subsequent appeal. (*Compare* Cohen Rep. at
37-42 (curriculum vitae of Dr. Richard Cohen), *with Estate of Barabin*, 740 F.3d at 461
(describing the Barabins’ expert Kenneth Cohen); *see also* Exposure MTE Resp. at 1 n.1.)

1 exposures to asbestos contribute to the causation of the asbestos-related diseases.”.) Dr.

2 Cohen expounds:

3 It is further my opinion that when a person with a reliable history of asbestos
4 exposure contracts an asbestos-related disease, after exposures to multiple
5 asbestos-containing products, given sufficient minimum latency, each and
6 every exposure contributes to the person’s total dose that caused the
7 asbestos-related disease. Thus, all the asbestos, such as that attributable to
8 each defendant in this case, to which a person is exposed (given sufficient
9 minimum latency) contributed to cause the asbestos-related disease. My
10 opinion is that, given sufficient minimum latency, there is no scientific basis
11 upon which one can look back and exclude some exposures and include other
12 exposures as being causally related to the asbestos-related disease which then
13 caused an individual’s asbestos-related disease.

9 (*Id.* at 6.) Dr. Cohen believes that “[t]his is true even if the exposure was within the
10 standard permissible exposure limits at the time of the exposure.” (*Id.*) Accordingly, Dr.
11 Cohen maintains that “[a]ll exposures to asbestos . . . given a sufficient minimum latency
12 prior to diagnosis, contribute to the cumulative asbestos fiber dose that, in turn, caused
13 the mesothelioma . . . No exposure to asbestos can be excluded.” (*Id.* at 15.)

14 III. ANALYSIS

15 Rule 702 of the Federal Rules of Evidence governs the admission of expert
16 testimony in federal court:

17 A witness who is qualified as an expert by knowledge, skill, experience,
18 training, or education may testify in the form of an opinion or otherwise if:

19 (a) the expert’s scientific, technical, or other specialized knowledge will help
20 the trier of fact to understand the evidence or to determine a fact in issue;

20 (b) the testimony is based on sufficient facts or data;

21 (c) the testimony is the product of reliable principles and methods; and

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1 (d) the expert has reliably applied the principles and methods to the facts of
2 the case.

3 Fed. R. Evid. 702. Rule 702 requires that the expert be qualified and that the “[e]xpert
4 testimony . . . be both relevant and reliable.” *Estate of Barabin*, 740 F.3d at 463
5 (quoting *United States v. Vallejo*, 237 F.3d 1008, 1019 (9th Cir. 2001)); Fed. R. Evid.
6 702. Relevancy “simply requires that “[t]he evidence . . . logically advance a material
7 aspect of the party’s case.” *Estate of Barabin*, 740 F.3d at 463 (quoting *Cooper v.*
8 *Brown*, 510 F.3d 870, 942 (9th Cir. 2007)).

9 Reliability requires the court to assess “whether an expert’s testimony has a
10 ‘reliable basis in the knowledge and experience of the relevant discipline.’” *Id.* (quoting
11 *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999)) (internal citations and
12 alterations omitted). The Supreme Court has suggested several factors that courts can use
13 in determining reliability: (1) whether a theory or technique can be tested; (2) whether it
14 has been subjected to peer review and publication; (3) the known or potential error rate of
15 the theory or technique; and (4) whether the theory or technique enjoys general
16 acceptance within the relevant scientific community. *See Daubert v. Merrell Dow*
17 *Pharm., Inc.*, 509 U.S. 579, 592-94 (1993). The reliability inquiry is flexible, however,
18 and trial judges have broad latitude to focus on the considerations relevant to a particular
19 case. *Kumho Tire*, 526 U.S. at 150.

20 In determining reliability, the court must rule not on the correctness of the expert’s
21 conclusions but on the soundness of the methodology, *Estate of Barabin*, 740 F.3d at 463
22 (citing *Primiano v. Cook*, 598 F.3d 558, 564 (9th Cir. 2010)), and the analytical

1 connection between the data, the methodology, and the expert's conclusions, *Gen. Elec.*
2 *Co. v. Joiner*, 522 U.S. 136, 146 (1997); *see also Cooper*, 510 F.3d at 942 (“Rule 702
3 demands that expert testimony relate to scientific, technical or other specialized
4 knowledge, which does not include unsubstantiated speculation and subjective beliefs.”);
5 Fed. R. Evid. 702 Advisory Committee’s Notes to 2000 Amendments (“[T]he testimony
6 must be the product of reliable principles and methods that are reliably applied to the
7 facts of the case.”). Moreover, “the proponent of the expert . . . has the burden of proving
8 admissibility.” *Cooper*, 510 F.3d at 942 (citing *Lust v. Merrell Dow Pharms., Inc.*, 89
9 F.3d 594, 598 (9th Cir. 1996)).

10 Here, Scapa does not challenge the relevancy of Ms. Barabin’s expert testimonies.
11 (*See Exposure Mot.*; *Causation Mot.*) Nor would such a challenge succeed, as the expert
12 opinions on Mr. Barabin’s exposure to asbestos fibers from Scapa dryer felts and the
13 causal connection this exposure may have had to his mesothelioma “logically advance a
14 material aspect” of Ms. Barabin’s case. *See Estate of Barabin*, 740 F.3d at 463. Instead,
15 Scapa focuses its challenges on the reliability of these opinions. The court addresses first
16 the expert testimonies on exposure and then the ones on causation.

17 **A. Exposure Expert Testimonies**

18 Scapa makes three main arguments to exclude the exposure testimonies of Mr.
19 DePasquale and Dr. Compton. First, Scapa urges the court to reject the studies
20 underlying the experts’ opinions—namely Dr. Millette’s and the MAS studies.
21 (*Exposure Mot.* at 7-18.) Second, Scapa challenges the methodology used by Mr.
22 DePasquale, arguing that he cannot estimate the exposure to asbestos fiber without

1 accounting for certain variables that would have been present at the Camas paper mill.
2 (*Id.* at 4-6.) Third, and lastly, Scapa contends that Dr. Compton’s studies are unreliable
3 because they were not conducted in circumstances similar to those at the Camas paper
4 mill. (*Id.* at 6-7.) The court takes each argument in turn.

5 1. Underlying Millette and MAS Studies

6 In reaching their exposure conclusions, Mr. DePasquale and Dr. Compton both
7 rely on the Millette studies; Mr. DePasquale further relies on the MAS study.

8 (DePasquale Rep. at 21; *see generally* Exposure Good Decl. (Dkt. # 690-1) ¶ 6, Ex. 4
9 (“Compton Decl.”).) Scapa argues for various reasons that these underlying studies are
10 unreliable. The court disagrees and addresses the Millette studies before turning to the
11 MAS study.⁵

12 a. *Millette Studies*

13 Scapa takes issue with two studies conducted by Dr. Millette, one from 1999 and
14 another from 2003. (Exposure Mot. at 7-14.) In both these studies, Dr. Millette blew
15 compressed air at various angles on dryer felts and then collected air samples to analyze
16 the asbestos fibers released. (*See generally* Exposure MacKenzie Decl. ¶ 10, Ex. 9
17 (“1999 Millette Rep.”); *id.* ¶ 9, Ex. 8 (“2003 Millette Rep.”).) In his studies, Dr. Millette
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19 ⁵ Moreover, Scapa conceded at the hearing that both Mr. DePasquale and Dr. Compton
20 rely on more than just these challenged studies. For instance, Mr. DePasquale relied on the
21 Wendlick study and the RJ Lee study that Scapa also proffers. (*See* DePasquale Rep. at 14-15,
22 21-22.) Dr. Compton conducted his own microscopic examinations and fiber release testing on
dryer felts manufactured by Scapa. (Compton Rep. at 2.) Thus, the court notes that even if the
Millette and MAS studies were excluded, that does not preclude Mr. DePasquale or Dr. Compton
from testifying. Instead, as Scapa admits, the two experts would simply be precluded from
testifying about those underlying studies and any conclusion based upon those studies.

1 utilized a glove-box method, where both the compressed air blower and the felt are
2 contained in a glove box. (See 1999 Millette Rep. at 3-4; 2003 Millette Rep. at 4-5.)

3 As clarified at the hearing, Scapa does not challenge the reliability of glove-box
4 testing generally.⁶ This technique can be—and subsequently was—tested by others who
5 also utilized glove-box techniques to analyze asbestos-fiber release. (See Exposure
6 MacKenzie Decl. ¶ 6, Ex. 5 (“RJ Lee Rep.”) at 15.) Moreover, the 1999 study was
7 subject to peer review and published in the *Microscope* journal.⁷ (See generally 1999
8 Millette Rep.) And lastly, this glove-box method is commonly utilized in various other
9 experiments, even those relied upon by Scapa, and the technique enjoys general
10 acceptance within the scientific community. (See Compton Rep. at 2-3 (describing
11 glove-box testing as “published and generally accepted in the scientific community”); RJ
12 Lee Rep. at 15 (utilizing glove-box testing); see generally Exposure Good Decl. ¶ 17, Ex.
13 15 (“EPA Rep.”) (report by the EPA approving of the glove-box testing technique)).

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16 ⁶ Scapa briefly challenges two additional tests conducted by Dr. Millette: one where a
17 Post-It note was used to collect residue, and another where a finger was used to collect residue.
18 (Exposure Mot. at 9.) Scapa offers no citation for its assertion that these techniques “are not
19 generally accepted scientific methodologies.” (See *id.*) To the contrary, Dr. Millette had
20 previously published an article in the National Asbestos Council Journal on the utility of Post-It
21 notes for collecting dust particles. (Exposure Good Decl. ¶ 6, Ex. 4-G at 175-78.) Others have
22 also published on the usage of Post-It notes in particle sorting. (*Id.* at 178.) Moreover, both of
these techniques were utilized for ascertaining whether the dryer felt contained asbestos at all,
not as an estimate of exposure count. (See 1999 Millette Rep. at 3.) Thus, even if the techniques
were unreliable, they were not the basis of Dr. Millette’s exposure conclusions.

21 ⁷ Thus, Scapa’s assertion that Dr. Millette’s protocol “has not been published or subjected
22 to peer review” is inaccurate. (See Exposure Mot. at 10.) Indeed, Dr. Millette’s published study
was later cited by the RJ Lee study that Scapa relies upon. (See RJ Lee Rep. at 15.)

1 Thus, the court finds that Dr. Millette’s methodology—the glove-box testing procedure
2 that he utilized in both the 1999 and 2003 studies—is reliable.⁸

3 Scapa primarily criticizes how Dr. Millette’s tests were not conducted in
4 circumstances that reflect the conditions at the Camas paper mill. (*See* Exposure Mot. at
5 8-9, 11-13.) For instance, Dr. Millette did not account for the ventilation system or the
6 humidity levels at the Camas paper mill. (*Id.* at 12.) Nor did he perform testing with an
7 operating machine, using the exact distances and angles that a worker would have
8 encountered at the Camas paper mill. (*Id.* at 11.) Scapa touts the fact that Dr. Millette
9 “has never been to Camas, or seen photographs, blueprints or diagrams of it, has no
10 information regarding the number of windows, doors or ventilation systems in any of the
11 machine rooms, and never worked on a paper machine himself.” (*Id.*)

12 The court finds that Scapa’s concerns go to the weight rather than the admissibility
13 of the Millette studies. Generally, tests must be conducted “under conditions
14 substantially similar to the actual conditions.” *Lipson v. ON Marine Servs. Co., LLC*, No.

15
16 ⁸ Scapa criticizes Dr. Millette for not following the EPA protocol, which allegedly
17 requires—in addition to a glove-box experiment—the development of a mathematical model, full
18 room tests that simulate field conditions, and field experiments. (Exposure Mot. at 9-10.) But
19 there is confusion over whether the EPA actually mandates these three additional steps. Scapa’s
20 description of the EPA protocol does not include any citation or supporting material for the court
21 to refer to. (*See id.* at 10); *see United States v. Dunkel*, 927 F.2d 955, 956 (7th Cir. 1991)
22 (“Judges are not like pigs, hunting for truffles buried in briefs.”). The RJ Lee study, which
Scapa relies upon, describes this protocol and cites a 1985 EPA study as the source. (*See* RJ Lee
Rep. at 16, n.11.) But Ms. Barabin provides the court with the project summary of that 1985
EPA report, and that summary only speaks of the glove-box experiment procedure—a procedure
that Dr. Millette seems to have followed. (*See generally* EPA Rep.) Moreover, Scapa concedes
that “it is questionable whether this protocol applies to dryer felts.” (Exposure MTE at 10.)
Given the confusion surrounding this protocol, the court finds it does not undermine the Millette
studies’ reliability.

1 C13-1747TSZ, 2013 WL 6536923, at *2 (W.D. Wash. Dec. 13, 2013) (quoting
2 *Champeau v. Fruehauf Corp.*, 814 F.2d 1271, 1278 (8th Cir. 1987)) (internal quotation
3 marks omitted). However, “dissimilarities between testing conditions and actual
4 conditions ‘affect the weight of the evidence, not its admissibility.’” *Id.* (quoting
5 *Champeau*, 814 F.2d at 1278). Dr. Millette does not purport to know the actual
6 conditions at the Camas paper mill (*see* Exposure Mot. at 11), and indeed, it would not
7 have been possible for him to have tested the release of asbestos in Mr. Barabin’s actual
8 working conditions. This distinction may certainly affect the weight a jury would assign
9 Dr. Millette’s results, but nothing suggests that the glove-box technique employed by Dr.
10 Millette in either 1999 or 2003 is unreliable in and of itself.

11 Nor are the Millette studies so dissimilar that exclusion is warranted. For
12 comparison, in *Espinoza v. Dunn*, Nos. 91-56353, 91-56389, 92-56018, 1995 WL 21601
13 (9th Cir. Jan. 18, 1995)—a case Scapa relies on (Exposure Mot. at 6)—the Ninth Circuit
14 rejected a demonstration on dissimilarity grounds in an excessive force case. In that case,
15 there was a factual dispute as to whether the plaintiff had hit his head against the window
16 of a car. *Espinoza*, 1995 WL 21601 at *1. During trial, the jury saw a demonstration
17 where the law clerk—in place of the plaintiff—sat in the car and was unable to hit her
18 head against the rear window. *Id.* at *2. However, the law clerk was told not to move,
19 whereas the plaintiff was allegedly kicking and thrashing. *Id.* at *4. The Ninth Circuit
20 concluded that this dissimilarity “was of such a nature as to create a discernible risk that
21 the demonstration was seriously misleading.” *Id.* Indeed, “[t]he very physical

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1 possibilities the court wished to test may have depended upon the element excluded from
2 the demonstrations.” *Id.*

3 The dissimilarity here does not rise to that level. Critically, unlike the
4 demonstration in *Espinoza*, the Millette studies do not exclude any element that would
5 have affected the “very physical possibilities” that the studies sought to test. *See id.* That
6 is, Dr. Millette’s studies do not purport to create the exact scenario that Mr. Barabin faced
7 at the paper mill; instead, his research on the quantity of asbestos fiber release is one
8 piece of foundational information that can then be applied to Mr. Barabin’s situation.
9 The conditions that were not factored into the Millette studies do not render the studies
10 unreliable and thus do not mandate exclusion.

11 In sum, Dr. Millette’s two studies regarding the release of asbestos fibers from
12 dryer felts are sufficiently reliable to satisfy Rule 702 and *Daubert*. Although neither
13 study was conducted in circumstances identical to those at the Camas paper mill, that
14 issue goes to weight rather than admissibility. Accordingly, the court denies Scapa’s
15 motion to exclude Dr. Millette’s studies and the experts’ reliance on them.

16 *b. MAS Study*

17 The MAS study was another glove-box test where experimenters blew compressed
18 air at a dryer felt to measure asbestos fibers release. (*See DePasquale Rep. at 21.*)
19 Scapa’s arguments targeting the MAS study again boil down to the fact that these were
20 not conducted in conditions similar to those at the Camas paper mill. (*See Exposure*
21 *MTE at 14-18 (listing differences between the MAS study and the dryer felt work at the*
22 *Camas paper mill).*) For instance, the testers did not have knowledge of the paper mill

1 and did not perform the experiment with a ventilation hood that would have been present
2 at the paper mill. (*Id.* at 15-16.)

3 These differences go to weight rather than admissibility. MAS utilized the same
4 technique as Dr. Millette’s studies did, a technique that is widely-accepted in the
5 scientific community and utilized by numerous experts seeking to study asbestos-fiber
6 release. *See supra* § III.A.1.a. The MAS study also provides only a quantification of
7 asbestos-fiber release when dryer felts are cut or manipulated, without purporting to
8 represent what Mr. Barabin was exposed to. Nor was the study so dissimilar that
9 exclusion is warranted. Accordingly, the court denies Scapa’s motion to exclude the
10 MAS study.⁹

11 2. Mr. Christopher DePasquale

12 Scapa also challenges Mr. DePasquale’s methodology aside from his reliance on
13 the Millette and MAS studies. (*See* Exposure Mot. at 4-6.) Scapa points out that Mr.
14 DePasquale fails to take into account the conditions at the Camas paper mill that may
15 have impacted Mr. Barabin’s exposure to asbestos, such as the ventilation system, the
16 wetting of the dryer felts, and the fact that not every dryer felt at the mill contained
17 asbestos. (*Id.* at 5.) Without considering these factors, Scapa characterizes Mr.

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20 ⁹ Scapa also seeks to exclude all of the MAS video demonstrations that use Tyndall
21 lighting, a technique that “show[s] a dramatic release of dust and particles, most of which was
22 not asbestos.” (Exposure Mot. at 17-18.) However, at the hearing, Ms. Barabin clarified that she
will not be introducing any of the filmed experiments at trial. Thus, the court need not decide the
admissibility of these videos.

1 DePasquale's conclusion regarding the range of Mr. Barabin's exposure as "the
2 embodiment of guesswork." (*Id.*)

3 The court finds that Mr. DePasquale's conclusion that Mr. Barabin was exposed to
4 asbestos-fibers while working at the Camas paper mill is reliable and thus admissible.
5 Mr. DePasquale has 19 years of experience in industrial hygiene, including with asbestos
6 sampling, monitoring, and evaluation of historical exposures to asbestos. (DePasquale
7 Rep. at 14.) For this report, Mr. DePasquale reviewed and weighed many varying studies
8 on the exposure level that may result from manipulation of dryer felts—including studies
9 that Scapa relies upon. (*See id.* at 20-22.) For instance, he notes that the Wendlick study
10 only measured exposure levels for one task and may have underestimated the actual
11 exposures because of the exclusion of certain fibers. (*Id.* at 20.) Mr. DePasquale also
12 reviewed information specific to Mr. Barabin's career as a worker at the Camas paper
13 mill, including data pertaining to the number of Scapa dryer felts at the mill. (*See id.* at
14 15; DePasquale Dep. at 102-03.) Relying on his experience, Mr. DePasquale applied the
15 results of the dryer felt studies to the specifics of Mr. Barabin's career. The court is
16 satisfied that Mr. DePasquale's exposure conclusion is rooted in sufficiently rigorous
17 methodology and therefore admissible.

18 However, the court finds Mr. DePasquale's arrival at a numerical range of
19 exposure troubling. Although the studies that he considers contain vastly different
20 exposure ranges—anywhere from 0.02 f/cc to 51.4 f/cc (DePasquale Rep. at 20-22)—Mr.
21 DePasquale concludes that Mr. Barabin's exposure was likely in the range of 0.1 to 5 f/cc
22 (*id.* at 22). Mr. DePasquale gives no explanation for this numerical range, nor does he

1 elaborate on the methodology he employed to arrive at this range. (*See id.* at 21-22;
2 DePasquale Dep. at 105-06 (offering no explanation beyond calling the range “a best
3 estimate”).) When pressed, Ms. Barabin conceded at the hearing that the record does not
4 contain a more detailed explanation; indeed, she acknowledged that there is no metric or
5 formula for how an industrial hygienist arrives at a quantitative range of exposure.
6 Without knowing the methodology Mr. DePasquale utilized to arrive at the specific range
7 of Mr. Barabin’s exposure, the court is left with an “opinion evidence that is connected to
8 existing data only by the *ipse dixit*” of Mr. DePasquale. *See General Elec. Co.*, 522 U.S.
9 at 146. The court concludes “there is simply too great an analytical gap” between the
10 numerical ranges in the various underlying studies and the range proffered by Mr.
11 DePasquale.¹⁰ *See id.*

12 In sum, the court finds Mr. DePasquale’s qualitative conclusion regarding
13 exposure to be both relevant and reliable, and accordingly, the court denies Scapa’s
14 motion as it pertains to Mr. DePasquale’s qualitative testimony. However, the court
15 grants Scapa’s motion as it relates to Mr. DePasquale’s quantitative conclusions and
16 precludes Mr. DePasquale from testifying to any numerical range of exposure.

17 3. Dr. Compton

18 Scapa impugns Dr. Compton’s own glove-box testing for the same reason it
19 doubts the Millette and MAS studies: it does not adequately mimic the actual conditions
20 at the Camas paper mill. (*See Exposure Mot.* at 6-7.) As the court discussed previously,
21

22 ¹⁰ Ms. Barabin appears to agree; at the hearing, she offered to exclude any testimony
from Mr. DePasquale regarding the quantitative amount of exposure.

1 Dr. Compton utilized a methodology that is generally accepted by the scientific
2 community. *See supra* § III.A.1.a; (*see* Compton Rep. at 2 (describing methodologies as
3 “published and generally accepted in the scientific community”).) His own testing
4 utilized methodologies, such as the NIOSH 7400 and NIOSH 7402 methods, which are
5 widely-accepted and frequently used. (*See* Compton Rep. at 3); *see also* *Lipson*, 2013
6 WL 6536923, at *2 (describing these methodologies as reliable). Accordingly, the court
7 finds that Dr. Compton’s methodologies are reliable and denies Scapa’s motion to
8 exclude or limit his testimony.

9 **B. Causation Expert Testimonies**

10 Scapa asserts that Ms. Barabin’s four causation experts base their conclusions on
11 the unreliable “every exposure” theory of causation.¹¹ This objection boils down to two
12 questions: (1) whether the “every exposure” theory satisfies scrutiny under Rule 702 and
13 *Daubert*; and (2) if not, whether the experts at issue are in fact basing their opinions on an
14 “every exposure” theory. The court addresses each issue in turn.

15 1. Legal Standard

16 At the outset, the court defines the terminology surrounding the theories at issue.
17 First, the “every exposure” theory posits that “any exposure to asbestos fibers
18 whatsoever, regardless of the amount of fibers or length of exposure constitutes an
19 underlying cause of injury.” *Krik v. Exxon Mobil Corp.*, 870 F.3d 669, 672 (7th Cir.

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21 _____
22 ¹¹ The “every exposure” theory goes by many names, including but not limited to the
“any exposure” theory, the “single fiber” theory, and the “each and every exposure” theory. *See*,
e.g., *Yates v. Ford Motor Co.*, 113 F. Supp. 3d 841, 846 (E.D.N.C. 2015).

1 2017). A slight variation of the “every exposure” theory states that “every exposure to
2 asbestos above a threshold level is necessarily a substantial factor in the contraction of
3 asbestos-related diseases.” *McIndoe v. Huntington Ingalls Inc.*, 817 F.3d 1170, 1177 (9th
4 Cir. 2016). Second, an outgrowth of the “every exposure” theory is the “cumulative
5 exposure” theory. Under such a theory, the cumulative exposure to asbestos is the cause
6 of the disease, but because each exposure, no matter how small, adds to that cumulative
7 exposure, each exposure becomes a substantial contributing factor. *See Krik*, 870 F.3d at
8 672-73. For the reasons discussed below, the court finds that both theories lack sufficient
9 support in facts and data and thus are not the product of reliable principles and methods,
10 as required by Rule 702.

11 *a. “Every Exposure” Theory*

12 Recently, numerous courts across the country have had to determine the reliability
13 of the “every exposure” theory. In *McIndoe v. Huntington Ingalls Inc.*, the Ninth Circuit
14 considered the “every exposure” theory in the maritime law context.¹² 817 F.3d at
15 1177-78. There, an expert concluded that the defendants’ asbestos-containing products
16 were a substantial factor in causing the plaintiff’s asbestos-related disease because every
17 exposure to asbestos above a threshold level must be a substantial factor. *Id.* at 1177.

18 The Ninth Circuit held that the “district court properly rejected this argument.” *Id.* The
19

20 ¹² Ms. Barabin takes issue with the fact that *McIndoe* involved maritime law. (Causation
21 Mot. Resp. at 10.) However, asbestos claims under maritime law similarly utilize a
22 substantial-factor test, and the Ninth Circuit has cited to maritime cases in general asbestos
actions. *See McIndoe*, 817 F.3d at 1176 n.6 (noting that the maritime law analysis “comports
with the general approach taken by other federal courts in asbestos cases”); *Curtis v. ABB Inc.*,
622 F. App’x 661, 662 (9th Cir. 2015) (mem.) (applying maritime law case to asbestos claim).

1 expert could not speak to “the severity of [the plaintiff’s] own asbestos exposure” and
2 “did not make distinctions between the overall dose of asbestos . . . and that portion of
3 such exposure which could be attributed to the shipbuilders’ materials.” *Id.* Moreover,
4 accepting “such a sweeping opinion” would render the substantial factor test meaningless
5 and allow “unbounded liability”; it would impose liability on any asbestos-containing
6 product no matter how fleeting the exposure. *Id.*

7 Several other circuits have also rejected the “every exposure” theory. The Seventh
8 Circuit in *Krik v. Exxon Mobil Corp.* agreed that to allow the “every exposure” theory
9 would render the substantial-factor test “essentially meaningless” because liability could
10 be imposed even when a worker had the briefest of encounters. 870 F.3d at 672. The
11 Sixth Circuit in *Lindstrom v. A-C Product Liability Trust*, rejected an expert opinion that
12 states “in a conclusory fashion that every exposure to asbestos was a substantial factor.”
13 424 F.3d 488, 493 (6th Cir. 2005). Indeed, a growing number of courts have recognized
14 that the “every exposure” theory lacks sufficient support and have accordingly rejected
15 such testimony. *See, e.g., Rockman v. Union Carbide Corp.*, 266 F. Supp. 3d 839, 849
16 (D. Md. 2017); *Haskins v. 3M Co.*, No 2:15-cv-02086-DCN, 3:15-cv-02123-DCN, 2017
17 WL 3118017, at *7 (D.S.C. July 21, 2017) (excluding “every exposure” testimony under
18 Rule 403 because its probative value is outweighed by its tendency to confuse and
19 mislead the jury).

20 The court agrees with this overwhelming precedent that the “every exposure”
21 theory is unreliable. Such a theory is not tied to the severity of exposure and instead is
22 based on a view that every exposure is a substantial contributing factor to any resulting

1 mesothelioma. In other words, as long as the plaintiff later contracts mesothelioma, any
2 exposure he or she may have had automatically becomes a substantial factor in the
3 contraction of that disease. The imposition of a de minimis threshold does not save this
4 theory. *See, e.g., Yates*, 113 F. Supp. 3d at 847. Neither variant of the theory is based on
5 sufficient supporting facts and data, nor can either variant be tested or have a known error
6 rate. *See, e.g., Comardelle v. Pa. Gen. Ins. Co.*, 76 F. Supp. 3d 628, 632-33 (E.D. La.
7 2015). As the Ninth Circuit articulated, allowing such a theory would “undermine the
8 substantial factor standard” and allow “unbounded liability.” *See* 817 F.3d at 1177.

9 Ms. Barabin correctly points out that there have been some state and district courts
10 that have approved of the “every exposure” theory. (*See* Causation Mot. Resp. at 12-15.)
11 But the majority of those cases predate *McIndoe* and *Krik*. *See, e.g., Davis v. Honeywell*
12 *Int’l, Inc.*, 245 Cal. App. 4th 477, 487 (2016). Indeed, when asked at the hearing whether
13 there is any post-*McIndoe* precedent that allowed testimony based upon an “every
14 exposure” theory, Ms. Barabin could not provide such a case.¹³ Thus, Ms. Barabin
15 cannot dispute that, notwithstanding any previous split among the courts, the law is now
16 headed toward a consensus that the “every exposure” theory is unreliable and
17 inadmissible. *See Krik*, 870 F.3d at 677 (recognizing that more than 30 other federal and
18 state courts have rejected the “every exposure” theory).

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20 ¹³ At the hearing, Ms. Barabin refers to *Lipson* as a case allowing Dr. Brodkin’s
21 testimony, but *Lipson* was not post-*McIndoe*. *See generally* 2013 WL 6536923. Moreover,
22 *Lipson* did not admit Dr. Brodkin’s testimony because the court approved of the “every
exposure” theory. *See id.* at *3-5. Instead, *Lipson* allows Dr. Brodkin’s causation testimony
because it was not based on an “every exposure” theory at all. *Id.* at *4.

1 Ms. Barabin's remaining responses are meritless and somewhat confounding.
2 First, she points out that "the phrase 'any/cumulative exposure' never actually appears in
3 [*McIndoe*], anywhere." (Causation Mot. Resp. at 10.) The court fails to see the
4 relevance of this omission when the case plainly addresses a theory that is identical in
5 substance. *See Rockman*, 266 F. Supp. 3d at 849 (rejecting semantics argument when
6 "the theories are one and the same"). No matter what *McIndoe* calls the theory—"every
7 exposure," "any exposure," or any of its other many names—that arbitrary label leaves
8 unaffected the analysis of the theory's lack of reliability and the reasoning behind why it
9 should be excluded. Ms. Barabin offers no substantive argument to the contrary. (*See*
10 Causation Mot. Resp.)

11 Second, Ms. Barabin accuses Scapa of omitting *McIndoe*'s citations to the
12 Restatement (Third) of Torts. (*Id.* at 10-11.) Ms. Barabin then quotes a lengthy portion
13 of the Restatement that recites a hypothetical where the plaintiff's exposure to a product
14 was "minuscule" compared to his exposure to other products. (*Id.* at 11.) Relying on this
15 hypothetical, Ms. Barabin argues that *McIndoe* is inapposite because Mr. Barabin's
16 exposure was far from miniscule. (*Id.*) But this portion of the Restatement was not
17 directly discussed by *McIndoe*. *See* 817 F.3d at 1177-78. Nor does *McIndoe* limit its
18 holding only to situations featuring minimal exposure. *See id.* at 1177. Thus, the fact
19 that Mr. Barabin was allegedly exposed to more than de minimis levels of asbestos does
20 not render *McIndoe* inapplicable. Nor did Scapa improperly cite *McIndoe* by omitting a
21 portion of the Restatement that never directly appeared in the case.

22 //

1 The court concludes that the “every exposure” theory is unreliable and must be
2 excluded under Rule 702 and the *Daubert* standard.

3 *b. “Cumulative Exposure” Theory*

4 The court reaches the same conclusion regarding the “cumulative exposure”
5 theory. The Seventh Circuit in *Krik* recently confronted the same theory and held that the
6 “cumulative exposure theory was no different from the ‘each and every exposure’ theory
7 in all relevant ways.” 870 F.3d at 675. The principle behind the two theories are
8 identical: because it is impossible to determine which particular exposure caused the
9 illness, all exposures that contributed to the total exposure become substantial, regardless
10 of the specific quantum or severity of exposure attributable to each defendant. *Id.* at 677.
11 Accordingly, the Seventh Circuit held that testimony based on the “cumulative exposure”
12 theory is similarly unreliable. *Id.* at 678. District courts across the country have
13 concluded the same. *See Haskins*, 2017 WL 3118017, at *7 (reasoning that the
14 “cumulative exposure” theory “quickly devolves into the sort of ‘every exposure’ liability
15 that was specifically rejected”).

16 The court agrees with the reasoning in *Krik*. The “cumulative exposure” theory
17 posits that every exposure, no matter how small, becomes a substantial factor whenever
18 the total cumulative dose results in mesothelioma, because every exposure is necessarily
19 a part of that total dose. Thus, the “cumulative exposure” theory contains the same
20 reliability problems that the “every exposure” theory does. It is not based on sufficient
21 supporting facts and data. Indeed, every exposure becomes a substantial factor based on
22 one fact alone: that it was part of the total dose. Nor can such a theory be tested.

1 Moreover, as the *Haskins* court aptly stated, “[r]egardless of whether this is sound
2 science, it is inconsistent with the law” that the exposure be a substantial factor in causing
3 the injury. *See* 2017 WL 3118017, at *6. Accordingly, the court finds the “cumulative
4 exposure” theory unreliable under Rule 702 and the *Daubert* standard.

5 2. Application to Ms. Barabin’s Causation Experts

6 Having found that neither the “every exposure” theory nor the “cumulative
7 exposure” theory is reliable, the court now must ascertain whether Ms. Barabin’s
8 proffered expert testimonies rely on either theory. The court address each expert
9 testimony in turn.

10 *a. Dr. Carl Brodtkin*

11 Scapa alleges that Dr. Brodtkin bases his causation opinion on the “every
12 exposure” and “cumulative exposure” theories. (*See* Causation Mot. at 1.) The court
13 disagrees. Dr. Brodtkin’s causation opinion is not based on the theory that every exposure
14 must necessarily be a substantial factor. Indeed, when faced with a hypothetical where
15 only 1 out of 100 dryer felts contained asbestos, Dr. Brodtkin stated that he would not be
16 able to conclusively make a determination regarding causation. (Brodtkin Dep. at 65-66.)
17 Instead, Dr. Brodtkin looks for what he calls an “identified exposure” that must meet five
18 requirements: (1) a well-characterized source of asbestos; (2) an activity disrupting that
19 source; (3) so as to generate “significant concentrations of airborne asbestos fibers” that
20 would; (4) overcome the body’s natural asbestos defenses; and (5) add to the body’s
21 burden of asbestos. (*Id.* at 52.) These requirements prevent exposures from
22 automatically qualifying as substantial factors. For instance, not every exposure

1 generates significant concentrations of asbestos fibers. Moreover, not every exposure
2 would overcome the body's defenses.

3 Utilizing this "identified exposure" theory, Dr. Brodkin's testimony regarding
4 causation is reliable. Dr. Brodkin interviewed Mr. Barabin firsthand, reviewed his
5 occupational history, analyzed exposure data from that occupational history, studied Mr.
6 Barabin's medical and autopsy records, and consulted numerous studies on asbestos
7 exposure. (Brodkin Rep. at 10, 46.) Based upon this review, Dr. Brodkin concluded
8 specifically that the paper-making activities Mr. Barabin performed for three-plus
9 decades—which involved "regular manipulation" of dryer felts—were a substantial part
10 of his occupational history and likely a source of intense exposure. (*See id.* at 31.) Thus,
11 the exposure to dryer felts qualifies as an "identified exposure," not simply because the
12 exposure occurred and necessarily contributed to the total dose, but because the dryer
13 felts "represent an historically important source of respirable asbestos exposure." (*See id.*
14 at 52.) Such testimony is not only distinct from the "every exposure" and "cumulative
15 exposure" theories, but also constitutes reliable and relevant testimony. *See Daubert*, 509
16 U.S. at 592.

17 Several courts that have considered Dr. Brodkin's "identified exposure" theory
18 have reached the same conclusion. In *Lipson v. ON Marine Servs. Co., LLC*, for
19 example, the Western District of Washington drew this exact distinction between Dr.
20 Brodkin's causation testimony and the "every exposure" theory. 2013 WL 6536923, at
21 *3-4. The court observed that Dr. Brodkin had rejected the "every exposure" theory and
22 concluded that his five-part "identified exposure" opinions are "not simply unreliable

1 opinions equivalent to ‘every fiber in disguise.’” *Id.* at *4. A California state appellate
2 court recently expressed the same reasoning. *See Phillips v. Honeywell Int’l Inc.*, 9 Cal.
3 App. 5th 1061, 1088 (2017) (holding that “the identified-exposure theory is a more
4 rigorous standard of causation than the every-exposure theory” because it takes
5 “significant exposures” to increase the risk of disease).

6 The court finds that Dr. Brodkin’s expert testimony on causation is both reliable
7 and relevant and thus passes muster under Rule 702 and the *Daubert* standard.
8 Accordingly, the court denies Scapa’s motion to exclude Dr. Brodkin’s testimony.

9 *b. Dr. Allan Smith*

10 Scapa next assails Dr. Smith’s causation testimony for relying on a “cumulative
11 exposure” theory. The court agrees. Dr. Smith posits that all of one’s asbestos inhalation
12 in the 15 years before diagnosis “contributed to the dose that increased the risk and
13 caused the cancer.” (Smith Rep. at 6.) In other words, Dr. Smith believes that the
14 cumulative exposure creates a total “dose” that causes the injury. And because the
15 cumulative exposure “consists of all inhalation of asbestos dust . . . all of it is therefore
16 important and meaningful, and significant.” (*Id.*) Unlike Dr. Brodkin, Dr. Smith does
17 not impose any other requirements; instead, for Dr. Smith, it is sufficient that each
18 inhalation added to the total dose.

19 This opinion is no different from the “cumulative exposure” theory discussed and
20 rejected in *Krik*. *See* 870 F.3d at 677-78. Dr. Smith’s logic similarly would impose
21 liability on any exposure, no matter how small, as long as it occurred within 15 years of
22 diagnosis. Dr. Smith includes no explanation for why exposures to Scapa’s dryer felts

1 specifically are considered substantial causes, besides the fact that they contributed to the
2 total exposure. (See Smith Rep.) Because Dr. Smith bases his opinion on the unreliable
3 “cumulative exposure” theory, his causation testimony is unreliable as well. See *In re*
4 *Silicone Gel Breast Implants Prod. Liab. Litig.*, 318 F. Supp. 2d 879, 890 (C.D. Cal.
5 2004) (rejecting a conclusion as unreliable because a step in the analysis was unreliable).

6 At the hearing, Ms. Barabin maintained that Dr. Smith’s testimony is reliable
7 because he expresses a “cumulative exposure” theory only as to Mr. Barabin. Put
8 differently, Ms. Barabin seeks to draw a distinction between a “cumulative exposure”
9 theory as applied to an individual—each of Mr. Barabin’s exposures contributed to his
10 cumulative total dose, which caused his mesothelioma—versus a general “cumulative
11 exposure” theory—each exposure in any hypothetical person contributes to the total dose
12 that will cause mesothelioma. But it is impossible to distinguish between the two
13 positions. At the outset, the court notes that Dr. Smith’s opinion regarding the
14 “cumulative exposure” theory is not limited only to Mr. Barabin; instead, it is couched in
15 general language. (See Smith Rep. at 6 (“When *someone* gets mesothelioma . . . all the
16 inhalation of asbestos containing dust up to about 15 years prior to diagnosis contributed
17 to the dose that increased the risk and caused the cancer.” (emphasis added)).) Moreover,
18 Ms. Barabin draws a distinction without a difference. Although Dr. Smith’s overall
19 conclusion pertains to Mr. Barabin specifically—as it must—there is no indication that
20 Dr. Smith considered disqualifying any exposure, or if he did, what factors he weighed to
21 prevent each and every exposure from being “significant.” Thus, the court grants Scapa’s
22 motion to exclude Dr. Smith from testifying to causation in this case.

1 c. *Dr. David Tarin*

2 Turning to Dr. Tarin's testimony, the court finds that it does not run afoul of
3 *Daubert*. Dr. Tarin opines that "the cumulative exposure to all forms of [asbestos]
4 contributes to the induction and propagation of the tumor." (Tarin Rep. at 9.) Indeed, he
5 emphasizes that "it is the cumulative exposure during Mr. Barabin's life which resulted in
6 the causation of this malignancy." (Tarin Dep. at 99.) Dr. Tarin bases this conclusion on
7 his review of Mr. Barabin's occupational history, his own examination of Mr. Barabin's
8 tissue samples, and how the "substantial occupational exposure to asbestos" during Mr.
9 Barabin's years at the paper mill is corroborated by "the microscopic identification of
10 asbestos bodies in the lung tissue." (Tarin Rep. at 9.) The court finds that this
11 methodology is sound and sufficiently reliable.

12 Critically, Dr. Tarin does not take the inferential leap that is troublesome in the
13 "cumulative exposure" theory—that is, he does not opine that because every exposure
14 contributes to the total dose, every exposure must be a substantial factor in the cause of
15 the disease. When pushed at his deposition, Dr. Tarin explicitly declined to apportion
16 causation between individual exposures, stating that he is "not going to be itemizing it
17 like that" and will instead be "continu[ing] with [his] explanation that it is the cumulative
18 exposure which is responsible." (Tarin Dep. at 86.) Thus, Dr. Tarin does not rely on the
19 "cumulative exposure" theory in reaching his conclusion that Mr. Barabin's
20 mesothelioma was caused "by repeated occupational exposure to, and inhalation of,
21 asbestos dust." (Tarin Rep. at 9.)

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1 The court is wary, however, of the fact that Dr. Tarin comes close to expressing
2 the “cumulative exposure” theory. Certainly, Dr. Tarin’s conclusion touches on the
3 theory: that the total cumulative exposure experienced by Mr. Barabin caused his
4 disease. Thus, the court allows Dr. Tarin’s testimony only to the extent that, as he states
5 in his deposition, he expresses no opinion on the individual exposures that make up the
6 cumulative exposure. Accordingly, the court denies Scapa’s motion to exclude Dr.
7 Tarin’s testimony insofar as Dr. Tarin limits his testimony to the impact of the
8 cumulative exposure.

9 *d. Dr. Richard Cohen*

10 Lastly, Scapa argues that Dr. Cohen relies on the “every exposure” and
11 “cumulative exposure” theories. The court agrees. Dr. Cohen opines that “any exposure
12 that an individual suffered that were in addition to ambient air levels . . . would, on a
13 more likely than not basis, have been a substantial factor in causing the alleged disease.”
14 (Cohen Rep. at 6.) This statement is nearly identical to the expert opinion excluded in
15 *McIndoe*: that “every exposure to asbestos above a threshold level is necessarily a
16 substantial factor in the contraction of asbestos-related diseases.” *See* 817 F.3d at 1177.
17 As with Dr. Smith, this opinion is not one limited to Mr. Barabin. Instead, Dr. Cohen
18 identifies this statement as his general opinion and relies upon it to reach the conclusion
19 that the exposures attributable to Scapa were a substantial factor in the causation of Mr.
20 Barabin’s mesothelioma. (*See* Cohen Rep. at 5-6.) For this reason alone, the court finds
21 that Dr. Cohen relies on the “every exposure” theory and thus must be excluded.

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1 Additionally, Dr. Cohen states that the cumulative exposure, or total dose, causes
2 the disease and argues that “it is impossible to exclude any exposures as being a
3 substantial factor in causing the illness.” (*Id.* at 6.) Dr. Cohen posits that “each and
4 every exposure contributes to the person’s total dose that caused the asbestos-related
5 disease. *Thus*, all the asbestos . . . to which a person is exposed . . . contributed to cause
6 the asbestos-related disease.” (*Id.* at 6 (emphasis added).) The use of the word “thus”
7 reveals Dr. Cohen’s belief that each individual exposure is a causal factor simply because
8 it contributed to the total dose. Indeed, he posits that “[t]his is true even if the exposure
9 was within the standard permissible exposure limits at the time of the exposure.” (*Id.*)
10 This portion of Dr. Cohen’s opinion is almost indistinguishable from the “cumulative
11 exposure” theory, where because no single exposure can be excluded from the total
12 exposure, every exposure must be a substantial factor.

13 Because Dr. Cohen relies on both the “every exposure” and “cumulative
14 exposure” theories, his causation testimony is likewise unreliable. Accordingly, the court
15 grants Scapa’s motion to exclude Dr. Cohen’s testimony on causation in this matter.

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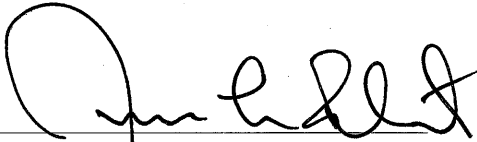
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IV. CONCLUSION

Based on the foregoing analysis, the court GRANTS in part and DENIES in part Scapa's motion to exclude Ms. Barabin's exposure witnesses (Dkt. # 681) and GRANTS in part and DENIES in part Scapa's motion to exclude Ms. Barabin's causation witnesses (Dkt. # 683).

Dated this ^u12 day of February, 2018.


JAMES L. ROBART
United States District Judge