IN THE SUPERIOR COURT OF WARE COUNTY

STATE OF GEORGIA

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ROY KNIGHT AND MILVA KNIGHT,

Plaintiffs, CIVIL ACTION FILE NO.

-against- 09-v-0799

GEORGIA-PACIFIC, LLC, INDIVIDUALLY AND AS SUCCESSOR IN INTEREST TO GEORGIA-PACIFIC CORPORATION AND BESTWALL GYPSUM COMPANY, ET AL.,

Defendants.

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June 2, 2010

1:14 p.m.

DEPOSITION of ROBERT C. ADAMS, MS, CIH, CSP, taken by the Plaintiffs, pursuant to Notice, at the law offices of ALSTON & BIRD, LLP, 90 Park Avenue, New York, New York before Karen Perlman, a Shorthand Reporter and Notary Public within and for the State of New York.

GREENHOUSE REPORTING, INC.

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A P P E A R A N C E S: (Continued.)

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R O B E R T C. A D A M S, stating an address of ENVIRON International Corp., 214 Carnegie Center, Princeton, New Jersey 08540, having been first duly sworn by the Notary Public, was examined and testified under oath as follows:

(Adams Exhibit 1, notice of deposition of Robert C. Adams, marked for identification.)

(Adams Exhibit 2, Defendant Union Carbide Corporation's Response and Objections to Plaintiffs' Notice of Deposition of Robert C. Adams, marked for identification.)

EXAMINATION

BY MR. HARTLEY:

Q. Good afternoon, Mr. Adams. Are you a doctor, I didn't notice?

A. No, I'm not.

Q. So is it Mr. Adams, is that okay with you?

A. Mr. Adams is fine.

Q. Mr. Adams, what is your profession?

A. I am an industrial hygienist with the firm of ENVIRON.

Q. How long have you worked for ENVIRON?

A. I've been with ENVIRON now for nine years, not continuous, but nine years total.

Q. Do you work with Kenny Crump?

A. I know Kenny Crump. But I have not worked with him directly.

Q. He is an employee of ENVIRON as well, is he not?

A. Yes. I believe he is an employee of ENVIRON.

Q. How many consultants does ENVIRON employ?

A. ENVIRON has over 1100 consultants worldwide.

Q. In what area, besides asbestos, litigation do you do consulting?

MR. KELLY: Objection, form.

A. Are you referring to me personally, or to ENVIRON as a company?

Q. You personally. I apologize for that.

A. No problem.

I do consulting in OSHA compliance, specifically OSHA compliance auditing. I do exposure and risk assessment associated with epidemiological studies. I do general industrial hygiene work, including air sampling, and noise monitoring, again, what I would consider the traditional industrial hygiene work.

Q. And for what industries have you done that kind of work?

A. I've done work for a lot of different industries. The plastics industry. I've done work with the -- I mean, I -- there's probably been hundreds, if not thousands of industrial facilities I've been to in my career.

I also do a lot of work in the construction industry as well, and have for -- for many years.

Q. Other than doing some consulting work for Union Carbide, what other companies have you done consulting work where the topic was asbestos?

MR. KELLY: Objection, form.

A. I have done consulting work for York

International Corporation. I've done work for Kohler. I've done work for 84 Lumber Company, Fisher Scientific, and VWR. Resillo Press Pad. And there's probably one or two others that escape me at the moment since -- a company called Atlas Insulation, I've done work for.

Q. What is VWR? I'm not familiar with that one.

A. VWR is a science products company.

Q. In your personal work for ENVIRON, what portion of your work, if you can give by percentage, is your work for folks concerning asbestos matters?

MR. KELLY: Objection, form.

You can answer.

A. The approximate percentage is between 60 and 70 percent of my business right now is related to asbestos litigation.

Q. Okay. And do you have another portion of your -- what do you do with the other 30 to 40 percent of your business work?

A. It's generally either compliance auditing, or it may be program -- it's health and safety program development. I do a small portion

of work related to remedial cleanup, developing health and safety plans. And as I mentioned, we do some traditional industrial hygiene work where we go out to plants and collect air samples. And I also do exposure assessment work in support of epidemiology studies that ENVIRON does.

Q. Is Kenny Crump still working with ENVIRON; do you know?

A. I honestly don't know what his status is. I think he -- I'm not sure if he was ever a full-time employee. But I -- I haven't spoken to Kenny Crump in probably three or four years.

Q. And as part of your work at ENVIRON, did you do any consulting work where Kenny Crump was also working for the same client?

A. No.

Q. Have you done any -- I didn't see the mention of any, but I may not know all of the companies that you have -- I'm not familiar with all of the companies that you've consulted with in asbestos litigation. Have you done any consulting with companies that made or sold asbestos containing joint compounds?

A. Yes. I did a couple of projects for United Gilsonite Laboratories, UGL, and 84 Lumber are the primary companies that I've done consulting work on asbestos litigation matters.

Q. You've also done -- I don't know that I got it -- I didn't get it in the list, because I guess I asked you other than Union Carbide.

How many times have you worked for Union Carbide?

MR. KELLY: Objection, form.

A. I think it's probably been about 20 times.

Q. Since you went to work, what was it, eight years ago or nine years ago for ENVIRON?

A. I rejoined ENVIRON in 2003. So it's technically about seven years. I was with ENVIRON previously in the 1990s.

Q. So since 2003, has your work remained essentially the same; that is, you've been doing consulting in the first 60 or 70 percent of your time in asbestos litigation, or has it changed?

A. It has changed. When I first

started, the litigation was a small proportion of the work that I was doing. It's -- it's gradually increased over the last five years.

Q. So since 2005 it's increased?

A. Yes.

Q. Prior to 2005, from 2003 to 2005, were you doing any asbestos litigation?

A. Not -- not prior to 2005.

Q. And in 2005, who hired you first to do asbestos work?

A. That would be the law firm of Hoagland Longo Moran Dunst & Doukas in New Brunswick, New Jersey.

Q. Who did they represent?

A. At the time they represented a -- I believe it was a small building materials supplier, which I don't remember the name of the building supplier. The case was the Sherrapa case. And subsequently, they retained me to assist with 84 Lumber cases.

Q. How many 84 Lumber cases have you worked on?

A. I've probably worked on about 20 to 25 84 Lumber cases in the last five years.

Q. Did those all involve alleged exposures to a joint compound?

A. Yes. Also sometimes floor tile and other building materials. But predominantly it's been joint compound.

Q. Do you know somebody named Alan Gerson?

A. The name is familiar, but I can't place the name right now.

Q. Do you live in New York City?

A. No, I do not.

Q. I don't know if he still is, but he at one time was on the city council of New York. Does that help at all?

A. It -- it may be. It's -- it's possible. The name -- like I said, the name is familiar to me, but I can't place it.

Q. Did you ever do any litigation work with a firm called Kelley Drye & Warren?

A. No.

Q. How about Foley & Lardner?

A. No.

Q. Now, you have seen a copy, one of the copies of the notice of deposition in this

case, is that right?

A. Yes.

Q. And Mr. Kelly has been kind enough to say that he would help us mark those documents that we choose to mark those.

MR. HARTLEY: Colin, can we mark the notice of deposition as Exhibit 1; and as Exhibit 2 your objection to the notice?

MR. KELLY: Done and done.

MR. HARTLEY: Thank you.

Q. Now, your counsel has been kind enough to provide us with several documents electronically to help us know what you have present there.

Did you bring a copy of your report to the deposition?

A. I did.

MR. HARTLEY: I would like to, by agreement, mark a copy of the report as an electronic only copy that will be attached with the disk to the deposition and also made available to all counsel.

MR. KELLY: Agreed.

(Adams Exhibit 3, copy of report of

Mr. Adams, marked for identification.)

Q. What do you understand your role to be in this case?

A. I was retained to review the work history of Mr. Knight and to evaluate the occupational exposures that he may have had to asbestos-containing materials. And to specifically look at any exposures that might have been related to products that may have contained the Union Carbide Calidria of fiber.

Q. And does your report contain the sum and substance of your opinions that relate to that?

A. It does.

Q. Now, your report indicates that you reviewed certain things. On page 2 it indicates the materials relied upon. Is that right?

A. That is correct.

Q. Are there any other materials that you relied upon, other than what's listed in the table on page 2?

A. The only other document that was provided to me, and it was provided after the report was issued, was the deposition of

Mr. Cunningham, George Cunningham. So that deposition is not reflected in this listing. As I said, it was received the day that the report was sent out.

Q. There are no other documents that you're going to rely upon to form your opinions in this case?

MR. KELLY: Objection, form.

A. As far as case-specific materials, no.

Q. What about as far as other materials, I guess, I want to make sure --

A. The --

Q. Let me ask you a different question.

What other materials, other than those materials on page 2 of your report, are you relying upon to form your opinions in this case?

A. The other materials are the scientific literature that I have provided in the references section of my report, beginning on page 17.

And also, I have in my possession formula sheets from Georgia Pacific, the Marietta, Georgia plant; specifically, the

formula sheets related to the ready-mix joint compounds that were manufactured in that plant.

Q. Anything else?

A. That's it.

Q. Have you reviewed any testimony of a gentleman named Charles William Leonard?

A. I have previously seen some of Mr. Leonard's depositions, as a result of prior Union Carbide cases that I've been involved with.

Q. Do you have any opinions today that you'll be rendering based on what you've read in Mr. Leonard's depositions that you've previously reviewed?

MR. KELLY: Objection, form.

A. Nothing -- nothing that is specific to Mr. Leonard's testimony, since I have the formula sheets. The previous review of his testimony was related to understanding the use of the Calidria of fiber in the formulation of different Georgia -- Georgia Pacific joint compounds.

Q. Now, it indicates here on page 2 of your report that you have employment records of Speedy McVay Plumbing, is that right?

A. Yes.

Q. Did you bring those with you?

A. Those are on an electronic disk. I don't have a hard copy of those in front of me.

Q. What did you take from those, in terms of forming your opinions in this case?

MR. KELLY: Objection, form.

A. What I -- the purpose there was just to establish the time frame of his employment with this company.

Q. You established that and write it down in your report somewhere?

A. Yes. We -- there is a -- where we talk about the time frame at which he worked for Speedy McVay which was in the 19 -- 1970 to 1972 time frame.

Q. Very interesting.

MR. HARTLEY: Georgia Pacific says they're not attending the deposition, just so everybody knows.

Could we mark as Exhibit 4 to the deposition, Colin, the Speedy McVay -- whatever the employment records are from Speedy McVay?

MR. KELLY: Yes.

(Adams Exhibit 4, records from Speedy McVay, marked for identification.)

Q. Mr. Adams, if I were to walk in the door and tell ENVIRON that I needed the help of an industrial hygienist, and ended up being given your name as the person to talk to at ENVIRON, and I was to interview you and ask you for some references, you would be able to give me references of former clients who would vouch for your abilities, am I right?

MR. KELLY: Objection, form.

A. Yes.

Q. Now, if I were to ask you if you have done any sort of exposure assessment of the type you've done in this report, and I said Mr. Adams, could you give me a reference for an exposure assessment like the one you've done in this report in this case, where you did one such as that for non-litigation work, would you be able to give me such a reference?

MR. KELLY: Objection, form.

A. Yes. I -- I could give you a reference to non-litigation exposure assessment

work I've done.

Q. Where have you done that?

A. I have done an exposure assessment associated with, as I mentioned an epidemiology study of porcelain workers exposed to silica, and I could give you the contacts that we worked with as part of that exposure assessment.

Q. Who would you give me?

A. Well, I --

MR. KELLY: Object to the form.

A. I could give you a Dr. Karl Heinz Guldner, that's G-U-L-D-N-E-R, who is -- was our contact at the German insurance group. I couldn't pronounce the German terms for it.

Q. Was it an insurance company in Germany?

A. It's -- yes. It's the insurance industry is more or less state-run. So he was our technical contact for the study that we were doing.

Q. Was this something that you did when you were at ENVIRON?

A. Yes.

Q. And what you're telling me is that

you did some kind of exposure assessment for the group of people that were exposed to silica in a cohort that was being studied?

A. Correct.

Q. Did you do any individual, person-by-person exposure assessments?

A. No, we did them by job classification, or job title.

Q. And did you have any data from the job site that helped you do that?

A. We had data from a number of different locations that were provided through the -- through the insurance group in Germany.

Q. Was the data that you were given specific to the job sites where the cohort, the members of the cohort worked?

A. Some yes; some no. Most of it came from the major manufacturing facilities, but we did have a number of job sites that had little or no data available.

Q. What was the thesis that was being tested in the epidemiologic study that you were performing?

MR. KELLY: Objection, form.

A. They were looking to identify the incidents of lung cancer among the German porcelain workers cohort.

Q. Did you find an increased level of lung cancer in the porcelain workers?

A. My specific role in that was to prepare the exposure assessment. But it is my understanding they did not find an increase in the incidents of lung cancer in that cohort.

Q. You were hired, you being ENVIRON, were hired -- was it a stateside office that was hired to do this evaluation in Germany?

A. It -- it came through our -- our Germany office in Essen, through the contacts that we had. But our epidemiologists are stateside. And I was brought in to provide the exposure assessment support for that epidemiology study.

Q. Is it fair to say that the kind of exposure assessments that you gave to the folks working on that epidemiological study was very different than what you did here in this case?

MR. KELLY: Objection, form.

A. No. I applied the same

methodologies in developing exposure assessments in that case as I would in the litigation cases.

Q. What monitoring data did you have from anywhere that Roy Knight worked?

A. I didn't have monitoring data specific to the locations where Mr. Knight worked. I was relying on the scientific data that's published in the peer-reviewed literature.

Q. So in the German epidemiologic study, you had data from the sites where the cohort worked, but in Roy Knight's individual review you did not?

MR. KELLY: Objection to form.

A. That's correct.

Q. The epidemiologic study in Germany was unrelated to litigation, whereas Roy Knight's review was related to litigation, true?

MR. KELLY: Objection, form.

A. That's correct.

Q. The review you did for the folks in Germany was for a group of people. And the review you did in this case was an individual review, true?

A. Yes. But let me qualify that,

because the data that we developed would then be used to assign exposure values for the members of the cohort.

Q. So you're telling me that you took from various data points where folks worked after studying jobs that were being done and air monitoring had occurred, you created an exposure matrix by job title, true?

MR. KELLY: Objection, form.

A. Yes. We created job matrix by title.

Q. Whereas in this case you didn't have any data points to anchor the specific conditions that Roy Knight was working in to people who had previously been monitored in that same situation, or even in the same statements, true?

MR. KELLY: Objection, form.

A. I don't quite understand your question.

Q. Well, it really comes down to the fact that you had data points for the group in Germany, but you don't have any data points for Roy Knight that relate specifically to where he worked, right?

MR. KELLY: Objection, form.

A. We had data points for the silica study. But we didn't have data points for all locations, all occupations, or all years.

Q. And you didn't have any data points for Roy Knight at all, right?

MR. KELLY: Objection to form.

A. I used the available data in the scientific literature to estimate the exposure that Mr. Knight would have had under the circumstances, which he described in his depositions.

Q. And you would agree with me that none of the available exposure data from the literature deals with anyplace that Roy Knight was working, right?

MR. KELLY: Objection, form.

A. In -- in -- what I would agree with is that it was not specific to Mr. Knight; however, it is representative of the exposures that Mr. Knight might have had.

MR. HARTLEY: Object as nonresponsive.

Q. I'm just asking you if any of the

places studied in any of the literature that you relied on were places that Roy Knight worked?

MR. KELLY: Objection, form.

A. The material -- the information in the literature do not specifically relate to any location that Mr. Knight worked at.

Q. Then the copy of your report that I received also came with a copy of your resume. Is that typically part of your report, or should we mark that separately?

A. That is typically part of the report.

MR. HARTLEY: Colin, would you make sure that the report that you attached as Exhibit 3 also has his resume on it?

MR. KELLY: Yes.

MR. HARTLEY: Thank you kindly.

MR. KELLY: Yes.

Q. I see that you have done some research relating to vinyl chloride, is that true?

A. Yes.

Q. Vinyl chloride causes angiosarcoma of the liver, correct?

MR. KELLY: Objection, form.

A. That's my understanding of the adverse outcome. Yes.

Q. That is a signature tumor for excessive vinyl chloride exposure, correct?

MR. KELLY: Objection, form.

A. That is my understanding. Yes.

Q. If you see someone with angiosarcoma of the liver, you, knowing what you know about vinyl chloride, think was this person exposed to vinyl chloride, right?

MR. KELLY: Objection, form.

A. I don't know if I would have an opinion one way or the other as to whether that would be the first thing I would think about, if somebody presented to me that way.

Q. Are there other risk factors for angiosarcoma of the liver that you're aware of?

A. I don't know the answer to that question.

Q. Did you come to work on vinyl chloride for a defendant in litigation?

A. No.

Q. How did you come to do that?

A. It's another epidemiology study.

Q. Okay. For whom did you do that?

A. I -- I am not sure who the immediate client is that we're doing that work for. I am working in collaboration with ENVIRON's epidemiologist on that study, or was working on it.

Q. That is something that is being done for a corporate client of ENVIRON, though, correct?

MR. KELLY: Objection to form.

A. I don't believe it's a corporate client. I believe it's probably an industry association.

Q. Some sort of chemical industry association?

A. I believe so.

Q. You understand, of course, though, that industry associations exist to represent corporate interests, true?

MR. KELLY: Objection, form.

Assumes facts not in evidence.

A. I don't really have an opinion one way or the other on that.

Q. Have you done any work for Dow Chemical?

MR. KELLY: Objection, form.

A. Not for Dow Chemical, no.

Q. Any entity with the word Dow in its name?

A. No.

Q. What chemical companies have you done work for?

MR. KELLY: Objection, form, relevance.

A. I -- I mean, right off the top of my head, let me -- I've done work for a number of small companies, but I can't -- may I look at my resume real quick?

Q. Sure. This is just an open book test, so anything you want to look at is fair game.

A. Because I'm trying -- you know, when I think about -- when I think about some of the refinery work I've done, I don't know if you count them as a chemical company.

Q. It's up to you whether you consider them a chemical company or not.

A. I'm just having a hard time right now recollecting a specific chemical company that I've done work for.

Q. If you think of them as we go along, let me know, unless you think you might be able to figure it out by looking at some of your resume still.

A. I'll let you know if they come to mind.

Q. Now, on page 9 of your resume, it indicates some of your prior employment, is that right, before joining ENVIRON?

A. Yes.

Q. Was your first work as an industrial hygienist at Liberty Mutual?

A. Yes.

Q. What did you do before you joined Liberty Mutual?

A. I was pretty much out of college at that point. So I had about a year where I was just working for some small companies, and then I joined Liberty Mutual, and I worked for them for about 10 years.

Q. What kind of small companies did you

work for before Liberty Mutual?

A. I worked for an analytical chemistry laboratory. And I also worked for a company that manufactured x-ray development chemicals.

Q. Did you do industrial hygiene work for the analytical chemistry laboratory or the x-ray development chemicals company?

A. No, I did not.

Q. How did you get interested in industrial hygiene?

A. Liberty Mutual had industrial hygienists on staff. And I was offered the opportunity to enter the industrial hygiene training program, which I did in 1986.

Q. So to date this, if I were to date it, that would be 1986 is when you went to work for Liberty Mutual?

A. No. I started working for Liberty Mutual in 1982.

Q. And so it was before 1982 that you worked in the analytical chemistry lab and the x-ray development company?

A. Sir, let me correct that. I started with Liberty Mutual in 1981. Prior to 1981, I

worked for the analytical laboratory and the chemical manufacturer.

Q. Now, at the x-ray development chemical company -- is that what you said it was?

A. Yes.

Q. -- did you work with any hazardous materials?

MR. KELLY: Objection, form.

A. Yes.

Q. What sorts of hazardous materials?

A. The x-ray chemicals were acidic in nature. And so we had to wear protective equipment when we handled those materials.

Q. Do you remember what kind of acid it was?

A. I don't.

Q. When you went to work there, were you provided training as to how to protect yourself and other folks from getting injured by the chemicals that were in the facility?

A. I don't recall that there was any specific safety training provided.

Q. Did the company that provided -- what was the name of the x-ray development

company?

A. I believe the name was Picker, P-I-C-K-E-R, Chemical.

Q. Did Picker provide any kind of data about the hazards of the materials that it was selling to its customers?

A. I have no knowledge of that.

Q. You never, to your recollection, saw a material safety data sheet, or anything like that?

A. I don't recall ever seeing a material safety data sheet.

Q. How about the analytical chemistry lab, did you have any kind of training about how to do your job safely there?

A. No.

Q. Were there hazardous materials used at the analytical chemistry lab?

MR. KELLY: Objection to form.

A. There were some laboratory-grade products that were used in some of the analytical procedures that we followed. But I would say generally, no.

Q. In 1981 you went to work at Liberty

Mutual; what did you do there?

A. I started out as a loss prevention consultant, and primarily conducted facility inspections on behalf of the underwriting department to identify potential risks that might be present in the workplaces.

Q. Did you have a training program to serve as a loss prevention consultant?

A. Yes. Liberty Mutual had what amounted to about a year-long training process that involved both classroom as well as on-the-job training.

Q. One of the things that you learned about in 1981 from Liberty Mutual was that asbestos containing materials in the facility were a potential hazard, true?

MR. KELLY: Objection, form.

Assumes facts not in evidence.

A. We learned that one of the materials that was of interest to our underwriting department would be asbestos materials.

Q. Right. You learned that asbestos was, according to your employer at Liberty Mutual, a carcinogen, true?

MR. KELLY: Objection, form.

A. I -- you know, at that early stage, we were looking at many different chemicals. And whether or not we specifically discussed asbestos as a carcinogen at that stage, I don't recall.

Q. Liberty Mutual knew in 1981 that asbestos was a carcinogen, didn't it?

MR. KELLY: Objection, form.

A. I -- I am certain that they did. But, again, there were many, many topics that we had to cover as part of our fundamental training, in that first year.

Q. Did you have like an area of the country that you were limited to in your work as a loss prevention consultant?

A. I started working in Maryland, and that was the territory that I was assigned to.

Q. Did you go to any large industrial facilities in Maryland?

A. Yes.

Q. Which ones?

A. There were lots of facilities. Liberty Mutual was and may still be the largest writer of workers' compensation insurance, so I

went to a lot of large facilities. A lot of small facilities. One that I can immediately think of was the Genstar Stone Products Company. It was a large limestone quarrying interest. I went to a Congoleum flooring plant. This was a lot of years ago.

Q. But you remember it, don't you, going to that -- for instance, Congoleum flooring plant that was something that sticks out in your mind, right?

A. Yes.

Q. Did you ever go to any shipyards in Baltimore; Sparrows Point or any of the other shipyards?

A. I was at actually the Dundalk, D-U-N-D-A-L-K, Marine Terminal, which I believe is not too far away from Sparrows Point. I have been in shipyards, and I was -- I was in the Sparrows Point shipyard at one point in time. But I don't rec -- I don't recall the company.

Q. It would have been Bethlehem Steel, wouldn't it?

MR. KELLY: Objection, form.

A. I was on site at the Bethlehem Steel

facility, but not for Bethlehem Steel.

Q. In the Congoleum flooring facility, they were using asbestos to make floor tile, true?

MR. KELLY: Objection, form.

A. That plant had one process that used asbestos not in floor tile, but in flooring paper.

Q. And that was something that Liberty Mutual was concerned about making sure that people weren't exposed to the asbestos from that flooring paper, right?

MR. KELLY: Objection, form.

Speculation.

A. We conducted industrial hygiene measurements of the operation to determine if it was in compliance with the occupational health and safety regulations in force at that time.

Q. And the reason you did that was because of the concern for the potential injurious effects of asbestos if people were overexposed, right?

MR. KELLY: Objection, form.

A. We were asked to evaluate that by

the company to determine if they were in compliance with the OSHA permissible exposure limits.

Q. And why do the OSHA permissible exposure limits exist?

A. They were established to provide a guideline for limiting exposures to minimize the risk of potential injury or illness.

Q. One of the potential hazards of overexposure to asbestos is mesothelioma, true?

MR. KELLY: Objection, form.

A. That can't be answered by a straight yes or no. The level of exposure depends on a number of factors, including, you know, the fiber type, the fiber size, the intensity and duration of exposure.

Q. Have you done any original research into the hazards of asbestos?

A. I have not.

Q. You rely, as an industrial hygienist, on the government regulations to guide you as to how a workplace should be evaluated, true?

MR. KELLY: Objection, form.

A. That's one of the pieces of information that I rely on in the evaluation of a workplace, yes.

Q. If you were called upon to go into a facility, any facility, as an industrial hygienist and evaluate potential hazards, and you found out that people today were using asbestos containing joint compound, you would flag that as a potential hazard, true?

A. Not necessarily.

Q. If people were using asbestos containing joint compound, and your measurements indicated that the PEL exceeded, the current PEL is exceeded, would you then flag it as a potential hazard?

MR. KELLY: Objection to form.

A. I would have to look at it more closely, in terms of the exposure conditions, as well as the constituents of the joint compound, work methods, and evaluate if there would be a need for additional controls, or if there would be a need for, perhaps, additional study, because it's possible, depending on the methodologies used, that we might be picking up more than --

than just asbestos fibers, because of the nature of joint compound.

Q. What more information would you need to know?

MR. KELLY: Objection, form.

A. Well, I would -- I would probably have those samples reanalyzed by transmission electron microscopy to determine if, in fact, they were -- all the fibers that were being counted were, in fact, asbestos fibers.

Q. And can you think of anyplace that you could -- any former client that you can refer me to where you found an exceedance of the OSHA PEL at any time during your history where you did not inform them of the potential carcinogenic hazards of asbestos?

MR. KELLY: Objection, form.

A. I don't understand your question.

Q. I'll try to rephrase it.

A. Thank you.

Q. If I were to ask you for a reference where you have done an industrial hygiene survey, and found an exceedance of the OSHA PEL at the time when you did the survey, where you did not

inform your client of the potential carcinogenic hazards of asbestos, would you be able to refer me to such a client?

MR. KELLY: Objection, form.

A. You're talking about only sampling for asbestos?

Q. I'm talking about where you were sampling and you found an exceedance of the PEL for asbestos, where you didn't tell the client that there was a potential hazard relating to that exceedance?

MR. KELLY: Objection to form.

A. We would provide a report that would detail the results of the findings; in other words, if it was or was not in excess of the permissible exposure limit, and we provided them guidance to specific information, either related to the OSHA regulation or ACGIH TLV and advised them that they should review that information and they should take appropriate steps to reduce the exposures to below the permissible exposure limits.

Q. So are you able to indicate to me any client that you've ever told there was no

hazard, even though the PEL for asbestos was exceeded?

MR. KELLY: Objection, form.

A. Well, first off, I have not had that many surveys that I've been involved in where we have found an exceedance of the asbestos permissible exposure limit. So I can't give you a client where I would have provided that information to.

Q. Well, there have been some, I guess, in your career, right?

MR. KELLY: Objection, form.

A. My recollection at this point, in terms of evaluating asbestos exposures is no.

Q. Now, you went through a training course at Liberty Mutual to become an industrial hygienist, right?

A. Yes.

Q. How long had you been working at Liberty Mutual as a loss prevention consultant before you embarked on that training program to become an industrial hygienist?

A. It was five years.

Q. Where did you do your training to

become an industrial hygienist?

A. That training was provided in Hopkington, Massachusetts.

Q. Did you have to move there from -- were you in Maryland working for Liberty Mutual?

A. Actually, I had moved to -- back to New Jersey. And then I went to Hopkington. I didn't have to move to Hopkington, but I spent a month there during the industrial hygiene training school.

Q. So the totality of your training to become an industrial hygienist took a month?

MR. KELLY: Objection to form.

A. That was just the classroom portion of the industrial hygiene training school. Again, like the previous training, it was about a year under the direction of a certified industrial hygienist afterwards.

Q. So one month of classroom training, and 11 more months, or was there 12 more months of supervision by a certified industrial hygienist?

A. It would have been about an 11-month period after the class. So it was a total of a

year from start to finish.

Q. Who was the CIH that you were operating under for that year?

A. Mike Ramsey.

Q. Do you stay in touch with Mike?

A. I see him probably once a year.

Q. Is he still working for Liberty Mutual?

A. He's retired now.

Q. Does he live in New Jersey?

A. He lives in Pennsylvania.

Q. And what sorts of things did you study in your one month of classroom training?

A. We pretty much covered the entire field of industrial hygiene from air monitoring, different -- different techniques, methods. We had courses in analytical chemistry. We had courses in radiation and noise. It's pretty much a very intensive one month of training to get through the industrial hygiene school, plus we had to pass a final examination.

Q. How much of the one month of classroom training was spent on asbestos, if any?

A. Probably a couple of hours.

R.C. Adams

Q. You learned, at that time, that asbestos was a carcinogen, true?

MR. KELLY: Objection, form.

A. We learned about the health hazards of asbestos, including the fact that it was being classified as a carcinogen.

Q. You learned that it could cause mesothelioma, right?

MR. KELLY: Objection, form.

A. We -- we learned that asbestos could cause mesothelioma, particularly the amphibole form, A-M-P-H-I-B-O-L-E, form.

Q. Liberty Mutual treated all forms of asbestos as potential carcinogens, didn't it?

MR. KELLY: Objection, form speculation.

A. I -- you're suggesting that they had some sort of policy out there. I'm not aware that they had any given policy. They accepted what was established by the regulations and the guidances of organizations like the American conference of governmental and industrial hygienist.

Q. Right. And the ACGIH took the

position that all forms of asbestos including Chrysotile asbestos could cause mesothelioma, true?

MR. KELLY: Objection, form.

A. The ACGIH documentation -- documentation does recognize that there is a greater potency with respect to the amphibole forms. But they've only established a single exposure limit, threshold limit value.

MR. HARTLEY: I object to the nonresponsive portion.

Q. The ACGIH takes the position that Chrysotile asbestos is a potential carcinogen, correct?

MR. KELLY: Objection, form. Unlimited as to year.

A. Could you repeat the question?

Q. Sure. The ACGIH takes the position that Chrysotile asbestos is a potential cause of mesothelioma, correct?

A. The ACGIH does identify that there are questions about the level of which Chrysotile does cause mesothelioma. But they do identify that it -- it is identified that it could cause

mesothelioma.

Q. As you've said, there is only one level, exposure level recommended by the ACGIH, despite the fact that there are many different kinds of asbestos, true?

MR. KELLY: Objection, form.

A. That is correct. Today.

Q. Correct.

Now, other than the two hours or so of asbestos classroom training that you had at Liberty Mutual, did you have any other specific training about the hazards of asbestos?

A. Not that I recall specifically.

Q. If I were to go to Liberty Mutual, I would be able to find in their historic files report that you had issued based on your work as a loss prevention consultant, and then as an industrial hygienist, right?

MR. KELLY: Objection, form.

Assumes facts not in evidence.

A. I don't know one way or the other. They had a document retention policy. I -- I'm not sure whether you could find any reports or not.

Q. When you were at Liberty Mutual, you had access to particular sites' historic files, right? For instance, if you had an insured and you were going to the workplace, you would go prior to going to inspect a site and look over what you had, in terms of documentation from before you visited the site, right?

MR. KELLY: Objection, form.

A. I would have whatever was in the insured file, again, pursuant to the existing document retention policy.

Q. And the document retention policy, when it came to industrial hygiene surveys, was to keep them forever, wasn't it?

MR. KELLY: Objection, form.

A. No.

Q. What do you remember that to be, that policy to be?

A. It was a three-year policy.

Q. So it was Liberty Mutual's position that it would keep an industrial hygiene survey for only three years, even if there was a long latency period between the development, potential development of disease that was being -- with the

hazard being sampled for?

MR. KELLY: Objection to form.

A. I don't understand the --

Q. Let me break it down, because it was a terrible question.

You understand that there is a long latency period between exposure to asbestos and the development of any disease that might develop, right?

MR. KELLY: Objection, form.

A. Yes.

Q. It's on the order of years typically when it comes to any of the fatal diseases, like asbestosis, lung cancer, mesothelioma, right?

A. Yes, it is, yes.

Q. And if you're trying to keep any kind of tabs on what the risks are of a disease with a long latency period, you need to keep your sampling data for longer than three years, wouldn't you?

MR. KELLY: Objection, form.

A. I can't speak to the rationale behind Liberty Mutual's policy on document retention, whether or not documents would be kept

longer for whatever reason.

The documents were prepared and supplied to our customers, and the document policy is what it was.

Q. Just so you and I have an understanding, though, that wouldn't make any sense if you were trying to identify the potential risks, as an insurer, for a disease with a long latency period, such as cancer caused by asbestos, right?

MR. KELLY: Objection, form.

A. As I stated, the document policy was -- the retention policy was what it was.

Q. Right.

And I'm asking you a different question, which is whether that made sense to you?

MR. KELLY: Objection, form.

A. I -- I'm not -- I don't have an opinion, one way or the other on that.

Q. Well, you know that if you don't keep track of the exposure data, then you won't have any idea how many people were exposed later on in time, right?

A. I -- again, I'm not sure I follow your question.

Q. Sure. Again, it probably needed to be rephrased.

A. It's okay.

Q. If you don't keep the data, there is no way for Liberty Mutual -- let's say Liberty Mutual has this data on people exposed to asbestos. If you keep it for only three years, you're not going to be able to 10, 20, 30 years later know how much those folks were exposed to, at least based on the data that you gather, true?

A. It was -- Liberty Mutual wasn't in the business of, you know, collecting data for the sake of collecting data for future, you know, exposure studies. They were collecting those data for the purposes of advising their customers if there were risks associated with their operations and to, you know, take corrective actions to address those risks.

Q. And they also used that data, didn't they, to evaluate how much they should charge their customers going forward, true?

MR. KELLY: Objection, form.

A. That was part of the underwriting decision process, yes.

Q. I mean, you were taking air measurements first to tell the employers or the site owners that there was a hazard that they should reduce, if it were a hazard, if there were a hazard found; and secondly, so Liberty Mutual could know how much to charge these people going forward because of the risk, right?

MR. KELLY: Objection to form.

A. As I stated, that would be part of the process of evaluating a potential policyholder, yes.

Q. Shifting gears here, you're not an expert in medicine, are you?

A. No, I am not.

Q. You don't, as an industrial hygienist, you don't diagnose disease, right?

A. No.

Q. You don't give opinions to a reasonable degree of medical certainty as to what caused a particular disease, do you?

A. No.

Q. What does an industrial hygienist

do?

A. An industrial hygienist evaluates potential exposures to substances; chemical substances, physical substances, radiologic substances; compares the information that it has gathered to available data related to exposure limits, to assess the level of risk that could lead to an adverse health effect.

Q. You understand that the current OSHA PEL, that OSHA estimates that there would be a substantial excess risk of cancer, true?

MR. KELLY: Objection to form.

A. I understand that OSHA has stated in its preambles that to the effect that they believe that there is some additional risk associated with exposure at the PEL. But keep in mind that the PEL is for all forms of asbestos.

Q. Right.

So if the PEL means that you can't -- the Chrysotile asbestos can't go over 0.1 fibers per CC time-weighted average, right?

A. Correct.

Q. It also means that you -- the same level applies to amosite asbestos or crocidolite

asbestos or tremolite asbestos, correct?

A. Correct.

Q. Now, in an industrial setting, where a worker has worked over many, many years, it's highly likely that they were exposed to more than one kind of asbestos at work, right?

MR. KELLY: Objection, form.

A. I -- I -- it would depend on the facility. I can't -- that's a very general question. I cannot give you an opinion specifically.

Q. As part of your learning process at Liberty Mutual, did you learn, come to find out that there had been, over the years, different ways to monitor for asbestos?

A. I knew that the -- you know, that the methodologies had changed over time. Yes.

Q. And did you learn that the methodologies had changed over time because the earlier methodologies were not accurate?

MR. KELLY: Objection, form.

A. I was never told that, no.

Q. Why have the methodologies for measuring for asbestos changed?

A. I -- you know, as far as historically, that the fiber counting method was just an improvement over previous methods and that's why they changed.

Q. How was it an improvement?

A. The -- because we were actually looking at, you know, fibers at this point, when we started doing the -- the light microscopy fiber-counting methods.

Q. Have you ever heard of a midget impinger?

A. Yes. I've actually used midget impingers.

Q. What have you used one for?

A. I used midget impingers to sample primarily for formaldehyde.

Q. Are you talking about the thing where you would like crank a crank and suck air through water and all of that stuff?

A. Well, I didn't have a hand crank pump that you're referring to, but yes, I did have to suck air through a bubbler.

Q. You know that back in the early days, in the 1940s, '50s and '60s, they were

using hand crank pumps to run midget impingers, right?

MR. KELLY: Objection to form.

A. Yes.

Q. And that is a potential for error in measuring air contents with a midget impinger, correct?

MR. KELLY: Objection to form.

A. Yes.

Q. The reason that is is because in order to get an accurate measurement, you have to have a consistent volume of air sucked through the midget impinger, correct?

A. That is true with all sampling methods.

Q. Right.

But the hand cranked method was especially problematic, because people tend to crank the hand crank at different speeds, depending on who they are, how tired they are, how strong they are, and whatnot, true?

MR. KELLY: Objection to form.

A. Yes.

Q. I figured as much.

You already alluded to one problem that was with the midget impinger methodology which was that it counted not just asbestos fibers, but it also counted all other particulate that were taken into the midget impinger, true?

A. I don't believe I said that.

Q. You alluded to it. I don't think you said exactly that. You said that it counted -- that the filter membrane method was better, I think, because it actually counted asbestos. But I thought that -- maybe you weren't -- let me ask you again.

Do you agree that the midget impinger methodology counted everything that was in the air, not just asbestos?

A. Yes.

Q. It was a total dust measurement, rather than an asbestos measurement, right?

A. Yes.

Q. There was no use in historic times for any kind of conversion factor for the midget impinger measurements to -- in the workplace to identify what percentage was asbestos, right?

A. I'm not sure when you say in the

historic time. Can you put a time period on that, please?

Q. Sure. Back when the ACGIH TLVs were the only recommended standards out there. And I guess that is prior to, say, 1968, isn't it?

A. Yes.

Q. Back then, there was no procedure for you take an air measurement, get a number of millions of particles per cubic foot of air and then divide it by what you think the percentage of asbestos is to come up with the asbestos count.

You just compared the total dust count to the TLV, right?

A. That's my understanding of what was done, yes.

Q. And in that sense, two different environments with the same number of millions of particle per cubic foot might have very different amounts of asbestos in the air, true?

A. Again, it's a confusing question. It would depend on what environments you're talking about. Are we talking --

Q. Right. Well, let's just talk about

it this way: Assuming that we have two different environments, they both have 6 million particles per cubic foot of air measured, and we're assuming here also that there was a proper midget impinger method where the rates that are flowing through the midget impinger machinery was the same and was as prescribed so you got an accurate count.

If you had one environment where 50 percent of the dust was asbestos, and one environment where 20 percent of the dust was asbestos, the counts would be the same, 6 million particles per cubic foot, but the asbestos content would be much greater in one than in the other, right?

MR. KELLY: Objection to form.

A. As you've stated the scenario, yes.

Q. And that is why switching to the filter membrane method was an improvement, because what you were really doing was counting the hazard of concern, the asbestos fibers, right?

A. That is not correct.

Q. Why not?

A. Because the filter counting method does not specifically count asbestos. It counts only fibers that meet a certain size and shape definition. They could or could not be asbestos.

Q. Well, you understand, don't you, that the -- well, that is fair enough.

The ACGIH methodology for counting dust that contained asbestos to determine whether there was compliance with the TLV had a counting protocol, didn't it?

A. I'm not -- I'm not a hundred percent familiar with the actual counting protocol itself.

Q. Do you think that there was an improvement in measuring the potential hazard of asbestos in the air when there was a switch from the use of the PLVs to the filter membrane method under the -- you know, say in 1968?

MR. KELLY: Objection, form.

A. I would -- I -- I believe that the method that we're currently using, the fiber count -- the filter counting method is -- is an improvement, yes.

Q. And why?

A. Because the standard once it was established in the units of fibers per CC would be -- you know, that would be the method that would be appropriate to use to count.

Q. Have you read Hodgson and Darnton 2000?

A. I have read it.

Q. And is it fair to say that you are not an expert in asbestos risk assessment?

MR. KELLY: Objection, form.

A. I -- I'm unclear when you say "asbestos risk assessment."

Q. Well, Hodgson and Darnton performed an assessment risk assessment in that 2000 article, is that true?

A. Yes.

Q. And there was a lot of complex mathematical calculation that went into that risk assessment, right?

A. Yes.

Q. Are you qualified to explain that to a jury?

A. I can explain all of the Hodgson and Darnton methodologies. I'm familiar with the

techniques, but I would not explain them to a jury.

Q. Do you know what a meta-analysis is?

A. Yes.

Q. What is it?

A. A meta-analysis is where you would take a number of different studies, you look for, for example, where there are differences in the studies, you'd look for where there are similarities in the studies. And if you can combine a group of studies to essentially give you one large study, that's more powerful than any individual or single study would be.

Q. In order to do that, you've got to have a common language for the exposure assessment portion of it, right? I mean, you can't take midget impinger measurements of asbestos and mash them in with filter membrane method -- measurements of asbestos and come up with a meaningful language about the risk, can you?

MR. KELLY: Objection, form.

A. I would disagree with that.

Q. Why?

A. Well, there are ways of developing conversion factors that can be used to achieve, as you refer to as a common language. And that is -- is something that, you know, has been looked at. In fact, I was involved -- well, I wasn't involved directly, but I know that it's been done in the silica study I referred to earlier.

Q. Have you testified to a reasonable scientific certainty in court about guesstimates?

MR. KELLY: Objection, form.

A. I don't know what you're referring to specifically.

Q. Well, I mean, do you rely on guesses in forming your opinions that you give to juries in court?

MR. KELLY: Objection to form.

A. When I review any particular study, report, I evaluate the methodologies used by the individual to arrive at their exposure estimates. If I feel that they are sound and solid, then I rely on them.

MR. HARTLEY: That wasn't my question, however, so I object.

Q. I'm asking you will you rely on a guess to form your opinions in this case?

MR. KELLY: Objection, form.

A. Could you give me an example?

Q. I can't -- I want to know if you're willing to rely on guesses to give your opinions on anything?

MR. KELLY: Objection.

Q. Would you guess on something that you think is reliable enough to offer opinions based on to the jury?

MR. KELLY: Objection to form.

A. If you're referring to Appendix B in Hodgson and Darnton, I would.

Q. And what's your basis for that?

A. I reviewed the entire record in Appendix B, and I concurred with his assessment.

Q. Who is "he"?

A. That is the gentleman who evaluated the crocidolite data from the -- from the cigarette filter manufacturer.

Q. When did you do that review?

A. I've read Hodgson and Darnton, as I mentioned previously.

Q. I know.

When did you do that review that you came to the conclusion that Appendix B was correct?

MR. KELLY: Objection, form.

A. I said that I agreed with Appendix B. I agreed with what he did. I didn't have an objection to his approach.

Q. Okay. That's fine.

When did you come to that agreement? I'm asking you when you did it.

A. I can't give you a specific date.

Q. Was it in the last month?

A. No. It's been prior to that.

Q. Within the last year?

A. I guess it's been in the last year.

Q. When did you last look at Hodgson and Darnton's paper?

A. Within the last month, I'm sure.

Q. Within the last week?

A. I don't know. I can't recollect immediately if I looked at it in the last week or not.

Q. Did you look at it yesterday?

A. No.

Q. Did you look at it today?

A. No.

Q. Did you look at it in preparation for this deposition?

A. I probably did, because originally this deposition was -- was -- was scheduled over a month ago, I believe, which is probably when I last looked at it.

Q. Did someone suggest that you look at it, because I was going to ask you questions about it?

A. I -- I know -- I -- I have been aware that, you know, that it's come up as an issue previously.

Q. So the answer is yes, somebody told you to review it because the lawyers would likely question you about it?

MR. KELLY: Objection, form.

A. No, that I understand that it's been an issue previously.

Q. How did you come to that understanding?

A. I honestly couldn't tell you. It

may have come up in discussions about litigation.

Q. Do you have a copy of Hodgson and Darnton there?

A. I do not.

Q. Do you not know who Dr. G. Burdett is?

MR. KELLY: Objection, form.

A. That's the name of the gentleman who prepared the Appendix B to the Hodgson and Darnton, which I couldn't recall previously.

Q. And what is Dr. G Burdett's background?

A. I do not know.

Q. It doesn't matter to you what qualifications the person had who wrote the portion of the Hodgson and Darnton article that you think is reliable, right?

MR. KELLY: Objection to form.

A. It's in the peer-reviewed literature. I'm satisfied and I don't feel it's all that relevant.

Q. So if somebody is published in the peer-reviewed literature, their background isn't that important to you, is that fair?

R.C. Adams

MR. KELLY: Objection, form.

Misstates prior testimony.

A. As I stated before, I review the literature. And if I find it to meet, you know, good scientific methodologies, accepted methodologies in the practice, that's the judgment that I -- that I use.

Q. And it's fair to say that if you're relying on the Hodgson and Darnton risk assessment from 2000 that you've cited in your report, that you're relying at least, in part, on a guesstimate, true?

MR. KELLY: Objection, form.

A. I disagree with that.

Q. The numbers that Hodgson and Darnton used for the Massachusetts cigarette filter cohort were based on the guesstimate that's set forth by G. Burdett in section B of Hodgson and Darnton's paper, true?

MR. KELLY: Objection, form.

A. That's one of the studies that they used in their risk assessment.

Q. And Dr. Burdett talks about his numbers as his best guesstimate, doesn't he?

MR. KELLY: Objection, form.

A. That's the term he uses.

Q. And you're comfortable in using a guesstimate in forming your opinions in this case, right?

MR. KELLY: Objection, form.

A. I believe I've already answered that question.

Q. The answer is yes?

MR. KELLY: Objection, form.

A. The answer was yes, because I had reviewed what he had written and I agreed with it.

Q. I guess I'm having trouble understanding how you can know whether he's right or not because he just reports what he did but without giving the data, how to do that?

MR. KELLY: Objection, form.

A. Again, I stated I reviewed it. I'm satisfied with it. I have accepted it. And I have no issue with it.

Q. I know you have stated that.

I want to know why. Can you tell me why you believe that Dr. Burdett's guesstimate is

accurate enough to rely upon?

MR. KELLY: Objection, form.

A. Because I didn't disagree with the numbers, and the way he presented them. He made a sound, rational foundation. I have no reason to dispute it.

Q. Do you know what measurement instrument was used to determine the air concentrations in the Massachusetts cohort?

A. Sorry. Say that again?

Q. Yes. Do you know what kind of measurement instrument was used to capture the asbestos in the air in the Massachusetts cigarette cohort?

A. I would have to go back and look at the study again in a little bit more detail.

Q. He says in the first paragraph of Appendix D that the measurements, quote, almost certainly refer to impinger measurements.

A. Right.

Q. Which were frequently made for insurance company purpose, end quote.

Does that sound about like what you have read there?

MR. KELLY: Objection, form.

A. Again, I would like to go back and take a look at that, but I -- it sounds right.

Q. Do you have access to it, or could I e-mail it to you or to Colin or somebody, we can take a break. I really think if you're relying on it, it is something we should go through.

A. I would like to say that I'm relying on Hodgson and Darnton largely as an issue of relative potency of the different asbestos materials so that I can develop an exposure assessment. And at this point I don't see what the relevance is to the Knight case that we're here to talk about today.

Q. Well, I know you don't. But that is why I don't think it's reliable for that proposition for which you're relying on it for, so that is why I want to explore it.

Do you have access to it, or can I e-mail it to you or fax it to you there?

MR. HARTLEY: Colin, can you give him a copy?

MR. KELLY: Let me look and see if I have it, Christian.

MR. HARTLEY: If you don't, let me see if I can e-mail it to your firm.

MR. KELLY: Can we take a break.

MR. HARTLEY: Let's take a break. That is fine.

(Time noted: 2:46 p.m.)

(A brief recess is taken.)

(Time noted: 2:54 p.m.)

MR. HARTLEY: Were you able to find a copy of the document?

MR. KELLY: Yes, I got one, Christian. I found one. He's got it.

MR. HARTLEY: Awesome. Thank you.

MR. KELLY: You're welcome.

Q. Turn to Appendix B on page 600.

A. I have it.

Q. You see there that it says in the first paragraph of Appendix B that the measurements in 1952 which gave an average of 80 particles per milliliter within the Massachusetts standard of 175 particles per milliliter almost certainly refer to impinger measurements, which were frequently made for insurance company purposes?

R.C. Adams

A. I see that.

Q. So what we know from that statement is that Dr. Burdett, who wrote Appendix B, isn't sure what kind of measurement device was used, but he think it was impinger measurements, right?

MR. KELLY: Objection to form. It speaks for itself.

A. It says that he made an assumption that they were impinger methods based on the information he had on hand.

Q. And that is an assumption that you can't test, because you don't know one way or the other whether the measurements made in 1952 used in this were that or some other methodology, right?

MR. KELLY: Objection to form.

A. It's not relevant at this point anyway, so....

Q. But the answer is that you don't know, you can't tell the judge or this jury what measurement methodology was used by the Massachusetts folks measuring the air in the Massachusetts cigarette filter factories, right?

MR. KELLY: Objection, form.

A. I -- I can't tell him specifically. But I would agree with the conclusion that the midget impingement method seems logical.

Q. What's your basis for that?

A. It's a method that's -- you know, the methodologies is stated here, I think it's a rational decision. If I was presented with the same data, I would probably draw the same conclusion.

Q. There were other methodologies available to measure millions of particles per cubic foot, weren't there?

A. There were other methodologies, yes.

Q. And there was something called the konimeter, right?

A. Konimeter, yes.

Q. There were the dust elutriators, correct?

A. There were elutriators, although I don't know how they would have been used in this situation, but yes.

Q. You understand from your training, your education and your experience, and from reading these articles, as it relates to this

topic, that comparisons between one methodology, say the konimeter or konimeter, if you will, and the midget impinger were problematic, right?

MR. KELLY: Objection, form.

A. I don't necessarily agree with that.

Q. Why don't you agree with that?

A. Because methods have been developed to come up with conversion factors.

Q. Who developed the method for converting between konimeter and midget impinger counts?

A. I don't know.

Q. Are you sure that someone has never even done that?

A. I know that -- as I said, we've actually done it in a study just recently that I talked about with the silica study.

Q. You developed measurements, you developed scientifically reliable conversion factors between the konimeter and the midget impinger for silica?

A. And filter methods, yes, they were run side by side.

Q. And you have been able to validate

that that method for silica worked in all environments?

MR. KELLY: Objection to form.

A. The study was done and other folks -- I mean, I was a participant in the exposure assessment. Other folks had done the studies of the actual devices in the field.

Q. Who did that?

A. That would have been the German insurance folks over in Germany.

Q. And is that published somewhere?

A. It will be published in September or October of this year.

Q. Where is it going to be published?

A. Journal of Occupational and Environmental Hygiene.

Q. JOEH?

A. JOEH, yes.

Q. Who were the authors?

A. Tomas Birk, B-I-R-K. Dr. Ken Mundt, M-U-N-D-T. Karl Heinz Guldner. Myself. And a gentleman by the name of William Parson, P-A-R-S-O-N. Hopefully -- I think I missed one other coauthor whose name escapes me at the

moment.

Q. That has been accepted for publication, correct?

A. Yes.

Q. I would like to get a copy of that. Could I get a copy?

A. I don't have a copy. It hasn't been published yet.

Q. Okay. But --

A. When it's published, you'll be able to get it.

Q. You don't have access to a copy of this paper that you are an author of?

A. I -- I don't have access to the final version.

Q. Would you be willing to try to get it, so I can review how this conversion factor study that you've done worked?

A. This -- this is just -- I -- I provided this as an example of a study that we did relative to silica. I don't see its bearing on the Knight case at all.

Q. You seem to be saying to me that you're relying on it for your belief that you can

create conversion factors such that you can compare studies that use different methodologies.

MR. KELLY: Objection, form.

Q. Are you not?

A. I simply provided it as an example for something that I know that has been done.

Q. And I just want to be able to see the information that you had in that study, versus what was available to the authors of the underlying studies that was used in Hodgson and Darnton, because those folks say you can't do that kind of conversion.

A. I don't know if that is true or not.

Q. Have you been given copies of the letters to the editor by the folks from Australia, talking about the dust measurement from the Wittenoom cohort that were used by Hodgson and Darnton?

A. I have not seen those letters.

Q. You haven't seen indications -- well, let me rephrase this.

We'll just stick with this one for now, and then I'll send the other one, if I need to.

This gentleman says that 5 million particles per cubic foot was the threshold value in force from the 1930s to the 1960s, maybe even until 1972. That's in the third paragraph of Appendix B on page 600. Do you see that?

A. Yes.

Q. The 5 million particles per cubic foot TLV was definitely not in force until 1972, was it?

A. That my -- my understanding was it was not. But I don't know -- he's saying threshold value. I don't know if he's referring to just the United States, or if he's referring to maybe other locations.

Q. Isn't it kind of important when you're using it as a basis for your assumptions in a conversion?

A. I don't --

MR. KELLY: Objection, form.

Sorry.

A. It doesn't have any bearing.

Q. Why did he include it in there, if it had no bearing?

MR. KELLY: Objection. Calls for

R.C. Adams

speculation.

A. I have no idea.

Q. When was the asbestos PEL 10 fibers per milliliter?

A. When was it 10 fibers per milliliter?

Q. Yes.

MR. KELLY: Objection, form. Did you say PEL, Christian?

MR. HARTLEY: Yes, I did say that.

MR. KELLY: Okay.

A. He just uses the term "threshold value." I don't think that that is specifically saying it's a PEL.

Q. I'm asking you, was the PEL ever 10 fibers per milliliter, to your knowledge?

A. No.

Q. So at least in that paragraph, there are two inaccuracies as far as -- at least as concerns the United States, right?

MR. KELLY: Objection, form.

A. I don't know that he's talking about the United States, so I can't answer that question.

Q. Well, Massachusetts is in the United States, isn't it?

A. Yes.

Q. Was the 5 million particles per cubic foot threshold value ever the law anywhere else outside of the United States?

MR. KELLY: Objection.

A. I don't know the specific regulations in other countries.

Q. So you don't know what he's talking about in the third paragraph at all? You don't know where or why he put it in there, right?

MR. KELLY: Objection to form.

A. And it's -- I don't know where or why, and it's not relevant to my opinion.

Q. He indicates here that -- in the next paragraph -- that the methodology that was used when the Massachusetts plant was studied was -- used a low-powered microscope, right?

A. That's what he says.

Q. Does that work -- using that low-powered microscope would overlook many respirable fibers, right?

MR. KELLY: Objection, form.

A. That's what -- again, I have no disagreement with what he's written here.

Q. It indicates that the impingers -- he's assuming that impingers were used, but they have a poor capture efficiency, right? Below one micron?

A. He's talking about for particle sizes less than one micron in size, yes.

Q. What does that mean?

A. That means that if a particle size was smaller than one micron, that the impinger method might not capture all of the fibers or all of the particles, excuse me, that might be present in the air.

Q. So if that's the case, then you might be underestimating the amount of actual particles that are there, true?

MR. KELLY: Objection, form.

A. Again, it would depend on the composition in the air. This method is not something where you can fractionate sizes. I would also like to clarify that all collection methods, including our modern filter method, do have limitations as to the amount -- particle

size that can be collected.

Q. Right. They tend to undercount thinner fibers, right?

A. They -- I'm talking about capture efficiency, not the actual counting.

Q. I guess, if I'm understanding correctly, though, that author of Appendix B that you rely on, is saying that method might lead to undercounting of the actual presence of the asbestos in the Massachusetts cohort, isn't that what he's saying?

A. He's simply recognizing a limitation of the method, and as an industrial hygienist, we have to recognize that all methods have limitations.

Q. Sure.

And what you would have to understand, reading this, as an industrial hygienist, is that the numbers that were counted might be undercounted because of the limitations of methodology, right?

MR. KELLY: Objection, form.

A. If you're interested only in the smaller -- less than one micron particles, yes.

Q. Did he account for capture efficiency for particles below one micron in his estimates -- guesstimates, sorry?

MR. KELLY: Objection, form.

A. It's -- it's not relevant because we're interested in particles bigger than that, when you're looking at asbestos fibers.

Q. Well, crocidolite fibers are thinner than one micron, aren't they?

A. I'm not an expert on the morphology of the various fibers.

Q. So is it fair to say that you're not qualified to explain to the judge and the jury as to what the relevance is of this capture efficiency below one micron?

A. I can explain it, in terms of exposures to particulates in the air and exposures relative to, you know, different particle sizes. But, you know, when you're talking about crocidolite fibers, remember, you're looking at not just -- you're looking at length as well as width.

Q. Sure.

But if a crocidolite fiber is

thinner than one micron, it may pass through the capture methodology, according to the author whom you rely on.

A. I don't know if I would be able to respond to that one way or the other. That's speculation.

Q. You can't tell me whether or not it's important that the midget impinger methodology that Mr. Burdett believes was used in Massachusetts, whether that was important for the counts at all, right?

MR. KELLY: Objection, form.

A. In my review of this, it refers to the overall conclusions, and as I pointed out earlier, this is just one component of a number of studies that were used in this paper.

MR. HARTLEY: Objection, nonresponsive.

Q. It is important when Dr. G. Burdett, in Appendix B indicates, quote, It should also be remembered that impingers have poor capture efficiency below one micron when you're considering the results here for the crocidolite cigarette filter?

MR. KELLY: Objection to form.

A. And I've already answered, he's pointing out a limitation of the sampling method, and I think it's appropriate that he's pointed it out, and as I mentioned, there are other -- that there are limits in all sampling methods.

Q. Is there any significance to the limitations of the sampling methods for the results that he reports?

A. I'm sorry, can you state that again?

Q. I'll rephrase it.

Is there any significance to the fact that he believes that it should also be remembered that impingers have poor capture efficiency below one micron?

A. I -- I don't think there is any significance. He's pointing out a limitation.

Q. What effect could that limitation have on the results reported?

MR. KELLY: Objection to form.

Calls for speculation.

A. Again, I've already -- we've already -- I've taken it as he's written it.

Q. You haven't answered my question,

however. I understand you've taken it as he's written it. What does it mean in terms of interpreting the results, if anything?

MR. KELLY: Objection, form.

A. I stated previously that it means that if there are particles less than one micron in size, there might be some that are not captured by this method.

Q. And if they're not captured, that means they won't be counted, right?

A. Yes.

Q. That would mean that the counts from the cigarette, the crocidolite cigarette filter cohort may be undercounts, correct?

MR. KELLY: Objection, form.

A. It's a possibility.

Q. Does he take that into account, as far as you can tell, in the analysis that he did here?

MR. KELLY: Objection, form.

A. Was that a question?

Q. It was.

A. Could you repeat it?

Q. Does Dr. Burdett take into account

the potential that the results he is -- he gets from the Massachusetts cigarette filter cohort were undercounts?

MR. KELLY: Objection to form.

A. He states at the very conclusion, he says, it's a very approximate, but he thinks a hundred fiber per milliliter looks to be a good maximum exposure with a TWA of 60 fibers per milliliter. It looks like he's considering it is an approximation, it is an estimate.

Q. And it's a guesstimate by his own words, right?

MR. KELLY: Objection to form.

A. That is his choice of words.

Q. Okay. And you don't have any reason to disagree with his choice of words that he's applying guesstimates in his analysis here?

MR. KELLY: Objection to form.

A. His choice of words is irrelevant to me.

Q. You agree that's guessing here, true?

MR. KELLY: Objection to form.

A. No, I do not.

Q. Where is the evidence that he's doing anything other than guessing?

A. He's reasoned out through the process of evaluating this data, and come up with a reasonable estimate based on the number. He chose to use the term "guesstimate." His choice of the word.

Q. I understand. I'm trying to figure out how you're able to determine that's not guessing. How is that?

A. Because he's laid out a very solid foundation, if you read all of Appendix B, from start to finish, as I have done, I would agree with the approach that he's taken.

I'm not hung up on his choice of the word "guesstimate."

Q. How does he come to the conclusion that 30 percent of the particles counted were fibers?

MR. KELLY: Objection, form.

A. I don't have the specific background. But I know that there -- I recollect that there are some documents out there somewhere in my history that may give him some indication

of that information.

Q. Can you produce those to me so I can look at them?

A. I don't know which ones they are. Like I said, they're in the back recesses of my mind. I would have to go back and search for them.

Q. Okay. And then he said, and I'm talking about the last full paragraph in the first column on page 600. He says, and I'll read the sentence that we're talking about, "My best guesstimate is that 30 percent of the particles were fibers, but only about 10 percent of the fibers seen would be crocidolite, (it was more dusty but has very few, smaller than one micron fibers compared to the other dusts). Did I read that right?

MR. KELLY: Objection, form.

A. Yes.

Q. Now, the second thing I wanted to ask you about, I've asked you about the first part, how he came to the conclusion that 30 percent of the particles were fibers; how did he come to the conclusion that only 10 percent of

the fibers would be crocidolite?

A. I don't know. He may have had some formula records that he may have looked at. I don't know. He doesn't specifically say.

Q. And he then, in the next paragraph -- in the next paragraph it says, "This would mean about 3 percent of the count was crocidolite fibers or about 2.5 fibers per milliliter greater than one micron wide," right?

A. Umm-hmm, yes.

Q. So the 3 percent number comes from multiplying his guesstimate of 30 percent of the particles fibers times the 10 percent of the fibers in the dust being crocidolite, right?

MR. KELLY: Objection, form.

A. That would be the way I interpreted that he arrived at that number.

Q. Now here it's pretty clear from this sentence -- the sentence I just read to you that the width of the fibers is the key when we're talking about the weakness of the midget impinger method that he talks about up above, doesn't that become clear, because of the use of the term "less than one micron wide"?

MR. KELLY: Objection, form, speculation.

A. Yeah. When you're looking at fibers, you got to look at two dimensions, not just one.

Q. Right. And the reason that is important, with any method is because if it only captures a certain width or a certain length, there is a hole and it may be too wide to go through sideways, but it can go straight through end to end, right?

MR. KELLY: Objection to form.

A. You're starting to get into a particle aerodynamic behavior. It's speculation at this point for me to go down that avenue without more detail.

Q. But what we know here is that the weakness of the methodology that he has pointed out up above that we've talked about at length is important to him because crocidolite fibers, some of them, at least, may not be more than one micron wide, right, so they're passing through the collection medium?

MR. KELLY: Objection, form.

A. I'm not sure what you mean by passing through the collection medium. With the midget impinger, you can't exactly pass through it. Once it's captured, it's captured.

Q. He says above that the impingers have poor capture efficiency below one micron, doesn't it?

A. Yes.

Q. So it's clear that he's concerned that some of these crocidolite fibers are less than one micron wide and aren't being captured, right?

MR. KELLY: Objection, form.

A. It's -- it's -- he's dealing with it. I mean, he's addressing it in the -- in his -- in his estimates here.

Q. That's fine.

He doesn't deal with it in any way that you can tell whether he's right or not. He just admits and acknowledges that there may be some that's not captured, but he doesn't know how much, right?

A. Again, I will take what he's done at face value; that he's acknowledged that there is

a limitation to the method.

Q. Some authors believe that the thinner the fiber is, the more dangerous it is, right?

MR. KELLY: Objection to form.

A. I'm not prepared to discuss that.

Q. You've never heard that?

A. I have heard it.

Q. Then he says in the next sentence, it says, "To convert to the current index, we generally find one can assume only some 4 percent of the greater than five micron long crocidolite fibers were visible, as compared with the current index."

Did I read that right?

MR. KELLY: Objection, form.

A. Yes.

Q. What does that mean to you?

MR. KELLY: Objection, form.

A. What he's saying is that they're making an assumption that approximately 4 percent of those greater than five microns in length would be visible.

Q. What is the significance of that?

A. He's taking into account that some of the particles may not be visible per the limitation of the method.

Q. What is the basis for his assumption?

A. I don't know.

Q. If you don't know, how are you able to tell the judge and the jury in this case that this is a reliable calculation that he's making?

MR. KELLY: Objection, form.

A. Because he's following a methodology that I would follow. And if I had the data in front of me, I would probably be able to draw the same conclusions. Unfortunately, as you mentioned, I don't have that data in front of me completely, but I don't disagree with the methodology. And this is in a peer-reviewed publication, and it was accepted and published and it has been referenced in a lot of the other articles since.

Q. Just because something is published and peer reviewed doesn't make it right, does it?

MR. KELLY: Objection, form.

A. I don't know what you mean by "make

it right." It's a peer-reviewed publication. It's generally accepted following generally accepted methods. It's right in my book.

Q. Well, let's take an example. You've heard of chromium six, right?

A. I've heard of chromium six. I don't understand the relevance to this case in asbestos.

Q. Well, the relevance is it goes to the issues of -- I'll explain it to you.

You understand, don't you, that there has been some publications about chromium six that were published in a major peer-reviewed journal that later had to be withdrawn due to lack of support of the underlying data?

MR. KELLY: Objection, form, foundation.

A. I have no idea what you're talking about.

Q. You didn't ever see anything about -- in the Wall Street Journal about Dr. Paustenbach having a paper that Chem Risk wrote withdrawn?

A. I don't read the Wall Street

Journal.

Q. You haven't seen that anywhere else in the published literature?

A. No.

Q. Have you ever heard of a published peer-reviewed paper withdrawn for fraud or mistakes that weren't detected in the peer review process?

MR. KELLY: Objection, form.

A. I have heard of papers that have -- have been withdrawn for some reasons. But, again, you know, I looked at the paper based on my methodologies, and it was formed with generally accepted good practices. And I haven't seen anything to refute Hodgson and Darnton in that regard.

Q. You liked their methodology but you don't know whether their assumptions are correct because you don't actually have the data to test, correct?

MR. KELLY: Objection, form.

A. I can't say that.

Q. I'm asking you, because you don't have the data, right?

A. I have the paper. And the paper has been accepted and it's been referenced many times over. I have no reason to dispute it. As far as I know, Hodgson and Darnton have not recanted or recalled this paper.

Q. That wasn't what I was getting at though.

What I'm getting at, at least for this questions here, is that Dr. Burdett has made a lot of assumptions, and you don't have any of the data to determine whether he made proper assumptions, right?

MR. KELLY: Objection to form.

A. As I stated before, I've followed -- I reviewed it, I followed his approach, and I agree with the approach. And I accept it for what it is. And it's only one study of many that are referenced in this paper.

Q. If you underestimate the amount of crocidolite exposure that was experienced by a cohort, you're going to overestimate the potency of the fiber, right?

MR. KELLY: Objection to form.

A. I am not sure I completely agree

with that. Again, the limitations of the methods speak for themselves.

Q. Why don't you agree with that? That is kind of simple math.

A. It is not simple math. It is more complicated than that. And we are getting hung up over one -- one study related to the crocidolite filter factory of numerous studies that make up the preponderance of this risk -- risk assessment.

Q. How much crocidolite data points do you think it has in this paper?

A. I haven't tried to count them.

Q. Then you don't really know how many data points -- how important this data set is as discussed in Appendix B, right?

MR. KELLY: Objection, form, argumentative.

A. It's not relevant to my use of this paper in the assessment of Mr. Knight's exposure.

Q. The reliability of Hodgson and Darnton is not relevant to your assessment of Mr. Knight's case?

MR. KELLY: Objection. Misstates

his testimony.

A. That is not what I said. I find his paper to be reliable.

Q. I understand that you've told me that part. I'm trying to figure out the basis for that.

If you turn to page 566 of the Hodgson and Darnton paper, it lists at the top of the second page of the document if you have it in paper form, it lists the cohorts that are relied upon in the case, correct?

A. Yes, sir.

Q. Do you see that at the top, there is a list of 17 cohorts that were identified?

A. Yes.

Q. Which of those studies are the crocidolite cohorts that are used in Hodgson and Darnton?

A. I -- I -- I'm not able to go through and say which ones specifically. I know Talcott is the one referred to in the crocidolite filter factory, but I would have to go match them up to the tables that are presented in the paper.

Q. They go in depth through some of the

weaknesses of their methodology in this Hodgson and Darnton paper themselves, the authors?

A. I would expect that in any good scientific paper.

Q. Do you understand that there have been updates of some of the cohorts that are reported here?

MR. KELLY: Objection, form, foundation.

A. I -- I don't know specifically which ones have been updated.

Q. Do you understand that there have been updates?

MR. KELLY: Objection, form.

A. Again, I don't know specifically which ones. I couldn't say specifically one way or the other.

Q. The answer is that you don't know if there are any updates of any of these cohorts, right?

A. I don't know specifically about any of these cohorts.

Q. Have you seen any reports, any epidemiologic reports of Italian Chrysotile

miners and millers?

MR. KELLY: Objection to form.

A. I have not.

Q. You would agree with me that if more disease had occurred in Chrysotile miners that were studied by Hodgson and Darnton, that that would change the potency ratio, would potentially do that anyway?

MR. KELLY: Objection, form, foundation.

A. I would have to look at the specific studies that you're referring to.

Q. You're not familiar with the Mirabelli update at the Piolatto cohort, I take it?

A. I'm not currently familiar with that one, no.

Q. You don't know whether the data that is relied upon by Hodgson and Darnton is up to date such that the calculations would be accurate, true?

MR. KELLY: Objection, form.

A. As I stated, I would have to take a look at the specific study.

Q. If you turn to page 570 of the paper.

A. Okay.

Q. You understand that the Piolatto study is also called the Bolengero cohort?

A. I don't know if that's -- I don't know if that is correct or not.

Q. So you see up at the top there are three -- the top of that table on page 570, there are only three crocidolite cohorts that go into this analysis, right?

A. You're talking about the first three listed at the top of the table.

Q. You can figure that out by seeing that it says Massachusetts, which we've talked about as being a crocidolite cohort, right?

A. Yes.

Q. And then Wittenoom is also a crocidolite cohort; you know that, don't you?

A. Right.

Q. And then the next one says "SA crocidolite mines," which SA stands for South Africa, right?

A. Yes.

Q. And then it says total crocidolite, right?

A. Right. Those are for the ones that were crocidolite only. I was confused by your question.

Q. So you know that the calculations used by Hodgson and Darnton, when it comes to the potency of crocidolite, rely on only three studies, correct?

A. I don't -- I don't agree. Because there are studies which have the mixed fiber types, which also include crocidolite.

Q. Which ones are those?

A. Those would be the ones in the middle of the page that have the -- like YO, YAO, YO, YAO, because that is their code for the different fiber types.

Q. Are you suggesting that they have somehow broken up the --

MR. HARTLEY: I'll withdraw that question.

Q. Which are the chrysotile only cohorts that you see here?

A. Those would be the ones on the

bottom, and they just indicate the fiber type of Y.

Q. In studies that were listed as YAO, are you able to explain how the authors were able to attribute risks to one fiber or another?

MR. KELLY: Objection, form.

A. No.

Q. That is beyond your expertise?

MR. KELLY: Objection, form.

A. I, again, am using this paper as a basis for -- developed for the fact that they have established a relative potency of the three different -- the primary three different fiber types.

Q. I understand that. And I want to know, explain to me how you know that this is reliable?

MR. KELLY: Objection, form.

Q. Other than it's peer reviewed and published in the journal.

MR. KELLY: Objection, form. And it misstates his grounds.

A. As I stated before, it has been accepted in the peer-reviewed literature. It has

been referenced and cited in other peer-reviewed documents. And, again, looking at the methodology from an industrial hygienist's perspective, I do not find and have not heard of any subsequent peer-reviewed study that has come out that has refuted this document --

Q. So you're not familiar with --

A. -- that is my basis.

Q. -- a paper by Silverstein, Welch & Lemon that discusses this methodology?

MR. KELLY: Objection to form.

A. I haven't seen that paper.

Q. Would you agree with me that the authors identify a good deal of uncertainty in the conversion factors that were used to convert old-time measurements with impingers and konimeters and other dust measurement devices to a fiber per CC exposure estimate?

MR. KELLY: Objection, form.

A. That -- I agree that they have identified appropriately the limitations of the conversion process.

Q. And despite the fact that there were substantial variations in the amounts measured in

the air in various places, they came up with one conversion factor, didn't they?

MR. KELLY: Objection, form.

A. I believe they used a single conversion factor that they felt was appropriate.

Q. In one particular factory they didn't even have any data whatsoever and they just relied on another factory to come up with the estimate, correct?

MR. KELLY: Objection, form.

A. Yes.

Q. Do you know which facility that was, which cohort that was?

A. I believe -- let me see, that is probably the Siteman and Silicoff. That would probably be the -- which one was it? I'm not a hundred percent sure which one of these is identified. But I know that there is one in here where they did use other data from another factory with similar exposure conditions.

Q. Now, they indicate here on page 266 that they are relying on DeClerk, et al. For some of their data, is that true?

A. What page is that again, sir?

R.C. Adams

Q. Top of 266. It's the second reference?

A. 266.

Q. Yes. 566, sorry.

A. DeClerk. Yes. DeClerk.

Q. DeClerk is the crocidolite cohort from Wittenoom, correct?

A. Yes.

Q. And on page 567 at the bottom, it says in the last paragraph, it says, "The exposure estimates for Wittenoom have been questioned by Rogers 1990, who have suggested, re" -- "having reexamined some of the original samples using modern light and electron microscopy that the levels may have been underestimated by a factor of 10," right?

A. That's what they write.

Q. And if you underestimate the levels of exposures by 10, that would tend to make the crocidolite appear to be more potent, true?

MR. KELLY: Objection, form.

A. I don't know if that's true or not. I have to look at the data.

Q. Well, I guess I raised this question

before in a slightly different way. But it seems like it's just math. If one fiber per CC causes a certain level of mesothelioma in a cohort, it would appear that there is a certain rate of mesothelioma per unit of exposure, true?

MR. KELLY: Objection, form.

A. I'm not following your math.

Q. Well, let's say that in the Wittenoom cohort there were a thousand mesotheliomas and there were an estimate of the dose, which was one fiber per CC, okay?

A. Okay.

MR. KELLY: Objection, form, incomplete hypothetical.

Q. Does that make sense to you, what I said so far?

MR. KELLY: Same objection.

A. You're stating that you have one fiber per CC, and you said a thousand --

Q. Yes. This is a hypothetical, just so that we can do the math.

If people worked in the facility and the exposures over their lifetime for 30 years each, there were people who worked there for 30

years each, say the place was open and they never lost an employee for 30 years, and there were over a thousand mesotheliomas in the cohort from the Wittenoom, in this hypothetical Wittenoom that we're talking about, and the exposures over the 30 years were estimated to be one fiber per CC, okay?

MR. KELLY: Same objection.

You can answer.

A. Okay.

Q. You would be able to calculate an exposure response based on that, correct?

MR. KELLY: Objection, form, incomplete hypothetical.

A. I'm still not following everything that you're -- that you're going out here. I got one fiber per CC, I can calculate an exposure level, and I can calculate a quantitative exposure level based on the number of years.

Q. And if you know how many employees you had there, and how many employee years there were, you would be able to identify a dose response curve, correct?

MR. KELLY: Same objection.

R.C. Adams

A. I would be able to calculate a cumulative exposure at one fiber per CC over a 30-year working lifetime.

Q. Fair enough.

And if you had the same group of people, and you had the same number of mesotheliomas, but you found out that your exposure estimate was really 10, 10 fibers per CC, the real exposure was 10 fibers per CC, rather than one, it would appear that that crocidolite that was exposure at the -- at this hypothetical Wittenoom mine that we're talking about was less potent than you thought if it were only one fiber per CC, correct?

MR. KELLY: Objection, form, incomplete hypothetical.

A. Again, there is more to it than that. I'd have to -- we'd have to look at the -- you know, what would have been the cause of the underestimation. And I'm not sure that I follow your approach in this one, you know, because again --

Q. I'm not asking you about the truth of what is being said by Hodgson and Darnton

here. I'm asking you about the math of it, the math of it.

A. Again.

Q. You understand that part?

A. I understand.

But what I'm trying to explain to you is that in the process of collecting data or evaluating estimating data, you take into account the uncertainties of the data sets that you have. And if you recognize that there could be an underestimation, you address that in the process. And that is what Hodgson and Darnton has tried to do here.

Q. Well, what Hodgson and Darnton did was use the estimates that were given by LeClerk, and not the estimates that were given by the people who actually serve -- who actually did the measurements for the Wittenoom cohort, right?

MR. KELLY: Objection, form, argumentative.

A. I'm not sure I quite follow what your thing -- what your question was there.

Q. Well, you know from the paper itself that Hodgson and Darnton relied on the data from

DeClerk for the Wittenoom cohort, correct?

A. Yes.

Q. Now, DeClerk never measured any exposures at the Wittenoom facility, did they?

MR. KELLY: Objection to form.

A. It -- it simply says that DeClerk and colleagues developing estimates -- they talk about DeClerk and colleagues developing estimates of environmental risk at Wittenoom, use a factor of four without detailed discussion.

Again, they're pointing out a limitation of the available data that they had.

Q. Since then, and I think I asked this, you haven't read the letter to the editor in response to this Hodgson and Darnton 2000 paper where Rogers and Major actually explain the problems with relying on DeClerk, right?

MR. KELLY: Objection, form, asked and answered.

A. I haven't read the letter. And, again, at this point, I accept the paper and I accept its conclusions.

Q. If the people who actually did the measurements at Wittenoom questioned the data

used by Hodgson and Darnton, would that give you any concern?

MR. KELLY: Objection, form.

A. Once again, I haven't read the letter, so I'm not prepared to give you an opinion on that.

Q. If Hodgson and Darnton rely on unreliable data, would that give you any concern?

MR. KELLY: Objection, form, argumentative.

A. I have nothing in front of me right now to prove one way or the other that it is reliable or unreliable data.

Q. Are you willing to rely on reliable data to give your testimony in this case?

MR. KELLY: Objection, form.

A. I have again stated that I am relying on Hodgson and Darnton, and have not seen anything in the peer-reviewed literature to suggest that their approach was incorrect or unreliable.

Q. I have suggested to you that there are, in fact, letters to the editor that call into question the reliability of the data.

Do you want to read those before you're going to come to the conclusion as to whether Hodgson and Darnton are reliable?

MR. KELLY: Objection, form.

A. I have no reason to read those letters. I accept the paper as written, and, again, it's been cited and used in many other studies.

Q. You probably learned in your high school history class that at one point in time scientists in the world believed that the earth was flat, right?

MR. KELLY: Objection, form.

A. Sure.

Q. And that was a commonly held belief, as we learned in our history classes and science classes as kids, right, that the earth was flat?

MR. KELLY: Objection, form.

A. Okay.

Q. Would you agree that that is what you were taught; that people believed for a long period of time that the earth was flat?

MR. KELLY: Objection, form, relevance.

A. I agree that it's been presented in science history -- or in history classes in school.

Q. And just because people repeated it around the world that the earth was flat didn't make it flat, correct?

MR. KELLY: Objection to form.

A. Okay.

Q. And similarly, just because people have cited the Hodgson and Darnton doesn't make it right, wouldn't you agree?

MR. KELLY: Objection to form.

A. I disagree. It's a scientific paper built on science foundations, and other people have found it to be credible. I do as well.

Q. I asked you about the ability to tease out the importance of the YAO or the effects of particular fiber types where there were exposures to all three commercial asbestos types, which were designated in the table YAO.

The same question with respect to the YO cohorts: Are you able to explain to me how Hodgson and Darnton were able to separate out the effects of the Chrysotile and crocidolite in

those YO cohorts?

A. No. I'm not going to discuss that.

Q. I understand you're not going to. Do you know how to?

A. No, I don't.

Q. Are you doing okay? Do you need a break?

A. I was just cramping up. I had a spin class this morning.

Q. Do you need to take a break? If you need to stand up or whatever, I don't want to interfere with your health.

A. Can we take a five-minute break.

(Time noted: 3:52 p.m.)

(A brief recess is taken.)

(Time noted: 3:57 p.m.)

Q. In your report, which is Exhibit 3 on page 4, turn to page 4 of your report.

A. Yes.

Q. You talk about at the bottom of that page, and then going over to the next page, where you get to establishing exposures to particular products, and you say that you have to know about the exposure magnitude, exposure intensity, and

the exposure duration, right?

A. Correct.

Q. And we don't have any actual knowledge of the exposure magnitude that Roy Knight experienced over his lifetime to asbestos, correct?

A. Say that again?

Q. You don't know the actual magnitude of exposure that Roy Knight had to asbestos over his lifetime, right?

A. You're talking about the entire -- his entire working lifetime, correct.

Q. You don't know the exposure magnitude for any individual exposure scenario that he experienced either, true?

A. I have evaluated his exposure specifically with respect to the time during the construction of the house, and that -- I was about to say the Longfree house, it's not. It's the Huckabee Road house, with respect to the Georgia Pacific joint compounds that were identified that allegedly have the Calidria content.

MR. KELLY: Just to interrupt, the

copies are back. So we have everything we need.

MR. HARTLEY: Okay, sounds good.

Q. The question I'm asking you is: You've made some estimates based on some data that you talked about, but I'm talking about actual information specific to Mr. Knight as to the exposure magnitude of any event, exposure event that he experienced over his lifetime, you don't have anything like that?

A. We don't have exposure data specifically for Mr. Knight that was collected in his vicinity while he was working.

Q. You don't have anything about the intensity, specifically for Mr. Knight, for any of the exposure events he discussed throughout his career, true?

A. True.

Q. You don't have any information, any concrete information about the exposure duration that Mr. Knight had for any of the exposures he discussed, true?

MR. KELLY: Objection, form.

A. We have -- we have what he described

as whatever estimates he provided, as far as his exposure time. And, again, my focus was in that period of time where he talks about the exposure at the Huckabee Road home.

Q. Why was that your focus?

A. Because I was asked to evaluate the exposure and particularly to look at the potential exposures associated with joint compounds, that may have contained Calidria fiber.

Q. As an industrial hygienist, you look at each exposure as an addition to the cumulative lifetime dose that someone had to a potential hazard, correct?

MR. KELLY: Objection, form.

A. It -- where we -- where that can be assessed, we would look at the different exposures, yes.

Q. And the way you would look at this in this case, as an industrial hygienist is that Mr. Knight had exposure in various places and probably had some exposure to asbestos from joint compound, and some exposure to asbestos from thermal insulation, and some exposure to asbestos

from other products that he described, right?

MR. KELLY: Objection, form.

A. Again, we would look at the exposures that he described, and to extract from his testimony information about the different product that he used, when he used them, how long he used them, to the extent that that information is available in the reliance materials.

Q. And in your review of the materials that you've been given, you saw that Mr. Knight had some exposure to joint compound at a house which was built during the time when Georgia Pacific ready-mix contained Calidria asbestos, true?

MR. KELLY: Objection, form, foundation, and assumes facts not in evidence.

A. We have his testimony as to the time period that he worked or in the time period that he visited the home during its construction. You know, again, we don't know for sure whether that joint compound actually did have Calidria in it or not.

Q. But you know that it more likely

than not did, based on the testimony of William Leonard though, correct?

MR. KELLY: Objection, form, foundation.

A. I don't agree with that, because I've looked at the formulation sheets, and that there was a number of products that did not contain Calidria.

Q. And those formulation sheets you were provided were provided to you by the lawyers, true?

MR. KELLY: Objection, form.

A. Yes.

Q. And you don't know whether there are other formulation sheets out there, right?

MR. KELLY: Objection, form.

A. I don't know that there may or may not be, but it looks like it's a pretty complete set of formula sheet.

Q. What is your basis for saying that it looks like a fairly complete set of formula sheets?

A. I've gone through them and have looked at them to see if there are any gaps in

time, with respect to the formulas. And it looks like, you know, they're there. There may be a gap or two, but they seem to be -- they seem to follow along pretty nicely.

Q. Now, do you have your formula sheets there?

A. I have formula sheets for ready -- for the ready-mix joint compounds from the Marietta plant.

Q. During what time period did the ready-mix for Marietta contain Calidria brand Chrysotile asbestos?

A. From the review of these formula sheets, it -- it would have been around 1972 or -- I'm sorry, sorry, I got to double-check this here. No, I'm sorry, it's 1974. 1974.

Q. That is based on what you were given by counsel for Union Carbide, right?

MR. KELLY: Objection, form.

A. That is based on the review of the formula sheets that I had in my possession.

Q. And the source of those formula sheets that we've been through was Union Carbide, right?

MR. KELLY: Objection, form.

A. They -- the source -- I received them from counsel.

Q. What counsel?

A. I received them from Austin and Bird.

Q. And who are they lawyers for?

MR. KELLY: Objection, form.

A. They represent Union Carbide.

Q. What was Georgia Pacific doing with the Calidria that was shipped to the Marietta Georgia facility in the 1972 time frame, if it wasn't putting it into joint compound?

MR. KELLY: Objection, form.

A. I believe they may have had some special-use products; for example, they had some limited shipments to facilities where they were -- they were not for general consumer use where they may have been -- there may have been special products that they may have been made for individual areas of the country.

Q. Where did you come up with that information?

A. Well, for example, in the formula

sheets, there is one in 1974, it is formula M 971, where it says, "To be supplied to selected customers only."

Q. Just so I understand, you have an opinion that is based on some documents that you have reviewed that Calidria was only used in Georgia Pacific ready-mix general batches out of the Marietta plant starting sometime in 1974, correct?

A. Correct.

Q. Now, you don't have any personal knowledge of that, right?

MR. KELLY: Objection, form.

A. I'm going strictly by the formulation sheets. And I have no reason to discount or dispute the information on them.

Q. And you haven't done a systematic review of all of the information that's been provided by Georgia Pacific in litigation regarding the use of Calidria in their products, right?

MR. KELLY: Objection, form.

A. I haven't done a complete assessment of all of the information, no.

R.C. Adams

Q. You haven't read Mr. Leonard's deposition from October 14th of 2003?

MR. KELLY: Objection, form, assumes facts not in evidence.

A. I have -- I have read Mr. Leonard's depositions -- a couple of Mr. Leonard's depositions, the -- I don't have those depositions with me.

Q. Do you recall that Mr. Leonard agreed to the statement that, quote, a person using GP ready-mix made in Marietta, Georgia from March 6, 1972 to May 4, 1977 would, more likely than not, have been using a product containing Calidria brand asbestos SG 210?

A. I know that is what he stated, I believe in that deposition. I believe, however, that was corrected in a subsequent deposition, in which he said again you have to rely on the formula sheets for that information. So I'm relying on the formula sheets.

Q. So you're taking only one time that this guy testified, and you're relying only on the one that favors Union Carbide here; is that what you're telling me?

MR. KELLY: Objection, form, argumentative.

A. I did not say that. I said I'm relying on the formula sheets as the basis for the determination.

Q. So I understand it, you're aware that Mr. Leonard said that between March 6, 1972 and May 4, 1977 a person using ready-mix would more likely than not have been using a product containing Calidria, right?

MR. KELLY: Objection, form, misstates evidence.

Q. You're aware of that, true?

MR. KELLY: Objection, same objection.

A. I'm aware that he stated it. But, again, I'm relying on the formula sheets for my opinion.

Q. So you're disregarding his statement under oath from October 14, 2003, correct?

MR. KELLY: Objection, form.

A. I'm not disregarding his statement. Again, I'm relying on the formula sheets for my opinions, relative to the availability of Georgia

Pacific joint compounds containing Calidria fiber.

Q. I guess, so that I understand correctly, you understand that he also says the exact same thing again in another deposition; that the dates that I just gave you were the correct dates, correct? You understand that, right?

MR. KELLY: Objection, misstates evidence, lacks foundation.

You can answer.

A. I don't know which other deposition you're talking about.

Q. Which one are you talking about where you claim that he says that you should disregard my former testimony and go with the formula sheets?

A. I know that I -- I don't know the specific one, but I know that it was after -- it was later on. And, again, I'm relying on the formula sheets.

Q. How do you determine whether his two prior instances of testimony under oath were accurate versus the one that you're relying on

where he says go by the formula sheets?

MR. KELLY: Objection, form.

A. I -- I'm simply -- I am simply going by what's on the formula sheets. Again, I've reviewed his testimony. I'm using the formula sheets as a basis.

Q. You know that prior to giving testimony that I've just described that he wrote down himself the time periods in his own handwriting, the time periods that Calidria was used at Marietta, Georgia, right?

MR. KELLY: Objection, form.

A. I know that he made some handwritten notes. Again, I'm relying on these formula sheets.

Q. I understand.

You are not relying on other information, prior information that Mr. Leonard had provided. You're relying on the testimony that was given when he was being questioned by Union Carbide, right?

MR. KELLY: Objection, form.

A. I -- that -- I am relying on the information, again, that he stated in the later

testimony, and the formula sheets that I have in front of me.

Q. Do you still have copies of the depositions that you've reviewed?

A. I don't have them with me.

Q. I know. Do you still have them in your possession?

A. I -- I do have them somewhere back in my office.

Q. You know that Mr. Leonard indicated that there were two products at the Marietta, Georgia plant that were using Calidria asbestos in the early 1970s, right; one was central-mix, and one was ready-mix?

MR. KELLY: Objection to form.

A. I don't know that.

Q. Can you identify why it is that you believe that prior to 1974, in the Marietta plant that there were some special-use products that might have contained Calidria?

A. It's in the specification -- it's in the formula sheets.

Q. You have the formula sheets there with you, right?

A. I do.

Q. It is 112 pages, at least as it was provided to me, is that right?

A. I'm not sure of the exact number of pages, but it is pretty thick.

Q. Which pages indicate to you -- they have Bates stamps at the bottom of them, right?

A. Yes.

Q. The first page is a cover page for the folder, right?

A. Yes.

Q. And the Bates stamp number on the bottom of it is 08186, right?

MR. KELLY: Yes. Sorry. That was me, Christian.

A. Yes.

Q. And then the next page that you have there is -- is it 018189?

A. Yes.

Q. And it appears that there is some pages missing in the Bates range, doesn't it?

A. Yes.

Q. What was on those pages?

A. I don't know. I don't have them.

Q. Did you ever ask?

A. No.

Q. Now, as we go through this, can you identify for me -- I may have found them, there is 87, they're all mixed up -- which pages that are in here that indicate to you that they were special-use products?

A. I'm going through them. Okay. Bates stamp 018232, which is formula M 971, where it says, "To be supplied to selected customers only," and it was a March 25, 1974.

Q. Right. I thought you were telling me that between 1972 and 1974, there were special-use products that contained Calidria. Did I misunderstand?

A. We're looking for the examples. That is the special asbestos free. This one is for machine tools. I'm thinking that might be that one. 976. This one is machine tools also. Yes. Yes, that is '74. This -- yeah, it's 19150, it's dated 1972, again supplied on special request only.

Q. 19150?

A. Right.

Q. How far into the stack is that, just out of curiosity?

A. That is number 979. Supplied on special request only.

Q. No, I mean just in terms of your stack. I think my copies are the same as the way you have them. And I just want to figure out how far to go down.

A. It would be the last grouping.

Q. What is it that you're telling me, that this means that it was not distributed?

A. It says it's supplied on special request only.

Q. Where is the formula for the ready-mix that was supplied in normal conditions that did not contain asbestos, it contained Calidria during this time period?

A. In -- are you talking about '74?

Q. Prior to '74.

A. Prior to '74.

Q. This one supersedes a formula from March 6, 1972. Do you know where that formula is?

A. Yeah, it's --

Q. I see the formula that is close to where you are from April 14, 1972. It says, "Filler for ready-mix joint compound" and it contains SG 210. That is 019080 and 81.

A. That is the filler. That is the filler 971.

Q. The filler which goes into the products.

A. Yes. Right.

Q. That means that from March 6th of 1972 until the date in 1974 where the formula was superseded, Calidria was in the material, correct?

MR. KELLY: Objection to form. I'm not --

A. We're not --

MR. KELLY: I'm not sure.

A. I'm not following you.

Q. Okay.

A. The difficulty with these formula sheets is going back and forth between the changes between when it was a filler, then it became a ready-mix product, then it went back to a filler.

Q. The filler goes into ready-mix, there is nothing confusing about that. Filler is an ingredient in ready-mix, so what they did is they mixed up the filler separately and then put it into the ready-mix.

A. Right. But --

Q. That is how --

A. It's the years that they did --

Q. And the page with the GP 019080 shows that the filler for ready-mix for March 6th, until 19 -- the next formula that you have pointed out talking about special uses, contained Calidria, doesn't it?

A. Which one is that? 090 --

MR. KELLY: Give the formula number.

A. Give me the formula number. Don't give me the Bates number. Give me the formula number.

Q. Ready-mix filler M 978.

A. 978.

Q. M 978.

A. Filler M 978 is --

Q. Towards the bottom of your stack.

A. I've got it. It says there is SG

210 in it. Now we have to figure out where that filler was used.

Q. It was used in joint compound, ready-mix joint compound M 979 and M 977, it says it right up on the formula itself for this ready-mix filler.

A. Okay. And 977 is a product that was supplied on special request only for machine tool use. That is a special product and in 9 -- and M 979, it is again supplied on special request only. That is number M 979 dated February 16, 1973.

Q. Where is the formula for ready-mix during this time that is not special-use only. There isn't one in your materials, is there?

MR. KELLY: There is. Hold on.

A. Let's see here. I got to look. Let's see here -- that is not special-use only. There is a -- yes -- 971. Okay. That is -- so we have formula M 971, okay, dated January 29, 1969.

Q. Which page? Which page is it in your stack now?

A. Okay. It's -- like I said, it's

formula M 971. If you need the Bates number it's 018230. And it's got asbestos 7RF9. And it is also IN -- it's a filler for ready-mix joint compound M 974 and M 976. M 976 is a machine tools though. So it's got to be the other one. Because that is a handle tool. That is the general, that is the general formula right there.

So M 979, which is the white ready-mix joint compound -- I'm sorry, M 974. M 974 for hand tools, ready-mix, that is the one we're talking about. That is the general purpose one that does not contain the Calidria.

Q. I'm trying to find these documents in --

A. It's tough.

Q. I'll short-circuit it this way: The only information that you have about the formula is contained in here, in the materials that you've got there in front of you, the 112 pages that you received from Union Carbide and what you read in Mr. Leonard's testimony, is that true?

A. That's what I have.

Q. And so if there are any gaps in here, in what you got, you don't have any

personal information that is going to help you fill those in, true?

A. I don't have -- if there are gaps here, I -- I have the best -- as far as I understand, this is the best collection of the formula sheets that are available.

Q. Now, Doctors Craighead and Churg, you cite one of their papers. Why do you cite Craighead and Churg?

MR. KELLY: C-H-U-R-G for Churg.

A. Are you referring specifically to section C of my report, on page 7?

Q. I don't remember where, I just saw it, I think it's probably -- it could be there.

A. These -- I cite them because they, again, support the information relative to the association of amphibole exposures to mesothelioma.

Q. Dr. Craighead is a consultant in asbestos litigation, right?

MR. KELLY: Objection, form, assumes facts not in evidence.

A. I don't know that for certain.

Q. But you know that Dr. Gibbs is even

an expert witness for Union Carbide?

MR. KELLY: Objection, form, lacks foundation.

A. I -- I don't know that for certain, either.

Q. Do you know who Victor Rodley is?

A. I know Dr. Rodley's reputation.

Q. What is Dr. Rodley's reputation?

A. Dr. Rodley is a pathologist who has looked at the issue of asbestos diseases. And I know he's written a number of authoritative texts on the subject.

Q. Dr. Rodley, were you aware that he has identified this case, Mr. Knight's case as an asbestos related mesothelioma?

MR. KELLY: Objection, form.

A. I haven't seen Dr. Rodley's report relative to this case.

Q. If Dr. Rodley says it's an asbestos related mesothelioma, do you have any reason to question that?

A. I -- I wouldn't have any reason to question his -- his analysis.

Q. As an industrial hygienist, you know

that each exposure someone has to asbestos over their lifetime increases their lifetime burden, body burden of asbestos, correct?

MR. KELLY: Objection, form.

A. That -- that requires some more explanation, because, again, you have to consider the exposure type, the exposure -- the fiber type, the length and duration of the exposure. There are certainly inconsequential exposures that are not going to increase somebody's risk for the development of an asbestos related disease.

MR. KELLY: Sorry.

MR. HARTLEY: Sorry, ma'am, can you read that back to me. I think I just missed it.

(The record is read.)

Q. Where can you refer me to in the industrial hygiene literature to indicate that there are inconsequential exposures to asbestos?

A. Again, I have already discussed the fact that this is the basis for my opinions using Craighead and Gibbs, and Dr. Churg and others that have indicated that, you know, below a

certain level of exposure, the risk is minimal. And I've been using the permissible exposure limit as one indication of that.

Q. How many excess cancers are acceptable as the OSHA regulation indicate that there will be excess cancers at the PEL?

MR. KELLY: Objection, form.

DEFENSE COUNSEL: Object to form.

MR. KELLY: Foundation.

A. I don't have that number in front of me. And, again, the OSHA risk assessment is based on looking at all fiber types at .1 fibers per CC. There is no distinction between amphibole or Chrysotile in that statement.

Q. How did you come to have a copy of Dr. Craighead's and Dr. Gibb's medical textbook?

A. I bought it when it came out.

Q. Did you buy it because you were going to use it in asbestos litigation?

A. I bought it because I was very curious about what they had to say, because I had -- I have other textbooks on the subject, including Dr. Silicoff's book from ages ago. And I wanted to see what their -- and because it was

a current textbook. And it was of interest to me.

Q. What other textbooks do you have?

A. Oh, Lord.

MR. KELLY: Objection to form. You mean related to asbestos?

Q. Medical textbooks relating to asbestos, sorry.

MR. KELLY: I withdraw the objection.

A. Well, I don't have a whole lot of medical textbooks. I have other textbooks that discuss asbestos or include summaries of information regarding asbestos.

Q. Do you have Hammar and Dodson Asbestos Risk Assessment?

A. I don't have that one in my possession. We have it in our library at ENVIRON. I don't have a personal copy of it.

Q. Is that a reliable textbook?

MR. KELLY: Objection, form.

A. I haven't looked at it in a very long time.

Q. Do you have Dr. Rodley's textbook in

your collection?

A. Not in my personal collection. But, again, we have copies of Dr. Rodley's text in our -- in our central library.

Q. Is Dr. Rodley's textbook reliable?

A. The chapters that I've read on it, yes.

Q. Nail and Hammar, do you have that one in your textbook collection?

A. That one doesn't ring a bell.

Q. Do you recognize the name Sam Hammar as an expert in the area of asbestos, don't you?

MR. KELLY: Objection to form.

A. I recognize the name only.

Q. You cite to the ATSDR in your materials. And I guess it's to the toxicological profile for asbestos, right?

A. That's correct.

Q. You know that the ATSDR reviewed all of the available evidence about the toxicology of asbestos, and concluded that all fiber types cause mesothelioma?

A. If you read ATSDR, they identified the likely probability of greater association

with mesothelioma in the amphibole fibers.

Q. That is not what I asked you.

It says in the ATSDR profile for asbestos that you reference in your own report that all fiber types cause mesothelioma, right?

MR. KELLY: Objection to form.

A. Again, I would say I would like to take a look at the context, because I read the ATSDR report, and I know that, in fact, they state -- make statements also that the more potent ex -- forms of the fiber are the amphibole forms.

Q. Do you think that's what that says in the ATSDR toxicological profile, that the ATSDR takes the position that amphibole asbestos is more potent?

MR. KELLY: Objection.

A. There are statements in the ATSDR documents to that effect, yes.

Q. What page is that on?

A. I don't have the ATSDR document in front of me.

Q. Are the rest of your opinions as reliable as that one?

MR. KELLY: Objection, argumentative, form.

A. I'm not going to answer that question.

Q. Is it possible that you are not recalling the ATSDR statements about potency correctly?

MR. KELLY: Objection, form.

A. I have simply stated what I've already told you about the document.

Q. I know. I'm asking you if it's possible that you're wrong.

MR. KELLY: Objection, form.

A. Well, again, I'm not going to respond to the question without the document in front of me.

Q. I can e-mail it to you.

A. There are over 400-some-odd pages of this document.

Q. There are 431, but I can send it to you in a PDF so we can find all of it.

A. I feel that the ATSDR documents is reliable. I have relied upon it in terms of my interpretation of this information. I don't see

that it's necessary for us to have to go through this, to find one statement about the potential relationship of Chrysotile and mesothelioma that's taken out of context.

Q. I'm asking you to put it in context by showing me the statement. Are you unwilling to do it if I give you the document?

A. At this point I think what's in my report stands as my opinions in this matter. And I think if we're going to discuss my opinions in the Knight matter, I would like to concentrate on what's in my report, rather than spend another hour or two going through the ATSDR document trying to find all of these references to amphibole exposures.

Q. I understand.

Let me see if this seems like something you recall from a -- because I have it here. It says on page F 20 on a 441 page ATSDR toxicological profile for asbestos that under the topic of consensus issues and conclusions, quote, There is general agreement among scientists and health agencies on the following issues and conclusions regarding health effects from

asbestos: One, exposure to any asbestos type, i.e., serpentine or amphibole, can increase the likelihood of lung cancer, mesothelioma and nonmalignant lung and pleural disorders. Does that seem like what is in the ATSDR document that you're citing?

MR. KELLY: Objection, form.

You can answer again.

A. I -- I -- I think that the issue is -- that we talked about are that there are other references throughout that document that talk about the level of exposure or the potency of amphiboles versus chrysotile, that is one statement. But, again, I don't have the document in front of me.

MR. KELLY: He's asking whether you think that that is a correct statement from what he's read.

A. I -- I can't dispute the statement that he's reading right now. I don't have the document in front of me.

MR. KELLY: Okay.

Q. Under the topic of unresolved issues and discussions, do you recall there being a

question -- and it's number 2, "Are Chrysotile fibers (or amphibole asbestos fibers) primarily responsible for mesotheliomas in certain groups of predominantly exposed Chrysotile"; does that seem like something that's discussed in that profile that you're reviewing -- that you referenced, rather?

A. Again, I -- I -- I -- you know, it sounds like that's what's there, but, again, I don't have it in front of me, so...

Q. Now, the Pierce article that you cite is one that was funded by defendants in asbestos litigation, right?

MR. KELLY: Objection, form, lacks foundation, argumentative.

A. I understand that they disclosed a -- the funding source in that case.

Q. And it was the auto industry who -- and they were defendants in asbestos litigation for brakes essentially, correct?

A. Yes.

Q. One of the authors of that article was a Dr. Paustenbach, correct?

A. Yes.

Q. And do you know who he is?

A. I know his reputation. I've never met him personally.

Q. What do you understand his reputation to be?

A. Dr. Paustenbach is an industrial hygienist, and he's done quite a bit of a review in the asbestos literature. He also has written some very important papers on exposure assessment.

Q. Do you understand that he was implicated in the fabrication of a paper that dealt with chromium six?

MR. KELLY: Objection, asked and answered.

A. I have already given you the answer to that. I don't know that and I don't read the Wall Street Journal.

Q. Is Dr. Paustenbach's reputation important to you as to whether you would rely on a paper that he wrote?

MR. KELLY: Objection, form.

A. As I stated to you previously with respect to any paper that I review, I review the

paper based on the methodology, whether it follows generally accepted principles and practices, and that is what is critical in my evaluation of any paper.

Q. You would agree with me that you're not qualified to -- as a peer reviewer for the paper that was written by Pierce, et al., correct?

MR. KELLY: Objection, form.

A. I'm not sure I understand what you mean by "not qualified."

Q. You have relied on a paper by Pierce McKinley Paustenbach and Finley entitled, "An Evaluation of Reported No-Effect Chrysotile Asbestos Exposures For Lung Cancer and Mesothelioma," right?

A. Correct.

Q. You're not a toxicologist, right?

A. I'm not a toxicologist.

Q. You're not a medical doctor?

A. I'm not a medical doctor.

Q. You have never reviewed any literature as a peer reviewer for any toxicology journal, have you?

MR. KELLY: Objection, form, lacks foundation.

A. I have not reviewed as a peer reviewer for a toxicological paper, no.

Q. That's where that paper was published, right?

A. Right.

Q. Do you have a copy of the paper there?

MR. HARTLEY: Let's take a break now.

(Time noted: 4:49 p.m.)

(A brief recess is taken.)

(Time noted: 5:03 p.m.)

Q. Do you have there the Pierce paper?

A. I do.

Q. And I'm trying to find my copy of it on my desktop now. I've got so many papers open.

Is Critical Reviews in Toxicology a journal that you take in the normal course of your work?

A. It's one journal that we keep an eye on in the normal course of, you know, identifying the peer-reviewed literature. It's not a primary

one, but it is one that we keep our eyes on.

Q. And you don't have a subscription yourself, do you?

A. No, I don't.

Q. You don't subscribe to any toxicology journals yourself, do you?

MR. KELLY: Objection, form.

A. I don't subscribes to any toxicology journals, no.

Q. Now, if we would turn to page 192 of the Pierce paper, the top of that page, in the first column, it's listing some of the studies that they're relying on, right?

A. Yes.

Q. And one of them, again, is that: Piolatto study from Italy?

A. Yes.

Q. I asked you about whether you were aware of this paper. But I'm going to tell you the title of it, so that I can be sure that I've got the right one.

Are you familiar with the paper entitled, "Excess of Mesotheliomas After Exposure to Chrysotile in Bolengero, Italy" by Mirabelli

Calistiti and other authors?

A. I'm not familiar with that particular paper.

Q. It is published in the Occupation and Environmental Medicine 2008. It doesn't ring a bell?

A. I haven't seen it.

Q. Were you aware that the Chrysotile in the Bolengero mine in Italy is tremolite free?

MR. KELLY: Objection, form, assumes facts not in evidence.

A. I do not know that one way or the other.

Q. Continuing with the Pierce paper, if you go to the acknowledgement section. It is the very last pages of the written text. That is where they acknowledge that this was paid for by Chrysler Corporation, Ford Motor Company and General Motors Corporation, right?

A. It says that it was funded almost entirely.

Q. Who were the other people who paid for it?

A. It says that there were three

funding sources and their counsel. At least -- I'm sorry, the funding sources and their counsel did not provide editorial comments or review of the manuscript.

Q. Who were the three funding sources, if it wasn't Ford, General Motors and Chrysler?

A. No, it's just saying that they're indicating that while they funded it, they didn't provide editorial comment or review.

Q. I know. I'm getting at the almost entirely part. Do you know who, other than Ford, General Motors and Chrysler, who funded that, if anyone?

A. I don't know who the other parties would be.

Q. Was it Union Carbide?

MR. KELLY: Objection. Speculation.

A. I don't know that.

MR. KELLY: Come on.

MR. HARTLEY: I don't know. I'm asking.

MR. KELLY: Come on, Christian.

Q. It says, on page -- what this paper is, this Pierce paper, is an attempt to -- is

another attempt to do a risk assessment using various epidemiological studies, correct?

A. Yes.

Q. And like every risk assessment, it suffers from the limitations of the underlying data, whatever they may be?

A. As I stated, all -- all studies of this nature have some limitations, yes.

Q. And this paper is the only paper that you're aware of that has come to the conclusion that there is a threshold for mesothelioma with asbestos exposure, true?

MR. KELLY: Objection, assumes facts not in evidence.

A. That is not what they are talking about. They're talking about a no-observe-adverse-effect level; they're not referring to it as a threshold level.

Q. What is the difference?

A. A no-adverse-effect level is just a level below which they have not seen evidence of the disease.

Q. What is the significance of this paper, in your analysis?

A. This paper, just again helps me put into context the exposure levels that Mr. Knight had, and relative specifically to the use of the Georgia Pacific compound with the -- allegedly with the Calidria fiber so that I have basis to compare the calculated exposure level to a, you know, a risk level, to assess whether or not I felt that it was a significant or substantial risk.

Q. On page 193, under the methods section of the Pierce paper, do you see that?

A. Yes.

Q. It says towards the bottom it says, "If multiple studies existed on a single cohort, the study with the most power, i.e., longer follow-up period, larger study population was selected for the analysis."

A. I see that.

Q. And why was that?

MR. KELLY: Objection to form, calls for speculation.

A. I, again, I was not involved in the study design. I'm sure there are very good reasons why they chose that. I don't have an

objection to their decision to use the best study for the purpose of this paper.

Q. Do you understand what the concept of power is in an epidemiological study?

A. I understand generally that it talks about the strengths of the information and the associations that they can draw, based on the data.

Q. You can't really give us a working definition of the term "power" as an epidemiologist uses; is that fair to say?

MR. KELLY: Objection, misstates his testimony.

A. I've given you my best understanding of it as an industrial hygienist.

Q. Is there anything else, other than what you've already told me, as to what you understand "power" means in epidemiology?

A. Pretty much as I stated is as far as I can go on that discussion.

Q. Do you remember back on the Hodgson and Darnton paper that they talk about a paper by Ildren and Brown using human and animal data to find a no-adverse-effect level, they call it

logical nonsense?

MR. KELLY: Objection to form.

A. I'm just familiar with what's in the paper.

Q. Do you recall that they talk about Ildren and Brown's attempt to look at epidemiological studies and find no adverse effects levels and Hodgson and Darnton call that logical nonsense, right?

A. I -- I have already stated that I know it's in their paper.

Q. So the same approach to risk that is used by Pierce, et al. here was called Logical Nonsense by Hodgson and Darnton, correct?

MR. KELLY: Objection, form.

A. I don't know how I make that leap. They're referring to a single paper Ildren and Brown which I can't -- which I have not reviewed, and I don't see where you're making that leap into this review, where they're talking about what they've looked at in the studies to develop a no-observed-adverse-effect level.

Q. Maybe I misunderstood.

This Pierce paper looks at various

studies of people exposed to asbestos and tries to determine what levels of exposures were associated with increased mesothelioma cases, true?

A. They were looking for no-adverse-effect levels in these different cohorts that they reviewed, yes.

Q. So it's important to know what levels the people were actually exposed to in the cohorts, right?

MR. KELLY: Objection, form.

A. That is -- that is one aspect of the review of the cohort is to have the exposure information.

Q. It's important to make sure that they captured all of the cases in the cohort, true?

MR. KELLY: Objection, form.

A. Yes.

Q. They talk about on page 193 in the second column some of the problems that they have that is coming up with the exposure measurements, right?

A. Yes.

Q. They have to do the conversion factors just like Hodgson and Darnton did, right?

A. Yes.

Q. They would have all the same problems that Hodgson and Darnton did when they were using the same data, right?

MR. KELLY: Objection, form, assumes facts not in evidence.

A. They would have some of the same types of problems, but again, I'll clarify that you're also looking at a paper that is eight years, I believe, after Hodgson and Darnton, which means that there are other -- there may be other information, other factors, other mechanisms available to overcome some of those limitations.

Q. But you don't know whether there were or were not, right?

A. The authors -- the authors of this paper point out the limitations appropriately, and I accept what they've identified as the issues with those limitations.

Q. Just so I understand, you don't know whether they found anything different, they had

any different information to them; you just accept that they would have done it because they should have?

MR. KELLY: Objection, form.

A. Again, I simply say that they recognized the limitations of the data that's available to them and addressed it appropriately.

Q. And I'm getting at it, what is the basis for saying that they addressed the limitations appropriately?

A. Again, I'm just reading the article and reading what they stated about dealing with some of the exposure limits and reports and units other than fibers per CC, how they dealt with the conversion factors. Yes. They used published factors for plants or similar operations to develop the conversion factors where they didn't -- you know, where maybe the other study authors didn't have it, I mean.

Q. Is it fair to say that on page 193, towards the bottom, it says, "Cumulative exposure measurements reported in units other than fibers per cubic centimeter per year, fiber CC year equivalent to fiber milliliter year, were

converted to fiber CC years using the conversion factor provided by the individual study authors," right?

A. That's correct.

Q. They don't tell you which of the studies had conversion factors in them, right?

MR. KELLY: Objection, form.

A. It's -- they don't. But it's, you know, it's not relevant at this point. I've accepted what they provided, in terms of these data, are based on what the study authors provided them, and I don't see the relevance of that.

Q. The next sentence says, "If cumulative exposure was reported in millions of particles per cubic foot per year and a conversion factor was not provided, a conversion factor was determined based on published factors for plants with similar operations," right?

A. That's what they reported, yes.

Q. You don't know whether the conversion factors that they created were reliable, right?

MR. KELLY: Objection, form.

A. I don't know one way or the other. But I accept that the conversion factors were used and applied. And I believe this since again this is a peer-reviewed paper and I haven't seen anything to dispute it, that they are reliable.

Q. Are you able to, as an industrial hygienist, able to say that some of the exposures that Mr. Knight had did not lead to an increase in the amount of asbestos in his body?

MR. KELLY: Objection, form.

A. As an industrial hygienist, I can speak to the exposure levels associated with the time that he spent at the Huckabee Road home during the time that he alleged that he observed the -- the drywall contractor doing the -- doing the installation of drywall, including sanding. I speak from an exposure standpoint.

Q. You're telling me that as an industrial hygienist, you can say that the asbestos that he breathes at that facility, at that house was not retained in his body?

MR. KELLY: Objection, form.

A. Again, my testimony has to do with the exposure level that would have been present

in the house. I can't speak to specifically how much fiber he would have actually breathed in and retained inside of his lungs.

Q. What is your hourly rate for your work on this case?

A. For the general consulting work, I charge $260 an hour. And for depositions and testimony $360 an hour.

Q. And in terms of the time that you spent to produce this report, how much time did you spend on it?

A. I have probably spent in terms of the preparation of this report, probably about 10 hours, in terms of the actual report preparation.

Q. That is 10 hours at $260 an hour?

A. Yes.

Q. How much time, in terms of the other work that you've done on this case have you spent?

A. Well, in terms of preparation for the deposition, it's probably been an additional eight -- eight hours, give or take.

Q. What did you do to prepare for the deposition?

A. I went back and reviewed the report. I also reviewed the -- the notice of deposition to prepare -- to gather up all of the information.

I mentioned that we had -- after the report had been issued, there was a supplemental deposition, the Cunningham deposition. So I reviewed that deposition to see if it had any impact on the report, and any opinions in the report. And, again, just generally double-checked the files, reviewed the other deposition doc -- transcripts, to see just if -- you know, just to make sure that I had captured everything that was relevant in the report.

Q. Did anybody else help you do this report or review any materials?

A. I have an associate that works with me. His name is Michael Holton. He is also a certified industrial hygienist. And he does the initial review of the documents and prepares a -- what we call the exposure chronology, which I believe is one of the documents we submitted to you.

Q. How much time did Mr. Holton spend

on the case?

A. He probably has about 15 hours or maybe a little bit more than that into the case.

Q. 20 hours?

A. It might be 20 hours. I'd have to go back and look at the actual numbers.

Q. Would you be able to do that and provide it to Mr. Kelly, so we can make that an exhibit?

A. I can. I -- we did provide an invoice from -- from -- yeah, it was April -- or it was submitted April 29th, but it was for work done in March.

And we did -- we probably did a bit more of that work in -- in -- in April -- in April. So, yeah, for example, Mike Holton's hours is like 1.8 at that point, and he certainly would have done more on the case at that point. I can get a more up-to-date breakdown, just the way our invoicing cycle works, it -- we got about a 30-day lag, sometimes as much as a 45-day lag.

MR. HARTLEY: Colin, I think -- what would it be, Exhibit 5 now?

MR. KELLY: Yes, although I was

going to ask, there is a lot of other exhibits here that you want to mark them just sequentially after?

MR. HARTLEY: Yes.

MR. KELLY: Wherever you end, how about this, we'll just mark them in sequential order, depending on how they're PDF'd, I guess.

MR. HARTLEY: Okay. That makes sense, for sure. That's what we'll do.

MR. KELLY: I think you're right, we're on Exhibit 5. Which will be the invoice dated March 29, 2010.

(Adams Exhibit 5, invoice dated March 29, 2010, marked for identification.)

MR. HARTLEY: Can he supplement Exhibit 5 with the updated one?

MR. KELLY: Certainly.

MR. HARTLEY: That will be two invoices: the current, the one that is there already, and then the more current one will be part of Exhibit 5 as well.

THE WITNESS: I'm happy to do it. But just let me clarify. I have to check

with the accountant to see if it has been posted yet. I think it's been generated but I don't know if it's been posted.

MR. HARTLEY: I'm trying to figure out the best way.

Q. Let me ask you this first: There were multiple depositions that were provided to me that were provided to you, including several volumes, I think four volumes of Mr. Knight's deposition?

A. Yes. I have three, three oral and one video.

Q. And Mrs. Knight's deposition?

A. Yes.

Q. And also Mr. Cunningham's deposition?

A. Correct.

Q. Did you actually read all of those depositions yourself?

A. I read selected portions of them, based on the summary document.

Q. So in other words, Mr. Holton identified places that he thought you should read and then you read them?

A. Correct.

Q. Were you provided any kind of summary or direction from the lawyers as to what to look at?

A. No.

Q. Was anyone else at ENVIRON provided such information?

A. No.

Q. Do you know what Mr. Holton's billing rate is?

A. He is at 175 an hour.

MR. HARTLEY: I guess I think the thing to do, Colin, what would be the next thing that you have that would be the next item? I think I'm pretty much done. I want to make sure I mark all of it.

MR. KELLY: Why don't we get through it, Christian. We already marked the invoice. We'll set that to the side. Hodgson and Darnton.

Next would be the exposure summary document, Christian, which is dated -- it's not dated.

THE WITNESS: It's not, it's not.

MR. KELLY: Do you want to mark that as Exhibit 6?

MR. HARTLEY: Sure.

(Adams Exhibit 6, exposure summary document, marked for identification.)

MR. KELLY: Next is the deposition trial testimony list for Robert C. Adams as of June 1, 2010, that was requested in your notes.

MR. HARTLEY: Okay. That will be Exhibit 7.

(Adams Exhibit 7, deposition trial testimony list for Robert C. Adams as of June 1, 2010, marked for identification.)

Q. Let me ask you real quick, is that up to date, Mr. Adams?

A. Yes, it is current as of yesterday.

MR. HARTLEY: What is next?

MR. KELLY: Next would be correspondence from -- there is an e-mail string from -- it starts with Debbie Zuger and Willcox & Savage and ends with me, Colin Kelly, sending Mr. Adams a blank e-mail with a notice of deposition, so that

is the correspondence in the case.

MR. HARTLEY: Can we make that Exhibit 8?

MR. KELLY: Yes.

(Adams Exhibit 8, correspondence, marked for identification.)

MR. KELLY: Next is a March 12, 2010 letter from Melissa Stogner, my paralegal, on Alston & Bird letterhead, enclosing the CD of materials for review in the above-captioned matter, which is the Knight case. And then attached to it is the CD with the materials that I had sent you, the substantive information, you know, depositions in the case that were referenced in the report.

MR. HARTLEY: That is all an image that we can attach?

MR. KELLY: Yes.

MR. HARTLEY: Let's attach that then as 9.

(Adams Exhibit 9, March 12, 2010 letter with attachment, marked for identification.)

MR. HARTLEY: Anything else.

MR. KELLY: What about the -- we have electronically all the information on the attached CD. Do you want that as Exhibit 9A, subsection A through whatever, however many it is, I don't know how many it is.

MR. HARTLEY: Sure.

MR. KELLY: F and G, how about that.

MR. HARTLEY: Electronic, so it's not going to cause us any problem.

MR. KELLY: Right.

(Adams Exhibit 9A, CD, marked for identification.)

MR. KELLY: Next is an April 14, 2010 letter from my paralegal, Melissa Stogner, on Alston & Bird letterhead enclosing Mr. George Cunningham's deposition.

MR. HARTLEY: Put that in there too.

(Adams Exhibit 10, April 14, 2010 letter enclosing Mr. George Cunningham's deposition, marked for identification.)

MR. KELLY: And the final exhibit,

Christian, is the Marianna formulas.

MR. HARTLEY: Yes, I need those for sure.

(Adams Exhibit 11, Marianna formulas, marked for identification.)

MR. KELLY: The only thing that is left is the Pierce article, Hodgson and Darnton and his report.

MR. HARTLEY: I got the report early on.

MR. KELLY: So all that is left is the Hodgson and Darnton and Pierce.

MR. HARTLEY: Let's make those the next two.

(Adams Exhibit 12, Report, marked for identification.)

(Adams Exhibit 13, Report, marked for identification.)

MR. KELLY: We're up to Exhibit 13.

MR. HARTLEY: Okay, perfect.

I have no further questions at this time.

MR. KELLY: Would you like to read; read your deposition and review it before

you sign, or waive?

THE WITNESS: I would like to read it.

MR. KELLY: It is your right to do that. So you'll review the deposition and make any corrections and we'll send you a copy.

Union Carbide reserves its right to question until the time of trial.

(Time noted: 5:32 p.m.)

I, the witness herein, having read the foregoing testimony, do hereby certify it to be a true and correct transcript, subject to the corrections, if any, shown on the attached page.

_____

ROBERT C. ADAMS

Subscribed and sworn to
before me this ____ day
of _____ 2010.

_____

CERTIFICATE

STATE OF NEW YORK)
:
COUNTY OF NEW YORK)

I, KAREN PERLMAN, a Shorthand Reporter and Notary Public within and for the State of New York, do hereby certify:

That ROBERT C. ADAMS, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this ____ day of June, 2010.

_____

KAREN PERLMAN

I N D E X

WITNESS	EXAMINATION BY	PAGE
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