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January 8, 1990



Lawrence P. Postol
Seyfarth, Shaw, Fairweather & Geraldson
815 Connecticut Avenue, N.W.
Washington, D.C. 20006

RE: Charles Justice

Dear Mr. Postol:

I am in charge of Industrial Hygiene at the Newport News Shipbuilding and have held his position since 1976. I am certified by the American Board of Industrial Hygiene as an Industrial Hygienist and I have been elected a Director of the certifying board.

You have described to me how Mr. Justice, in the laundry room of the USS NIMITZ before its 1983 overhaul, used a nail file to probe into pipe insulation and ventilation insulation so as to measure its depth and have asked me to render an opinion regarding his potential exposure to asbestos. I have also reviewed Mr. Justice's deposition testimony concerning his work on the NIMITZ

The overhaul of the NIMITZ took place in 1983 at the Newport News Shipyard. Prior to the overhaul, our Industrial Hygiene Department visited the ship and sampled for asbestos insulation. We did this by taking over 5000 samples from the ship and testing them for the presence of asbestos. In the laundry room, numerous samples from laundry steam supply lines (with portable pads) tested positive for asbestos insulation. In addition, numerous samples from air supply ventilation insulation tested positive for asbestos. In total, there were 4 samples from steam supply ventilation pads, 49 samples from air supply ventilation and pads, 1 sample from a steam drain and 5 other samples in the laundry spaces which tested positive for asbestos.

Based on Mr. Justice's description of "poking" the insulation, it is my opinion that he would have been exposed to airborne asbestos. In addition to the fibers he saw, there were likely many more fibers he could not see; in fact, those invisible fibers present the greatest risk potential.

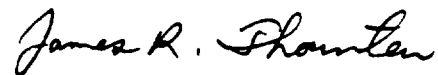
I would note that virtually every ventilation supply in the laundry room was tested and most were positive for asbestos insulation. Based on Mr. Justice's description, he would have had to have sampled several of these

since he indicated that he said he sampled several ventilation systems. The asbestos in the pipe insulation seemed limited to hot supply lines. The asbestos was usually present in the portable pad insulation used on many of the hot supply lines. Since this insulation is different than the cold drain pipe insulation, Mr. Justice would have had to sample at least one of them to make his drawings accurate.

It is my opinion based on reasonable industrial hygiene principles, as well as Mr. Justice's deposition testimony and our NIMITZ records, that Mr. Justice was exposed to airborne asbestos when he worked on the NIMITZ in 1983.

If I can be of further assistance please do not hesitate to call me.

Sincerely

A handwritten signature in cursive script that reads "James R. Thornton".

James R. Thornton
Manager, Industrial Hygiene

JRT/bl1



RIVERSIDE

REGIONAL MEDICAL CENTER

December 29, 1989

Mr. Lawrence P. Postol
Seyfarth, Shaw, Fairweather,
and Geraldson
815 Connecticut Avenue, N.W.
Washington, D.C. 20006-4004

Dear Mr. Postol:

At your invitation, I have responded to the points you raised in your recent letter regarding Charles Justive vs NNS&DDC.

I agree with Dr. Fairman that there is some dose-relationship between mesothelioma and asbestos exposure, but this relationship is much weaker than for parenchymal asbestosis. That is, asbestosis is not only more common in heavily exposed workers, but the degree of fibrosis is worse with heavier exposures. Mesothelioma is much more common in asbestos-exposed individuals than in those without exposure, but the "slope" of the exposure-to-incidence curve is not nearly as steep as that of asbestosis. Also, both high dose and low dose associated tumors show a similar spectrum of malignant behavior.

The slope of the exposure-to-incidence curve for contribution of asbestos to the development of lung carcinomas is probably intermediate, between those of mesothelioma and asbestosis.

The latency period from first exposure to diagnosis of tumor may vary greatly. I have previously testified to a range of from seven to seventy years with an average of thirty to thirty-five years. A minimum latency period as short as 3.5 years has been proposed in the English mesothelioma registry (Greenberg and Davies, Br J Indust Med 31:91-104, 1974).

According to the literature cited by Thurlbeck (Pathology of the Lung, page 645) mesothelioma is associated with all types of asbestos fibers except anthophyllite. In order of higher to lower risk, they are ranked crocidolite, amosite, and chrysotile.

Although fiber counts were not performed in this case (since no lung parenchyma was available), I accept the occupational history of asbestos exposure, and note that he also had hyaline pleural plaques which also indicate asbestos exposure.

F.C. Davis, Jr., M.D., W.B. Helwig, M.D., J.F. Legier, M.D., J.C. Maddox, M.D., R.P. Moriarty, M.D., M.C. Shen, M.D.

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Mr. Lawrence P. Postol

Except as qualified above, I hold the opinion that all asbestos exposures should be considered to have contributed to the development of a mesothelioma. In other words, several exposures contribute jointly. Thus, I conclude that all of Mr. Justice's exposures, from 1972 (Brown and Root) through 1983 (J.J. Henry Co. and CDI Marine) contributed to his mesothelioma.

Sincerely,

A handwritten signature in dark ink, appearing to read "J.C. Maddox", written in a cursive style.

John C. Maddox, M.D.
Pathologist

JCM:djm

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November 28, 1989

BY FEDERAL EXPRESS

Dr. John C. Maddox
Pathology Department
Riverside Hospital
500 J. Clyde Morris Boulevard
Newport News, Virginia 23601

Re: Charles Justice v. Newport News Shipbuilding
and Dry Dock Company

Dear Dr. Maddox:

As you know, I am an the attorney for the Newport News Shipyard. Mr. Justice has claimed compensation with several employers where he was exposed, or potentially was exposed to, asbestos. There is no doubt Mr. Justice is entitled to compensation. The issue is which employer last exposed him to the injurious substance, that is, which exposures contributed to his mesothelioma. I would appreciate your reviewing the following information and preparing a report by December 10th answering the questions at the end.

In a similar case (Charles Shank), Dr. Paul Fairman of MCV testified that any exposures contribute since mesothelioma is a dose-related disease, with no known threshold:

- Q. In your opinion, is mesothelioma, malignant mesothelioma, dose related?
- A. Yes. I think it is.
- Q. Is there any accepted standard as to how it's dose related? In other words, is it linear or is it just unknown.
- A. Well, there is no--if what you're driving at is a threshold question, there is no known threshold at which the exposure becomes--below which the exposure is safe. I don't understand that. I don't know if it's known whether there is a linear response except that more exposure seems to be related with higher risk.

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Fairman Dep. at 17:4-12 (emphasis added). Dr. Fairman further explained that since mesothelioma has occurred from even minimal asbestos exposure, and even after short latency periods (Dr. Selikoff in his book reports a 3.5 year latency period, page 263), there is some risk with "each and every inhalation of the fibers":

- Q. What I'm trying to get at is, Dr. Fairman, in your opinion, do recent exposures to asbestos have a relationship to the development of mesothelioma, malignant mesothelioma, generally?
- A. Well, I will answer you in this way. There are patients who don't have known exposures to asbestos who have mesotheliomas. There are patients who have shorter latent periods than the average who have mesotheliomas. And there are patients who have been exposed consistently over years who have been exposed consistently over years who have mesotheliomas. So from all of that information, what I would conclude is that the inhalation of asbestos fibers, there is probably some risk with each and every inhalation of the fibers. The more you inhale, whether it be all at one time or spread out over years, increases your risk whichever way you do it. If you inhale them all at once or spread them out over the years, it doesn't make any difference. The more the dose, the more the risk.

Fairman Dep. at 18:6-24 (emphasis added).

- Q. Is it your opinion then, Dr. Fairman, that in a person who develops mesothelioma that each individual inhalation, no matter when it occurs, even the day before diagnosis, contributes to cause that malignant mesothelioma? Each individual inhalation of asbestos dust, assuming there is some?
- A. I guess that's drawing it out to its illogical conclusion. There has to be some point at which the cancer starts. There has to be some point at which you make the diagnosis. I don't know when

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the inhalation of the fiber results in the cancer. But, there are those patients who have short periods. And so I would say that exposure to asbestos fibers, inhaling the asbestos fibers, must be associated with some risk no matter when you do it.

Fairman Dep. at 28:5-18 (emphasis added).

Q. Okay. But, the more asbestos you inhale, do you increase the risk of your mesothelioma?

A. Yes.

Q. And when we talk about risk as you just pointed out, we are not talking about the severity but rather the frequency of the occurrence?

A. That's right.

Q. Okay. Now with respect to causation as opposed to risk, is there any way to know which of the fibers actually was the cause--

A. I can't say which fiber causes a cancer.

Q. And are you familiar with any study that attempts to differentiate between the different doses with mesothelioma to say which dose, which part of the dose, was the more likely cause as opposed to increasing the risk?

A. No.

Fairman Dep. at 44:15-45:5 (emphasis added).

Dr. Fairman further explained that with a dose-related disease, one cannot say one exposure more probably caused the disease than another exposure. Rather, all the exposures, or doses, "caused" the disease:

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Q. Okay. Considering that fact, isn't it more reasonable to assume that exposures, old exposures to asbestos, in other words, twenty years or more, are more likely to be a factor in the development of malignant mesothelioma than recent exposures, say ten years or less?

MR. POSTOL: Same objection.

THE DEPONENT: No.

BY MR DUDLEY:

Q. Why not?

A. Going back to what I--let's see. How can I put this in words? If a patient is exposed to asbestos over a thirty year time period and then thirty years of exposure and then at the end of the thirty years he has malignant mesothelioma, while we are measuring the latency period from the first exposure, that doesn't mean that these are the fibers that are more likely to have caused it than the fibers that he inhaled fifteen years ago or ten years ago. And because there are patients who do have a very short latency period, then I don't think you can say it's more reasonable that the older exposures are more likely to have caused the mesothelioma.

Fairman Dep. at 20:1-21 (emphasis added).

Q. All right. So then based on studies, is it fair to assume that those fibers that are inhaled twenty years and longer ago are most closely associated with the development of malignant mesotheliomas

Mr. Postol: I will just object to the question. He's just told you that he can't answer that because he doesn't know the pathogenesis. So why ask him a question he just told you he can't answer?

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BY MR. DUDLEY:

Q. If I misunderstood and you can't answer it--

A. I can't tell you which fiber is most likely to be associated with the cancer. So I can't tell you whether there is one that was inhaled twenty years ago or ten years ago or five years ago.

Q. Then it's my understanding, and I'm just trying to understand you, I'm not trying to fence with you, it's my understanding then that fibers inhaled at any time in your opinion can be associated with the development of malignant mesothelioma and you don't know which, if any, are more or less likely to be involved? Is that a fair summation?

A. I think it would agree with that. I think I would agree with that. The more fibers you inhale and the fiber today is as risky as the fiber ten years ago.

Fairman Dep. at 29:20-30:17 (emphasis added).

Thus, when asked to assign probability of a risk to a particular exposure, in comparison with other exposures, Dr. Fairman indicated it could not be done:

Q. One is not more or less probable to be risky than the other, is that--

A. I don't think so. No. Because you're comparing--I think you're trying to draw conclusions from a group of patients who have a disease as compared to those that might develop the disease. Not necessarily the same thing. You're also--I'm trying to remember the big studies that have been described. And while they all talk about the latency period from the first exposure, they don't describe in most cases how long the exposure has continued and while some of

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those patients would certainly have had one exposure and then have long latency periods with no exposure at all before developing their tumor, many others I'm sure had continued exposure through that period of time and it's hard to say which fiber is important in the development of the tumor. I don't know.

Q. All right.

A. My understanding of the literature as it exists right now is there is no threshold value. There is no lower limit below which you can say someone is safe. So if someone inhales fiber, they have got a risk. And statistically I'm sure you could put a number on it.

Fairman Dep. at 33:5-25 (emphasis added).

Indeed, Dr. Fairman noted that we cannot talk about the probability or the possibility of which fiber caused the mesothelioma, because we do not know the pathogenesis (mechanism) of how the asbestos fibers cause the mesothelioma:

THE DEPONENT: If you're asking me do I know the cause of a mesothelioma, I can tell you only that there is an association between asbestos fibers and mesotheliomas.

Q. Okay.

A. I can't tell you how an inhaled asbestos fiber results in the mesothelioma.

Fairman Dep. at 23:3-8 (emphasis added).

Q. At what point does it become a--that it's probably related versus a possibility?

A. I can't answer that. I can't answer how--if I knew how the fibers cause the cancer, maybe I could give you a better answer.

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Fairman Dep. at 29:8-12 (emphasis added).

Q. Okay. And do we know--does medical science know the pathogenesis of mesothelioma?

A. No. I don't think so. I mean, we know it's related--that there is a relationship with asbestos fibers and beyond that, how it causes a cancer itself, we don't know.

Fairman Dep. at 42:24-43:4 (emphasis added).

Dr. Fairman not only rejected the idea of assigning probability of risk based on the amount of the dose and longer latency periods, but noted that all the studies only deal with the latency from the first exposure. Thus, there is no known latency period for the subsequent cumulative exposure:

Q. Okay. Do you know of any article or study that attempted to find latency period for the subsequent exposure as opposed to the initial exposure?

A. No, I don't.

Fairman Dep. at 43:15-18.

Thus, Dr. Fairman testified in the Shank case both the Shipyard exposure, and later exposure while working on a boiler, contributed to the Claimant's mesothelioma:

Q. Assuming the shipyard exposure talked about in the 40's and 50's and the exposure as Mr. Dudley described in 1977 while working on boilers, in Mr. Shank's case is there any way to differentiate which one actually caused his mesothelioma?

A. No.

Q. Did they both increase the risk of his getting that mesothelioma?

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A. I have already said each inhalation of more fibers adds to the dose relationship.

Q. And that in laymen's terms means?

A. Means the more you inhale, the more you're at risk. So I can't determine which fiber, whether it was 1940's fiber or 1970--

Q. 1977?

A. 1977's fiber.

Fairman Dep. at 45:6-21 (emphasis added).

Indeed, Dr. Fairman noted that the claimant's exposure to asbestos at the subsequent employer alone could have caused the Claimant's mesothelioma:

Q. And I think finally, assume that Mr. Shank only had the asbestos exposure in 1977 that half a day and assume, I think you even gave this hypothetical that he then had the diagnosis in September, 1983, could you make a causal link and find causation between the mesothelioma and the asbestos exposure?

A. Yes.

Fairman Dep. at 45:22-46:3.

The claimant called Dr. Robert E. Fechner as a witness in the Shank case. As you probably know, Dr. Fechner is a professor of pathology and Director of Surgical Pathology at the University of Virginia Medical Center. Dr. Fechner is Board certified in pathology. Dr. Fechner agreed with Dr. Fairman that mesothelioma is a dose-related disease, has no minimum safe dose, and can develop even after a short latency period:

Q. What is the latency period of mesothelioma?

A. That varies enormously. There have been individuals who have had a latency period of only a few years and the longest latency period I have seen reported is seventy years.

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Q. What does the term dose related mean?

A. It means that whatever the disease is that one is talking about, the more that one is exposed to the toxin the greater the chance is he will develop that particular disease.

Q. Is mesothelioma considered to be a dose disease?

A. Yes, it is.

Fechner Dep. at 11:13-24 (emphasis added).

Q. Is there a known threshold level for mesothelioma, in cases where it arises from asbestos?

A. Not that I am aware of.

Fechner Dep. at 12:12-14 (emphasis added).

Q. Doctor, I just want to follow up on those questions on the dose relationship. Am I correct in understanding that all types of asbestos fibers have been associated with causing mesothelioma except, I guess, the amosite?

A. It's my understanding that all fibers, except for amosite have been associated with mesothelioma.

Q. And, particular chrysotile, has that been associated as a cause of mesothelioma?

A. Yes.

Fechner Dep. at 25:3-11.

Q. That you have seen documented in literature?

A. I understand that there are periods as short as three or four years that have been documented.

Fechner Dep. at 34:9-11 (emphasis added).

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Dr. Fechner testified that the subsequent asbestos exposure to the Claimant was sufficient in and of itself to cause the Claimant's mesothelioma, as well as having contributed to the mesothelioma along with his prior exposure:

- Q. Let me ask you another question. Mr. Shank subsequently worked for a variety of heating and plumbing companies. Assume that the evidence in this case is that he had asbestos exposure in 1977 for approximately one half day. At the time he was removing an asbestos insulated boiler, in a private home. Would that exposure, in your opinion, be sufficient to cause the mesothelioma?
- A. There could be enough asbestos in that particular setting to cause a mesothelioma.
- Q. Would that exposure be sufficient to contribute to mesothelioma given previous exposure?
- A. As a dose related phenomenon, yes, that could contribute.

Fechner Dep. at 24:12-24 (emphasis added).

- Q. And, just to make the record clear, given the fact strike that. Assume that he had this exposure fairly heavy in the 1940's at the shipyard and then assume that he had a half day exposure in 1977 in the basement tearing off asbestos exposure. Given the fact that there is no minimum dose, latency periods are from beginning and in any case can be very short is it fair to say that both exposures increase the risk of getting mesothelioma and therefore both contributed to the cause of the mesothelioma?
- A. Yes.
- Q. And, is it also true that since we don't know the exact pathogenesis or cause of mesothelioma, how it's caused, and since there is no minimum dose we actually don't know which particular fiber of the various exposures could have been the culprit, or the fact there is more than one fiber?

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A. I would agree with that.

Q. And, I guess my final question is, similarly there was other exposures that Mr. Shank had, other than the shipyard and the half day in 1977. I assume that any exposure would have contributed to the risk of mesothelioma and caused mesothelioma because again the latency period is only judged from the beginning and there is no minimum dosage?

A. I would agree with that.

Fechner Dep. at 25:12-26:10 (emphasis added).

Q. Yes. Now, in actually defining medical causation isn't the definition that physicians use, particularly with respect to mesothelioma, is not which had the more lengthy latency period or which exact fiber caused it but that in fact causation with respect to mesothelioma the definition is that all asbestos exposure causes mesothelioma because all increase the risk of receiving mesothelioma and that's that only think that we do know about causation with respect to mesothelioma? Is that is fair statement?

A. I think I agree with what you are saying, but you have a very specific point in there that I would appreciate having it made a little more clear as to what you are getting at here.

Q. I guess I am really getting at the whole concept of dose relationship and that is, any disease that has a dose relationship isn't it true that you can never pinpoint any particular dose as being the causal dose but that in such as mesothelioma, is that any dose increases the risk and therefore any dose causes the disease?

A. I would agree with that line of reasoning.

Fechner Dep. at 60:4-24 (emphasis added).

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Mr. Justice testified to the following asbestos exposure:

- a. Mr. Justice from January, 1972 to September, 1975 worked for Brown and Root Engineers and Constructors (Highlands Insurance Company). For several months he worked at the Yorktown Power Plant. Mr. Justice went into the plant approximately two times a week. Mr. Justice was exposed to airborne asbestos from insulators installing asbestos insulation and from welders using asbestos cloth. The asbestos was in the air which Mr. Justice breathed.
- b. From January, 1982 to August, 1983 Mr. Justice worked for J.J. Henry Co., Inc. Several times over a time period covering several months, he went on the Nimtz aircraft carrier in preparation for its overhaul. Mr. Justice's job was to record the piping. To do this, he used a file and poked it into the insulation to determine the depth of the pipe. This caused the pipe insulation to become airborne and Mr. Justice breathed the air with the airborne insulation in it. Mr. Justice made 3-6 pokes each visit, and he had 12-15 visits. The insulation is believed to have contained asbestos.
- c. From August, 1983 to December 1983, Mr. Justice was employed by CDI Marine. For three to six times, he went on the Coral Sea aircraft carrier in preparation for its overhaul. Mr. Justice's job was as on the Nimtz - to record the piping. Again, Mr. Justice three to six times during each of his visits would use a file and poke into the insulation. This caused the pipe insulation to become airborne and Mr. Justice breathed the air with the airborne insulation in it. The insulation is believed to have contained asbestos.

Mr. Justice was sure the insulation at Brown and Root contained asbestos. He was not as sure for the J.J. Henry Company and CDI Marine work. Mr. Justice testified the pipe

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insulation at those two jobs looked like other pipe insulation which he knows contained asbestos. We are obtaining the specifications of the ships to confirm that it was asbestos in these pipe insulation.

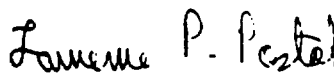
My questions are as follows:

- a. Do you agree with Dr. Fairman's and Dr. Fechner's general views as expressed in the above noted testimony, including, but not limited to, that (1) mesothelioma is dose-related with no known minimum dose and a latency period as short as 3.5 years (2) that any asbestos exposure can and does contribute to the cause of mesothelioma; and (3) when you have several exposures to asbestos, they all cause the mesothelioma.
- b. Do you agree that Mr. Justice's mesothelioma, diagnosed on July 26, 1989, was caused, in part, by all his asbestos exposure, including at Brown and Root, J.J. Henry Company, Inc. and CDI Marine, assuming that the exposures outlined above were asbestos?

Please call me collect (202) 828-5385, or call Mr. Justice's attorney, Mr. DeBruin at (804) 873-1881, if you have any questions. Naturally, please enclosed a bill for your time and expenses.

Sincerely,

SEYFARTH, SHAW, FAIRWEATHER
& GERALDSON

By 
Lawrence P. Postol

LPP/jys
0216j/73

cc: P. Scott DeBruin, Esquire