380

UNITED STATES DEPARTMENT OF LABOR

STANDARDS ADVISORY COMMITTEE ON CONSTRUCTION SAFETY AND HEALTH

New DOL Building
200 Constitution Ave., N.
Room N3437 A-B
Washington, D.C.

January 22, 1976

The above-entitled hearing convened, pursuant to notice, at 10:00 a.m.

PRESIDING OFFICIAL:

Herman J. Spotnar, Chairman

M-380

194
195

CRMC-Motley1000-Subj-001786

P R O C E E D I N G S

(10:00 a.m.)

CHAIRMAN STOKER: Gentlemen, now we resume our deliberations of the Construction Advisory Committee for its second day. You will recall that we were scheduled to have Dr. Paul Kotin of Johns-Manville Corporation yesterday, but because of transportation problems, it was not possible for him to get here in time.

We have agreed to meet this morning at 9:00 o'clock I understand Dr. Kotin is here. I would ask Dr. Paul Kotin please to come up to the head of the table here so that the members of the committee can hear you more clearly.

DR. KOTIN: Thank you, sir.

CHAIRMAN STOKER: Gentlemen, to give you a biogra. of Dr. Kotin, prior to joining the Johns-Manville Corporation in July of 1974, Dr. Kotin was Vice President for Health Sciences and Dean of the School of Medicine of Temple University.

From 1969 to 1971, Dr. Kotin was head of the Nation Institute of Environmental Health Sciences, Researches, Triang Park, North Carolina.

Previous service with the Federal Government health programs include Director of Division of Environmental Health Sciences at the National Institute and Staff Division with the National Cancer Institute.

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fiber... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 2 of 33 asbestosclaims.law/library/11331/2

He is a graduate of the Illinois Medical School, and was associated with the University of Southern California School of Medicine from 1949 to '71 in various capacities, including staff pathologist, research fellow, and Paul Pierce, Professor of Pathology.

In the summer of 1975, Dr. Kotin was appointed as a member of the Secretary of Labor's National Advisory Committee on Occupational Safety and Health, NACOSH.

Dr. Kotin, the floor is yours.

DR. KOTIN: Thank you, sir.

First let me apologize for any inconvenience I may have caused to the members of the group by virtue of the transportation difficulty.

I am very pleased to be here this morning, and I am pleased to have the opportunity to address you. What I would like to do this morning is to discuss the proposed revision of the asbestos standard from a scientific and medical viewpoint.

OSHA has faced the revised standard input from these areas, and it is here that justification, if indeed any exists for the new standard, is presumed to be found.

I would like to begin with a brief review, and may I have the first slide. What I have done in the first slide is attempt to list the group of chemtos related diseases and, from a personal point of view, evaluate the evidence as to the propriety.

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fiber... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 3 of 33 asbestosclaims.law/library/11331/3

Asbestosis is a disease caused by excessive exposure to asbestos, characterized by the replacement of normal functioning part of the lung by scar tissue.

If we say that 3+ represents complete and total evidence, we can say that this indeed is the case, the evidence that asbestosis is caused by excessive exposure to asbestos is firm and incontestable.

Mesothelioma is a cancer of the lining of the body cavities, a lining of the chest cavity, a lining of the abdominal cavity, a lining of the small cavity that encases the heart.

These lining cells can undergo malignant change and become cancer. Here I use 3+ as evidence not to indicate that indeed the relationship between excessive exposure to asbestos and the causation of mesothelioma is questionable -- it is not.

But it is important to emphasize as with all cancers there are factors other than asbestos that are related to the causation of cancer.

Lung cancer, as you can see, is again rated as $\frac{3+}{?}$ with a question mark in the denominator of the fraction. Again, the 3+ clearly supports the idea that excessive exposure to asbestos over a long period of time is associated with an increased risk to lung cancer.

But again the question mark is based on the fact

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ACL Doc 11331 · Page 4 of 33 asbestosclaims.law/library/11331/4

that in these patients with lung cancer who have a history of [illegible] the association of the asbestos and lung is convincingly demonstrated.

It is a confusion. And we read from the review by Dr. Joseph Trichini, who is the head of the epidemiology branch of the National Cancer Institute in November of 1976 where he discusses the cause of respiratory carcinogenesis, lung cancer, an epidemiologic approach, he says:

"In American insulation workers, the elevated cancer risk was found to be confined to cigarette smokers, which suggested a synergistic effect."

He further says, "The findings were similar for men and women employed at an asbestos factory in London." So, again the relationship between asbestos and lung cancer carries with it the confounding element of the synergistic effect as being confined to cigarette smokers."

Item No. 4 is G.I. cancer, gastrointestinal cancer including cancer of the stomach, cancer of the colon, and cancer of the rectum.

Here there is suggested evidence in several reports that workers exposed to high concentrations of asbestos over a long period of time may be at increased risk, the cancer of those sites.

The (?) is purely a personal evaluation. The + represents, in all fairness, the conclusions of many reports

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ACL Doc 11331 · Page 5 of 33 asbestosclaims.law/library/11331/5

case of asbestos, I would say that where the body of data included the understanding of the biology of the disease, the natural history of the disease, and the experience of man and fibers, the data are almost self identifying in terms of conclusions.

Unless you think this is theory, I would submit, and it is almost a sad commentary on history, but perhaps the most effective control of cancer has been in the industrial world.

Unhappily it has not been broadly enough and energetically enough, but when a certain chemical, say, produces urinary bladder cancer was identified back in 1895, where it has been removed from the occupational environment, the disease has disappeared.

One can cite a series of agents where the combination of human data and animal data were such that really no controversy over the extent and energy of control measures did exist.

I would submit that crystal balls are foolish things to look into, but I would predict that once the human data are in, OSHA and NIOSH and industry and the public-at-large would almost have a self identified consensus conclusion.

My real concern with this is not -- it is primarily the insufficiency of the evidence, even incorporating the added prudence that indeed a regulatory agency must wis-

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ACL Doc 11331 · Page 6 of 33 asbestosclaims.law/library/11331/6

MR. COMMELLEY: If the evidence indicated zero, you would be willing to go along with zero?

DR. KOTIN: If the evidence suggests that there is no safe level of exposure -- at one time I was in print that for certain occupational carcinogenic hazards which are irrelevant to the meeting at present, but I made the statement that at present there is no safe way to do whatever it appears to be.

CHAIRMAN SPOERER: Dr. Kotin, you previously stated that you were concerned about the premature and unwarranted conclusions with respect to the papers that have been written.

At what stage and at what extent is OSHA aware of the position that you have taken?

DR. KOTIN: I would -- this is my first formal appearance before any group concerned with the promulgation of the new standards.

I must say in informal discussions where he had discussed this that NIOSH is so much aware because indeed we have had meetings with NIOSH at the NIOSH offices in Rockville on paper #1, where we actually went over the paper line-by-line but I can say that informally they might be aware.

Formally they would have no way of being aware of it. This is my first formal public presentation.

CHAIRMAN SPOERER: Thank you.

Mr. Daley?

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ACL Doc 11331 · Page 7 of 33 asbestosclaims.law/library/11331/7

MR. DALEY: We are led to believe that in some are reducing it to .5, regardless of whether it is or is not at safe level, but reducing it to .5 would be reducing it in so sections of the country relatively to background exposure.

Do you know anything about this? Would this be tru

DR. KOTIN: Again, the number is what frightens me. Your question is a very pointed one, that in fact there is a background of asbestos.

One can look at the literature beginning with the studies done in South Africa where the lungs from patients -- I guess they are no longer patients --

But from persons who died for a variety of diseases were looked for asbestos fibers with no conceivable way of occupational exposures, people who have lived in rural areas all of their lives.

They are just exposed to asbestos I assume as part of the earth's crust. I cannot say otherwise. The figures vary, but certainly a majority of lungs from people with no, no matter how diligently you pursue it, no evidence of occupational exposure to asbestos, have asbestos fibers in their lungs.

So, I can only agree that there is a background exposure to asbestos. Now, whether it would relate to 0.5 or what in terms of being equity, I cannot say.

I think it is an important question you ask, and I

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ACL Doc 11331 · Page 8 of 33 asbestosclaims.law/library/11331/8

the literature.

[illegible] point of view. I think there are suggested evidence, but there are no hard data to support that this is indeed an asbestos-related occupational disease.

There have been two reports in the literature suggesting that cancer of the larynx, the voice box, may be associated with exposure to asbestos.

I would submit that these are case reports, and indeed, the evidence is at very, very best highly speculative. May I have the next slide?

Now, in looking at A-R-D, or asbestos related diseases, there are a series of health issues. Very briefly, let me review those for you.

One of the questions relating to the hazards of any fiber, including asbestos, is its size and its type. There are various forms of asbestos, as you know, as well as there is a large array of organic and inorganic fibers.

There is clear evidence that in addition to the fiber being a potential hazard, its size and shape are major determinants of the hazard the fiber represents.

It is fair to say that all of the data, both in experimental studies as well as the limited epidemiological data we have, suggests that it is the long thin fiber that is the more hazardous fiber.

Item No. 2 is the role of multiple external and

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ACL Doc 11331 · Page 9 of 33 asbestosclaims.law/library/11331/9

internal factors in cause. By that, I mean what in addition to [illegible] is related to the susceptibility to asbestos related disease.

I mentioned cigarette smoking in relation to lung cancer. There are studies now going on to see whether cigarette smoking indeed increases the liability to asbestosis.

In terms of internal factors, we know that in any given environmental situation there is a spectrum of response. Some part of a population exposed is highly susceptible.

Some part is highly resistant with the bell-shaped curve having in the center the largest group that are moderately, if you will, or inbetween susceptible.

We do not know what all these internal factors are, but we are beginning to understand some, and they involve fundamental biology.

I would be very pleased to elaborate on this if members of the group would care to have me to following my presentation.

Item No. 3 is concerned with the relation of asbestos related diseases to one another. By this, I mean what is the relationship of asbestosis to lung cancer.

I think it is fair to say that lung cancer in occurs in persons working in an asbestos environment wholly unrelated to their asbestos exposure.

The basis for taking that position is that there is

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 10 of 33 **asbestosclaims.law/library/11331/10**

If you should say, 'how should OSHA react to some [illegible] particularly those they don't know that, there a different philosophy would apply.

But here I think we and all concerned with the problem are pursuing with real dispatch because of the -- not only the uniqueness of the information, but the importance of the information.

So, again, let me answer for the third time, and I apologize, but see what you can find in man that complements, adds to or even contradicts laboratory data.

This I think can be done with populations exposed occupationally to these things.

MR. COMMONEY: You would not maintain that OSHA would have to be satisfied to the same degree that a scientist investigating the problem would be in order to take action in the real world?

DR. KOTIN: I would answer that in relation to the specific question, sir, and I am not copping out because if indeed -- if it were a new material, they would have to be much more, I think, conservative in accepting information.

They would not have to have all the information that maybe a scientist sitting in an ivory tower would have to have. I fully agree with you.

I cannot give you a generic answer to that question. It would be in relation to the specific material, and in the

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 11 of 33 asbestosclaims.law/library/11331/11

think it is one perhaps that I am delighted to have you bring up. We should begin to see whether we can mathematically approach this problem.

CHAIRMAN SPONAR: Mr. Ananis?

MR. ANANIA: Do you embrace or does Johns-Manville embrace the 2 f/cc?

DR. KOTIN: Yes.

Johns-Manville is committed to a 2 f/cc occupational exposure ceiling.

MR. ANANIA: Now, when the fiber count was 12 and it went to 5, Johns-Manville led the parade, so to speak, against the 5.

When it went from 5 to 2, they were again the ones who were leading and saying there is no evidence of asbestos causing cancer, et cetera, et cetera.

Now, it is going from 2 to 5. What makes you change your mind from the 2 to 5? Is it because there is no evidence or is it pressure or what?

DR. KOTIN: Let me explain that I have been with Johns-Manville for 18 months. I assume the decision to employment after never having worked for industry, and having been a consultant to industry, but having been a college professor all my life, even the ten years I was working for government, that Johns-Manville has made a commitment to what I believe in.

It is very, very clear that the data on many of the

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ACL Doc 11331 · Page 12 of 33 asbestosclaims.law/library/11331/12

standards which I guess I had a hand in promulgating and which have come back to haunt me from my days in the Federal Government, that they were accepting what I would say on the basis of some expertise.

The corporation, I think, without having the file, has given me the position of a senior vice president which I did not know until I went to work for them, but it is a position with considerable authority and one that is immune to a lot of pressure.

It is one that allows me to say that at this stage of the game we have no right to assume that a worker exposed to concentrations above 2 f/cc is not at some risk.

Now, my reason for saying that 0.5 is at this stage an unsupportable threshold limit value are the reasons I have said before.

The mere fact that we are examining our populations, that we have set up Johns-Manville employee population groups with no real knowledge --

We are reviewing 35,000 x-rays, another reason why we are asking for an extension. We really do not know what these x-rays are going to show once they are put up against the model we made.

When did you come to work? What was your job? What was your background? What was your age? Did you smoke? Did you not smoke?

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 13 of 33 asbestosclaims.law/library/11331/13

It may very well be that we may come up with some of the data that would give a dignity to the 0.5 that I do not think it has right now.

MR. MANIA: Would you release that data?

DR. KOTIN: Most of these data are being generated in cooperation and collaboration with federal agencies, so that is not what the matter is.

In fact, it is not my area but we have discussed with OSHA, and I am pleased to say that discussions are going well, the feasibility or the opportunity for a joint study on feasibility of measurement.

The under-secretary for OSHA is one of the world authorities in terms of measurements of environments, and we feel that we would be better off, and the world would be better off if we could take our skills and NIOSH skills and OSHA skills and approach the problem.

At this stage of the game, industry is a crystal ball. I have worked with a crystal ball all my life. If you try to cut corners, that is one thing.

But to try to just erase -- you are guaranteed to lose.

MR. MANIA: Thank you.

CHAIRMAN SPOERER: Mr. Memmott?

MR. MEMMOTT: You mentioned you were reviewing how many x-rays of ex-employees or continuing employees?

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 14 of 33 asbestosclaims.law/library/11331/14

DR. KOTIN: Over 30,000.

MR. MERRITT: Thirty thousand.

How reliable is x-ray determination?

DR. KOTIN: That I can answer very quickly. A reflection of the skill of the person who is reading. One finds that internal variations between readers is clearly related to the skill of the reader and his experience.

I must say that variability over the last five years has become less of a confounding problem among competent observers because thanks to the World Health Organization and ILO, a method for reading the films and grading them has been established, the 0.0, the 4.4 series.

So now there is a common language between the readers of films anywhere in the world, and there is a set of standard films.

Much the same as I say I am a pathologist and my tool is a hunk of tissue -- it is something we have had for many, many years where internal variation is not as great.

So I would say that it is still a factor, particularly as I say where you have relatively inexperienced readers, but it is becoming less and less a factor as time goes on.

CHAIRMAN SPORER: Doctor, this must be comparable to the situation that prevailed some years ago when there was so much adue made about silicosis.

A number of doctors read silicosis into a lot of

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ACL Doc 11331 · Page 15 of 33 asbestosclaims.law/library/11331/15

x-rays and it was not there.

DR. KOTIN: Exactly.

I think this is not as universal a disease. Then, of course, they did not have the help of the WHO High-Low Classification that we now have for the reading of occupational lung diseases.

MR. MEMBOTT: This is exactly why I asked the question because I worked for many years in association with that, and I was told by public officials and medical school MDs that they were reading shadows on you guys.

They were not really too sure. I just wondered how far this science had advanced because a number of years ago I also was a part of a team who went to England.

I am a safety engineer. We visited a clinic in Wales. I was with the team at that time, and if my memory serves me right, they indicated that many times they could not detect what is there until after the patient has succumbed.

Then they have to take a lung section. We were looking at lung sections. It was sometimes the individual who read, how good was he, how good is he, and what really shows up.

So I wondered if this technology had advanced to where, when you read that x-ray, you really know whether there is a problem or not a problem.

DR. KOTIN: Let me tell you specifically what we are

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ACL Doc 11331 · Page 16 of 33 asbestosclaims.law/library/11331/16

doing. We are referring them to, again, one of the really [illegible] in the field, Dr. George Jacobson, who is head of radiology at Los Angeles County Hospital, and who has been on every committee that has established standards.

His career is the reading of chest films, and again just to make doubly sure on the question of competency, we are double checking the films.

There are about a dozen of these who are internationally recognized. Unhappily there are not more of them because the need for information is so urgent.

MR. FARRELL: Doctor, as I understand the studies have been going on for 25 years. As of this year, the number two comes up, and possible in the next 25 years another number could appear -- 0.5 or something similar.

But is it not serious enough at this time to take some sort of a stand. It is not a question of do something even if it is wrong, but everybody knows there is a problem, but no one seems to know the solution.

Don't you honestly believe that some action should be taken for only temporary protection?

DR. KOTIN: I surely do. I believe that the 2 f/cc represents action. I think there are data now which show that people exposed for over a period of time to 2 f/cc should -- particularly the susceptible element of the group -- should begin to show some disease.

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 17 of 33 asbestosclaims.law/library/11331/17

I fully agree with you that you cannot wait. Certainly, a regulatory agency cannot wait. On the other side of the coin, I think a regulatory agency has to recognize that basically there is a method for arriving at a number that, where the number will have a greater degree of validity in direct proportion to the variety and depth of information, relevant information you have not arrived at.

I know what I believe. I believe that 2 f/cc represents an environment to which a worker can be exposed for a working career with no risk from asbestos related disease.

Now, no risk may be too strong a word, but it is what I believe at present. I think that alternatively a worker exposed to 5 fibers is at risk. At 4 fibers he is at risk.

At 3 and 2, I think we do not have refined enough methods to distinguish those, and therefore I think that 2 represents the conservative end of that no-risk band of the spectrum.

MR. FARRELL: Doctor, if you get below 2, you get into almost an impossible situation where construction down to the .5 -- it is hard to believe that it could be controlled that closely.

I'm thinking particularly now of demolition by explosives where a whole city would be subject to it, and you cannot put gas masks on the entire City of Washington, D.C.

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 18 of 33 asbestosclaims.law/library/11331/18

because somebody demolished a building.

I wonder if we are getting into a ridiculous point at this lower digits.

DR. KOTIN: I really must beg ignorance. I just do not really understand the engineering of control. It is not my field, and I do not know the answer.

MR. LIVINGSTON: Doctor, how long do you feel it will be before the study will be completed?

DR. KOTIN: My feeling is that with the opportunity provided by approaching the work population, not only at Johns-Manville -- I mention Johns-Manville because I know it best, but please don't let me create the position that Johns-Manville is a knight in shining armor in the industry.

Not at all. I know other industries are very seriously approaching the problem and studying their populations, so I would want that on the record.

I would say that we should by the time of the hearings, and we are projecting the hearings sometime in mid-year -- we are under forced draft accumulating these data.

We are asking OSHA to delay the response and the hearing for months, not years, on the basis of the fact that we will accumulate data which we think is at least as important to them as it is to us.

CHAIRMAN SPOMER: Bud Malone?

MR. MALONE: I pass, Mr. Chairman. My question has

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ACL Doc 11331 · Page 19 of 33 asbestosclaims.law/library/11331/19

been satisfactorily answered. Thank you.

CHAIRMAN SPORRER: Are there any other questions, gentlemen?

(No response.)

CHAIRMAN SPORRER: Well, thank you, Dr. Kotin. We are very fortunate in your coming here to give us this presentation. We hope as things develop further that we may have you back again.

DR. KOTIN: Thank you very much.

(Applause.)

CHAIRMAN SPORRER: Let's take a 15 minute recess.

(Whereupon, a short recess was taken.)

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CHAIRMAN SPORRER: Back on the record.

I think before we get on to the ROPS matter that I would like to make a comment. A question has been raised with me a couple of times about the asbestos matter.

Some may have been out of the room for a short period of time and missed the fact that there was a motion passed to remand the matter back to the subcommittee, and it is back in their hands.

Some thought we needs further action. I do not see the necessity for it. The matter has been remanded by this committee back to the subcommittee.

Also, before moving on to ROPS, I think Fred

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ACL Doc 11331 · Page 20 of 33 asbestosclaims.law/library/11331/20

If you should say, how should OSHA react to comp[illegible] that, there a different philosophy would apply.

But here I think we and all concerned with the problem are pursuing with real dispatch because of the -- no only the uniqueness of the information, but the importance o the information.

So, again, let me answer for the third time, and I apologize, but see what you can find in man that complements, adds to or even contradicts laboratory data.

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MR. COMMONEY: You would not maintain that OSHA would have to be satisfied to the same degree that a scientist investigating the problem would be in order to take action in the real world?

DR. KOTIN: I would answer that in relation to the specific question, sir, and I am not copping out because if indeed -- if it were a new material, they would have to be much more, I think, conservative in accepting information.

They would not have to have all the information that maybe a scientist sitting in an ivory tower would have to have. I fully agree with you.

I cannot give you a generic answer to that question. It would be in relation to the specific material, and in the

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ACL Doc 11331 · Page 21 of 33 asbestosclaims.law/library/11331/21

case of asbestos, I would say that where the body of data includes the understanding of the biology of the disease, the natural history of the disease, and the experience of man and disease, the data are almost self identifying in terms of conclusions.

Unless you think this is theory, I would submit, and it is almost a sad commentary on history, but perhaps the most effective control of cancer has been in the industrial world.

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ACL Doc 11331 · Page 22 of 33 asbestosclaims.law/library/11331/22

MR. CONNERLY: If the evidence indicated zero, you would be willing to go along with zero?

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ACL Doc 11331 · Page 23 of 33 asbestosclaims.law/library/11331/23

MR. DALEY: We are led to believe that in some are reducing it to .5, regardless of whether it is or is not at a safe level, but reducing it to .5 would be reducing it in certain sections of the country relatively to background exposure.

Do you know anything about this? Would this be true

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ACL Doc 11331 · Page 24 of 33 asbestosclaims.law/library/11331/24

think it is one perhaps that I am delighted to have you bring up. We should begin to see whether we can mathematically approach this problem.

CHAIRMAN SPOSNER: Mr. Anania?

MR. ANANIA: Do you embrace or does Johns-Manville embrace the 2 f/cc?

DR. KOTIN: Yes.

Johns-Manville is committed to a 2 f/cc occupational exposure ceiling.

MR. ANANIA: Now, when the fiber count was 12 and it went to 5, Johns-Manville led the parade, so to speak, against the 5.

When it went from 5 to 2, they were again the ones who were leading and saying there is no evidence of asbestos causing cancer, et cetera, et cetera.

Now, it is going from 2 to 5. What makes you change your mind from the 2 to 5? Is it because there is no evidence or is it pressure or what?

DR. KOTIN: Let me explain that I have been with Johns-Manville for 18 months. I assume the decision to employment after never having worked for industry, and having been a consultant to industry, but having been a college professor all my life, even the ten years I was working for government, that Johns-Manville has made a commitment to what I believe in.

It is very, very clear that the data on many of the

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 25 of 33 asbestosclaims.law/library/11331/25

standards which I guess I had a hand in promulgating and which have come back to haunt me from my days in the Federal Government, that they were accepting what I would say on the basis some expertise.

The corporation, I think, without having the file, has given me the position of a senior vice president which I did not know until I went to work for them, but it is a position with considerable authority and one that is immune to a lot of pressure.

It is one that allows me to say that at this stage of the game we have no right to assume that a worker exposed to concentrations above 2 f/cc is not at some risk.

Now, my reason for saying that 0.5 is at this stage an unsupportable threshold limit value are the reasons I have said before.

The mere fact that we are examining our populations, that we have set up Johns-Manville employee population groups with no real knowledge --

We are reviewing 35,000 x-rays, another reason why we are asking for an extension. We really do not know what these x-rays are going to show once they are put up against the model we make.

When did you come to work? What was your job? What was your background? What was your age? Did you smoke? Did you not smoke?

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 26 of 33 asbestosclaims.law/library/11331/26

It may very well be that we may come up with some of the data that would give a dignity to the 0.5 that I do not think it has right now.

MR. ANANIA: Would you release that data?

DR. KOTIN: Most of these data are being generated in cooperation and collaboration with federal agencies, so that is not what the matter is.

In fact, it is not my area but we have discussed with OSHA, and I am pleased to say that discussions are going well, the feasibility or the opportunity for a joint study on feasibility of measurement.

The under-secretary for OSHA is one of the world authorities in terms of measurements of environments, and we feel that we would be better off, and the world would be better off if we could take our skills and NIOSH skills and OSHA skills and approach the problem.

At this stage of the game, industry is a crystal ball. I have worked with a crystal ball all my life. If you try to cut corners, that is one thing.

But to try to just erase -- you are guaranteed to lose.

MR. ANANIA: Thank you.

CHAIRMAN SPOERER: Mr. Memmott?

MR. MEMMOTT: You mentioned you were reviewing how many x-rays of ex-employees or continuing employees?

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 27 of 33 asbestosclaims.law/library/11331/27

DR. KOTIN: Over 30,000.

MR. MERRITT: Thirty thousand.

How reliable is x-ray determination?

DR. KOTIN: That I can answer very quickly. A reflection of the skill of the person who is reading. One finds that internal variations between readers is clearly related to the skill of the reader and his experience.

I must say that variability over the last five years has become less of a confounding problem among competent observers because thanks to the World Health Organization and ILO, a method for reading the films and grading them has been established, the 0.0, the 4.4 series.

So now there is a common language between the readers of films anywhere in the world, and there is a set of standard films.

Much the same as I say I am a pathologist and my tool is a hunk of tissue -- it is something we have had for many, many years where internal variation is not as great.

So I would say that it is still a factor, particularly as I say where you have relatively inexperienced readers, but it is becoming less and less a factor as time goes on.

CHAIRMAN SPORER: Doctor, this must be comparable to the situation that prevailed some years ago when there was so much adue made about silicosis.

A number of doctors read silicosis into a lot of

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 28 of 33 asbestosclaims.law/library/11331/28

x-rays and it was not there.

MR. [illegible]: Exactly.

I think this is not as universal a disease. Then, of course, they did not have the help of the WHO High-Low classification that we now have for the reading of occupational lung diseases.

MR. MERRIOTT: This is exactly why I asked the question because I worked for many years in association with that, and I was told by public officials and medical school MDs that they were reading shadows on you guys.

They were not really too sure. I just wondered how far this science had advanced because a number of years ago I also was a part of a team who went to England.

I am a safety engineer. We visited a clinic in Wales. I was with the team at that time, and if my memory serves me right, they indicated that many times they could not detect what is there until after the patient has succumbed.

Then they have to take a lung section. We were looking at lung sections. It was sometimes the individual who read, how good was he, how good is he, and what really shows up.

So I wondered if this technology had advanced to where, when you read that x-ray, you really know whether there is a problem or not a problem.

DR. KOTIN: Let me tell you specifically what we are

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 29 of 33 asbestosclaims.law/library/11331/29

doing. We are referring them to, again, one of the really [illegible] in the field, Dr. George Gregson, who is head of radiology at Los Angeles County Hospital, and who has been on every committee that has established standards.

His career is the reading of chest films, and again just to make doubly sure on the question of competency, we are double checking the films.

There are about a dozen of these who are internationally recognized. Unhappily there are not more of them because the need for information is so urgent.

MR. FARRELL: Doctor, as I understand the studies have been going on for 25 years. As of this year, the number two comes up, and possible in the next 25 years another number could appear -- 0.5 or something similar.

But is it not serious enough at this time to take some sort of a stand. It is not a question of do something even if it is wrong, but everybody knows there is a problem, but no one seems to know the solution.

Don't you honestly believe that some action should be taken for only temporary protection?

DR. KOTIN: I surely do. I believe that the 2 f/cc represents action. I think there are data now which show that people exposed for over a period of time to 2 f/cc should -- particularly the susceptible element of the group -- should begin to show some disease.

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 30 of 33 asbestosclaims.law/library/11331/30

I fully agree with you that you cannot wait. Certainly, a regulatory agency cannot wait. On the other side of the coin, I think a regulatory agency has to recognize that basically there is a method for arriving at a number that, where the number will have a greater degree of validity in direct proportion to the variety and depth of information, relevant information you have not arrived at.

I know what I believe. I believe that 2 f/cc represents an environment to which a worker can be exposed for a working career with no risk from asbestos related disease.

Now, no risk may be too strong a word, but it is what I believe at present. I think that alternatively a worker exposed to 5 fibers is at risk. At 4 fibers he is at risk.

At 3 and 2, I think we do not have refined enough methods to distinguish those, and therefore I think that 2 represents the conservative end of that no-risk band of the spectrum.

MR. FARRELL: Doctor, if you get below 2, you get into almost an impossible situation where construction down at the .5 -- it is hard to believe that it could be controlled that closely.

I'm thinking particularly now of demolition by explosives where a whole city would be subject to it, and you cannot put gas masks on the entire City of Washington, D.C.

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe... Published by AsbestosClaims.Law
ACL Doc 11331 · Page 31 of 33 asbestosclaims.law/library/11331/31

because somebody demolished a building.

I wonder if we are getting into a ridiculous point at this lower digits.

DR. KOTIN: I really must beg ignorance. I just do not really understand the engineering of control. It is not my field, and I do not know the answer.

MR. LIVINGSTON: Doctor, how long do you feel it will be before the study will be completed?

DR. KOTIN: My feeling is that with the opportunity provided by approaching the work population, not only at Johns-Manville -- I mention Johns-Manville because I know it best, but please don't let me create the position that Johns-Manville is a knight in shining armor in the industry.

Not at all. I know other industries are very seriously approaching the problem and studying their populations, so I would want that on the record.

I would say that we should by the time of the hearings, and we are projecting the hearings sometime in mid-year -- we are under forced draft accumulating these data.

We are asking OSHA to delay the response and the hearing for months, not years, on the basis of the fact that we will accumulate data which we think is at least as important to them as it is to us.

CHAIRMAN SPOMER: Bud Malone?

MR. MALONE: I pass, Mr. Chairman. My question has

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 32 of 33 asbestosclaims.law/library/11331/32

been satisfactorily answered. Thank you.

CHAIRMAN SPONSER: Are there any other questions, gentlemen?

(No response.)

CHAIRMAN SPONSER: Well, thank you, Dr. Kotin. We are very fortunate in your coming here to give us this presentation. We hope as things develop further that we may have you back again.

DR. KOTIN: Thank you very much.

(Applause.)

CHAIRMAN SPONSER: Let's take a 15 minute recess.

(Whereupon, a short recess was taken.)

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CHAIRMAN SPONSER: Back on the record.

I think before we get on to the ROPS matter that I would like to make a comment. A question has been raised with me a couple of times about the asbestos matter.

Some may have been out of the room for a short period of time and missed the fact that there was a motion passed to remand the matter back to the subcommittee, and it is back in their hands.

Some thought we needs further action. I do not see the necessity for it. The matter has been remanded by this committee back to the subcommittee.

Also, before moving on to ROPS, I think Fred

Dr. Paul Kotin Before the OSHA Advisory Committee on Construction Safety and Health on the Proposed 0.5 Fibe… Published by AsbestosClaims.Law
ACL Doc 11331 · Page 33 of 33 asbestosclaims.law/library/11331/33