significance of that, if anything?

A. This --- these areas here are all friable. These materials that were used in these particular areas, all between the engine and the asbestos used over top of the loop holders and off the air compressors was a wrap, asbestos wrap that became friable.

Q. But what does that have to do with the crew cab on the other side of the engine? Go ahead sir.

A. Okay, what it has to do is when these things become friable and these materials --- this --- you have to understand a locomotive vibration when you have them running. These asbestos fibers would be released and they would move throughout this area and they are connecting to the crew cab.

Q. Well, let me see here. Here is another drawling, 2-b, this is another drawling that you done, what if anything is being shown here of any relevance?

A. AS to --

Q. As to asbestos?

A. This would be your cab area. And these are your seats, three seats across. There

would be a cab heater here, in front of the engineer seat, this would be the engineer seat in front of the control stand. This would be brakemen or fireman seat whichever you would choose to. These cab heaters had asbestos that ran through the floor, the piping ran through the floor and up to the cab heater floor.

Q. Okay. For those of us who are not on engines and are not familiar with them, what do you mean, what does a cab heater do?

A. A cab heater is --- it is the same as a furnace in your home, it is heating device to supply heat for the crew in the cab.

Q. Did the typical cab heater have any fan control?

A. Yes, it had a three speed fan.

Q. Were the cab heaters on these classes of engines that you worked on, was it forced air or radiant air?

A. They are forced air.

Q. Did it have a dial so a crew member could turn the dial?

A. Yes, there would be a dial on the left hand side of the cab heater itself.

Q. Okay. That is another little sort

of a view of a cab heater?

A. Yes, this is a view of a cab heater. Similar to what they would look like on TP9's, 30's, 35's, had them.

Q. Okay, let me go here. Here is 2-c. What are you drawling here?

A. This is an overhead view of what the piping would look like running underneath the cab floor of the locomotive if you can see through the cab floor. This is the piping diagram of the cab heater piping. There was a feed and return line to both cab heaters, and this would be wrapped in asbestos.

Q. How many feet long is those pipes, I mean, this is obviously not in any particular scale here. How many feet are we talking about?

A. You are talking over all length of those pipes would be --- I would estimate somewhere between 10-12 feet.

Q. Okay, well let me see. A 2-d, what is this?

A. This is what I was talking about earlier. These cabs heater lines, these are cab heater lines going up to the floor. There was a floor inside the heater itself, it looks like

radiator. If you wanted to know what a cab heater floor is, it looks like the radiator in your car and these are your pipes that come up through the floor and connect there. These pipes would be wrapped in asbestos there.

Q. Well, would you personally handle removing asbestos insulation from those pipes?

A. Yes.

Q. Would you have to take some sort of any type of cover off the cab heater to get in there? How would you get access to the pipes?

A. This has a shield that fits like this, it is molded to the front of the cab heater. And you would remove that shield and then you break these marmons loose and you can remove this core from the inside of the cab heater.

Q. Okay, in the times --- you personally did this type of repair?

A. (Indicates).

Q. You are nodding, can you say verbally yes or no. Did you do this type of repair?

A. Oh, I am sorry, yes I did. Yes.

Q. Okay, when you would take the heat --- I'm sorry, a heat shield or the metal cover off, would you observe what was going on inside of there?

A. Yes, you have what looks like to be asbestos residue from again, this was friable asbestos in these areas on older locomotives. And what you would see is residue build up inside this cab would be laying down here and you would see it in the front or the back of the cab heater shield when you took it off.

Q. You never worked as an engineer or a conductor on engines, did you?

A. No sir, I did not.

Q. You wouldn't normally be riding with them when they did their work, would you?

A. No, I would not.

Q. How do you know if there is vibrations inside engines?

A. We run locomotives in the test shed. And they run at full throttle for eight hours a day to be tested.

Q. Were there any vibrations?

A. They definitely vibrate, yes.

Q. Okay. Let me go to the next one here. Here is a diagram here, it is real small. What is going in this --- what are you showing here, 2-e?

A. Let me look at this carefully. This is -- it is, I am trying to see. I am trying to read

the writing and I can't read it from this angle.

Q. Is it your drawing?

A. Yes, it is my drawing. And it looks like --- what it is, it's another diagram of how cab heater piping is set up underneath the cab.

Q. All right, 2-f, what is this?

A. This is a --- if you were sitting down in a short nose of a locomotive and looking up into the cab, this is a two step area that goes up into the cab. This would be the cab heater on the back wall if you can see through this wall that would have been here. And this would be the cab heater on the engineer side. This is the toilet area. And this area here on the 30 and 35 was open to the air brake compartment there.

Q. Did some engines have two cab heaters and some have less or more?

A. All the locomotives that I have ever worked on had two cab heaters.

Q. And did those, were those the HVAC or the heat system for the crew cab?

A. Yes.

Q. To get the air blowing into the crew cab, could one cab heater basically supply the air for the entire crew cab?

A. In the northeast sector I would say probably not.

Q. Anything additionally to add in 3-g, the last sketch you provided?

A. This would be a side view of what a -- if you were looking from the side. Again, this is the short nose area of the locomotive, this would be the cab. There was a water cooler down on the lower deck.

Q. Does the water cooler or toilet have any asbestos insulating material?

A. These areas had no asbestos insulating material. The material would be underneath this cab floor and going to your cab heaters. The area here that you are looking at, is always open. It is open to that air brake compartment which is what we call that area underneath the cab floor.

Q. What is significant about that, sir?

A. That is significant because if you have damaged asbestos underneath this cab floor. The fibers can also move through the air floor in this area and enter the cab.

Q. What is 2-h showing sir?

A. A 2-h, I gave that to you and again it is nothing more then to identify for those who do not know what I am talking about. I say marmom couplers or O-Dots, they are just rough diagrams of what we would be looking at.

Q. Is it a value?

A. The O-dots is an actually a thermostat.

Q. Are these parts contained inside the cab heater?

A. These parts are contained in the cab heater piping that goes to the heater.

Q. Now did you also supply I believe it was a total of 17 photographs?

A. Yes, sir.

Q. And are these photographs that you took yourself?

A. Yes, I did.

Q. Before I get ahead of myself here. I want to move to introduce all of those sketches, 2-a through, that you have just identified. We will go organize them in a minute.

Can you look through 21, 1 through 17, did you look through them before the deposition?

A. Yes.

Q. Are those the pictures that you just outlined that you took yourself, Mr. Rhodes, except for one I believe which you are in the picture?

A. Yes, these are pictures that I took in 2002.

Q. Okay, I want to go through what if anything that you want to describe about these pictures, okay. And I have on the screen here, Number One. What are we looking at here sir.

A. Picture 21-1 is a picture of the air brake compartment underneath the cab floor.

Q. Is that helping to orientate where some of the stuff is that you were talking about?

A. That is correct. When I say the asbestos piping runs underneath this, this would be the cab itself. This side of the locomotive would be the brakeman side and the other side would be the engineer side. This is the area directly below that cab.

Q. And I am sorry, does the cab heater pipe enter the floor of the engine in this area?

A. The cab heaters pipes on this particular model have been --- have already been taken out and abated. But they would come out up in

this area and one of your cab heaters for your brakeman side would be over here on a 38. The pipe would run to here and then would cross over to the engineer side and go up also into the engineer cab heater.

MS. YOUNG: 61, 25.

THE WITNESS: Where?

MR. SHAPIRO: 61, 25.

Thank you. Actually we're going to 64, okay?

Q. And in 21-13, what is being shown, is that another view of the same?

A. That is another view of the same type and as you can see it gives you a closer view of the damage to the asbestos and the fraying areas on it.

Q. We talked about a lot of classes of engines, GP38's, EMD, SD40's, were engines used for --- how long were engines in use generally that were coming into your repair shop?

A. Railroads get as many miles as they can from a locomotive as they could possibly get. GP38's are still alive and well on the railroad. GP40's, 45 --- excuse me, SD40's and SD45's are still around.

Q. Were those units being used in the 70's?
A. Yes.
Q. Were they being used in the 80's?
A. Yes.
Q. And in the 90's I take it you were repairing some of them; right?
A. They were used clear to the 90's.
Q. Okay.
A. Some of the older models of 30's and 35's started retiring them out --- Conrail started retiring their 30's and 35's, roughly in the 80's.
MR. SHAPIRO: Line 23.
Q. Was that another worker or was that you in that picture.
A. That is me in that picture of 21-17.
Q. Okay. One second. Once you --- you talked about flex lines right now. But once you remove asbestos from the cab heater pipes that you just described. Was there a different type of insulation placed there or what was placed in replacement?
A. If you kept the old cab heater

lines, are you talking about keeping those lines or removing asbestos and keeping the lines or doing away with the lines all together?

Q. You tell us, we don't understand. I thought that you --

A. In the 1980's, mid '80's Conrail began to change a lot of the older locomotives over to electric heat. So what they would do would be to removing all the old cab heater lines and also associated piping from them.

Q. And so electric heat, is that radiate heat or?

A. Yes, it is radiate heat.

Q. So is there any need to bring --- we didn't ask this. But the lines that you were talking about, those cab heater pipe lines, were they filled with air or filled with water?

A. They are filled with water.

Q. And so you said something in one of the diagram --- you showed us your sketch in the core. What is the purpose of the core?

A. The heater core is the water pipe hooked to the heater core and feed water through that core. So when the fan blows through the core, and blowing heat into the cab.

Q. In the replacement type of heat, the electric heat, is there any need to have a water line?

A. No.

Q. I see, okay. In the normal process of removing the cab heater, asbestos, was it normal to just switch to electric heat or more normal to get rid of the asbestos insulation or did it depend?

A. In --- when we were switching over to the electric heat, you removed the piping and all associated piping with the cab heaters.

Q. So Mr. Rhodes just before we went off the record, we had marked Exhibits 2-a through g, your sketches as exhibits. Now also have I shown you a series of pictures marked 23-a, I believe through d?

A. That is correct.

Q. Can you tell us what those pictures appear to be?

A. These are pictures of locomotive cabs.

Q. Are you familiar with what type of locomotive engines are in the pictures because of your pictures?

A. Classifications of these

locomotives?

Q. Yeah, in other words what type engines or what manufacturer?

A. Oh, these are an EMD engine. This is a General Motors product right here.

Q. Okay, you are talking about --

A. 23-a, I'm sorry.

Q. Okay, I guess the other ones as to what if anything is being shown in the pictures?

A. 23-a is a picture of a locomotive cab and it is meant to show you the cab heater in front of the engineer seat.

23-b would be the same thing. This would be a cab heater in front of the engineer.

Q. Okay. Why don't you --- people who are watching the video tape, refer to --- I just popped them up on the screen. What does 23-a show of any significance to this testimony?

A. 23-a shows you the cab heater and where it sits in front of the engineer.

Q. And is that like a metal enclosure there that we see?

A. This is a metal shield enclosure, but what you can't see on this picture is the grate at the bottom where the heat would come out.

Q. All right.
A. This is --
Q. 23-b, what is being shown?
A. 23-b again the cab heater line, or the cab heater itself in front of the engineer and again this is a shield and the grate at the bottom.
Q. 23-c?
A. 23-c is a picture of GE engine and it is just showing you again of the cab heater set up in front of the engineer seat.
Q. 23-d?
A. 23-d, again is a EMD locomotive and again it is showing you how the cab heater would sit directly in front of the engineer.
Q. Is there a control for a fan on that unit?
A. Yes, this one --- you can see the grate and the control for that unit.
Q. And on that particular engine we are looking at one view, would there be another cab heater as you said?
A. Yes, there would be another. Here is the water cooler over here, the cab heater would be to the rear of that water, to the rear of the locomotive.

MR. SHAPIRO: I move to introduce those. And let's got to 72, 2.

Q. We talked about all of those classes of engines in detailed earlier in your deposition. I wanted to ask you this Mr. Rhodes, if someone says there were no friable asbestos on diesel engines on those classes as they were built, would you agree with that?

A. No.

Q. And why don't you agree with that?

A. I don't agree with it because I removed friable asbestos from all those classes of locomotives.

Q. If someone states that there was no way any airborne asbestos fibers ever got into any crew cabs where people worked inside those classes of engines, would you agree with that sir?

A. No.

Q. And why would you disagree with that?

A. I would disagree to that because we were trained to understand that friable asbestos can move through --- they will go where ever the air take them.

Q. Well, I want to know about your

personal knowledge of going inside crew cabs and working there.

A. My personal knowledge of going inside crew cabs and working on them and as I said earlier when you remove the shield off of the cab heaters themselves you can see the residue within the cab heaters and the friable asbestos. I have removed many of them.

Q. All right. Since you retired with Conrail, I am sorry Norfolk Southern, excuse me. Do you have any grip or qualm against management at the railroad?

A. No.

Q. Okay. Please answer opposing counsel.

THE WITNESS: Am I through?

MS. YOUNG: Unfortunately no.

CROSS-EXAMINATION

BY MS. YOUNG:

Q. Good morning, Mr. Rhodes.

A. Where are you?

MS. YOUNG: Let me start with Page 74, Line 21.

Q. (BY MS. YOUNG) You have worked your entire career at Juanita as I understand it with a

Q. And that's in relation to the 50 count per minute background?

A. That's what I'm trying to say. I'm not sure that I can say that. The documentation I provide you here could be better.

Q. Let's go to Page 4, the next page.

A. Okay.

Q. Did you say at the top of the page that his license had been expired since 1971?

A. I didn't say that earlier. Earlier I told you out loud that I didn't remember, but here it says the expiration date was August 31st, 1971, so I'll trust that that's accurate.

Q. Did you suggest that certain areas of the property be marked caution, radioactive material?

A. Yes.

Q. And did you speak with another -- another person, a professional who had done a recent survey at the request of Mr. Witherspoon that you were reciting in your affidavit?

A. Yes, in C here I make a reference to a conversation with Jeff Chapman.

Q. And you know he's a professional who does surveys, right?

A. Jeff Chapman was hired by David Witherspoon. I can't say that I knew him at the time or even know him now. I remember speaking with him. He was someone Mr. Witherspoon hired in this project of decontamination.

Q. Did he tell you whether he had compelling data about radiological findings on the property?

A. I'm reading.

Yes, I've quoted -- I said here, "There's some very compelling data which is uncovered." This is what Mr. Chapman told me and I'm just quoting him.

Q. Did he mention yellow cake contamination?

A. He mentioned it in that he didn't feel it was exclusively yellow cake, yes, but that term was mentioned.

Q. Okay. Then did you also talk here about whether the Candora triangle was one of the radiological contamination areas at the 901 property?

A. Yes, in this memo here in D it makes reference to our making -- it states that we were discussing the Candora triangle and the

contamination wasn't limited there.

Q. What were the things that you recited were your concerns about contamination at the property there? What points did you feel were significant?

A. Do you want me to read D?

Q. Yes.

A. Says when I originally became involved in this situation it was the assumption that the contamination was limited to the Candora triangle of the 901 Superfund site including, for example, including, for example, uranium turnings, the contaminated metal and Rader dirt and the residuals from A, B, C above.

Q. We're not going to read all this, but you went on to say there were further surveys done and you were talking about them in your affidavit, right? Talking about TENERA and --

A. Yes, and Jeff Chapman as well, yes.

Q. And in essence, did you say here that Mr. Witherspoon had not complied with the orders that your division had placed upon him to clean up radioactivity? Bottom portion of the page.

A. No. 9? Down here?

Q. Yes, sir.

A. Okay, it is my opinion --

Q. You don't have to read the whole thing, sir. I'm just asking in essence did you state that Mr. Witherspoon had failed to comply with orders to clean up the site?

A. I stated that he had made only minimal efforts to comply and has not complied with all the requirements, yes.

Q. All right. And did you mention in here that -- or is it a fact that when you -- that as of the 80's up until this affidavit, there were only two sites in Tennessee that had radioactive scrap licenses, one was Witherspoon and one was DuPont, is that true?

A. I couldn't say it in those terms because I didn't regulate the state of Tennessee. I do now, as we stated in the beginning, yes, I have been the manager for seven years or so.

However, at that time the only thing I would know about is East Tennessee.

Q. I'm sorry, so East Tennessee it was just Witherspoon and one other site?

A. Correct. Contamination like this, yes.

Q. We would move to introduce 544,

Q. At the very bottom it says, "It should be noted that Bill Perry and I revisited the site" and it's kind of cut off.

The next page.

A. I can't read that last sentence but I'm with you.

Q. Just go to the next page.

A. Okay.

Q. They took another tour of the 901 address before this was written and what did they find? What does the inspector say?

A. It says it was, "Even worse than Mr. Cole had indicated."

Q. What is Mr. Cole, a foreman?

A. Mr. Cole is the foreman that guided --

Q. And what does the inspector say is even worse?

A. It says, "It's 'worse' because Mr. W told us there is contaminated material at the northeast side of the property where the barrel turnings are located on his side of the railroad tracks from the area where all the radioactive material already observed (noted on the attached drawing) is located. The material appears to be

mixed with (most likely) 'clean' metal, scattered throughout rather dense brush."

Q. Okay. And basically it goes on. The inspector says, "I tried to inspect some of the contaminated metal" but what happened?

A. "Contaminated metal, but ended up realizing it would be a much larger job than we had the time for for this day."

Q. That place is the Candora triangle, right?

A. Yes, I believe there's a map --

Q. Yes, there's a map on the back, right.

A. Yes.

Q. Then there's a, looks like an update I asked you about at the beginning. There's an update here dated January '82 which looks to be a followup here. Do you see that?

A. I do.

Q. First or second page.

A. Uh-huh.

This one is hard.

Q. It's all handwritten, right?

A. Yes, and it's not a good copy.

Q. Does the inspector say whether the

uranium turnings were still present as expected?

A. The turnings -- I'm getting this, the turnings were still present as expected.

Q. But what else does it say?

A. "But there was considerably more scrap metal in the section of the yard supposedly segregated for contaminated scrap."

Q. What does it say about whether Mr. Witherspoon has even gotten more metal at this time?

A. "Witherspoon has either received appreciably more contaminated scrap or has mixed contaminated scrap with clean scrap. Another possibility is the contaminated scrap has been moved elsewhere, but I don't think this is likely. It was also noted that the fence adjacent to the Southern Railroad trails --"

Q. Tracks?

A. "Tracks has washed down in one section and now could be stopped over -- stepped over easily. As these items demonstrate a change in status, it was felt that it should perhaps be reported." And that's Steve Brooks. He was my supervisor when --

Q. Okay. Let me go back to the first

page of the inspection. You still have it right in front of you, okay?

A. Okay.

Q. So let's see.

Some of the findings of the inspector said he had unauthorized form of radioactive material, right?

A. Correct.

Q. He violated something about properly disposing of unauthorized material.

A. Correct. That's what it says is a brief statement of the problem.

Q. Okay. Let's see, then one of them is, "Radioactive material levels were over the allowable levels for unrestricted areas." Was that a compliance problem?

A. Yes, that is one of the violations noted, No. 3.

Q. "No surveys whatsoever." Was that also written as one of the problems?

A. Yes.

Q. "Lack of CRA posting." What does that mean?

A. CRA stands for caution, radiation area. It would be an identification when you reach

the railroad to start servicing that company?

A. Yes, sir, in late '90, early '91 is when Mr. Witherspoon started requesting us to provide him switching services.

Q. In 1988 and 1989, did the railroad service Witherspoon?

A. No, sir, not when I was there.

Q. And you're saying early '90 or sometime in '90, '91 --

A. Late '90, early '91, I think it was.

Q. And tell the jury what happened.

A. Well, after they started requesting service and at first I told him we weren't going to go in there, I did some research to find out what had been going on, Mr. Maynard had it and some issues they had had so I informed Mr. Witherspoon that we wouldn't provide him service because of the past issues that he had inside his facility. And Mr. Witherspoon then went on to say that he had all that taken care of, it had all been fixed, whatever his issues were, were no longer in existence and he had had some state people come make some tests and samples and such as that to show that it was okay. So at that time I got ahold of our industrial

hygienist department in Jacksonville and turned it over to them to let them come do their own tests or get an independent firm to do some testing.

Q. And did ultimately -- what ultimately happened as a result of that, all of this testing and stuff?

A. They -- we had an independent team that did some testing and also Mr. Mark Badders, who is our industrial hygienist, came down and did some testing, some soil samples and such and it was determined at that time that it was safe for people to go in and service this facility at that one location.

Q. And what happened then?

A. Well, still with talking to the crews and such as that, they still felt uncomfortable about going inside that area, that had been determined safe to go in so I got with Mr. Witherspoon and told him that -- kind of made a deal with him that my guys still don't want to go in there, they have concerns and I don't like any of my employees out if they've got their mind on something else, which they would in this situation, I'd rather work some other arrangement out with him so we made an arrangement where I could take the cars up over

the Candora Road crossing right up to his fence, but I wouldn't go inside the fence which is that area that they said was safe and then we would cut away. He had a little car mover that he could bring outside and he would open the gate and come out and get the cars and pull them in.

Same thing when they were ready to be released, he would push the cars back outside the gate, take that little car mover inside the gate and close the gate and then we would come up and get the cars and take them back to Knoxville.

Q. During that time period after that began, after we began to bring them cars and take cars out and those sort of things at the gate, was there ever occasion for any railroad person including yourself to go into the Witherspoon property?

A. I actually went in but none of the employees would go in.

Q. Why did you go in?

A. To meet with Mr. Witherspoon, I went in and met with him and went in with Mr. Badders and then when they were making their tests and also I remember one time he actually derailed a car inside his facility and his little

was at Witherspoon.

A. Correct. And that number is very close to this one in terms of the scrap metal and that one ended up being 90 millirem over 15 years, so those two inhalation numbers are very similar but small by comparison to the direct number that we calculated for it.

Q. Okay. Now, have you given us all of your calculations for the individual scenarios of his exposure?

A. I think we are close. There's a couple minor numbers that we are missing here.

One where Mr. Payne actually went onto the Y-12 site and they had had a cesium contamination incident along the rail tracks that was written up, and that exposure was very low. We first estimated 2 but then it ended up being 3 millirem we estimated, for the short of amount of time that he happened to be on the Y-12 site at those potentially contaminated tracks at Y-12. So that's the Y-12 dose.

There might have been one other dose that was like 1 millirem or something, very minuscule but I don't -- I can't wrap my finger around it right now without looking at the notes.

assume any -- all of that, what would that do to your dose calculations?

A. It would put a big hole in it.

Q. There has been some talk in this case about plutonium.

A. Uh-huh.

Q. Do you know what plutonium is?

A. I do.

Q. There's been some suggestion that there was some plutonium out at the Witherspoon site.

Have you looked at that issue for us?

A. I am familiar with an SAIC report done in 2001 where they did collect some soil samples looking for plutonium-238 and 239, yes.

Q. What did you find out?

A. I found that the groundwater did come up with three of five positive samples, but it wasn't considered a contaminant of concern because it didn't meet the one in a million standard that the EPA uses for having a contaminant of concern be a problem, and they took two soil samples for plutonium. They found nine positives. And again, they didn't consider it a contaminant of concern

Q. I'm not asking about inside the body, I'm asking you if there's a piece of plutonium right there, sir, can wind blow that plutonium?
A. It could, yes.
Q. Okay. Thank you.
A. If it was in sufficient form to do so.
Q. And the other type of plutonium, that is 239, has a half-life of how long?
A. Tens of thousands of years. I'm not sure exactly --
Q. 24,200 sound about right?
A. Yes, that sounds about right.
Q. Okay. And you told me in your deposition that airborne plutonium can travel for miles. Correct?
A. In the right form it could, yes.
Q. Okay. Now, I want to go back to that plutonium that you just told this jury was found in those samples at the Witherspoon site.
A. Okay.
Q. And you mentioned the SAIC report, didn't you?
A. Yes.
Q. Now, did you also know that two

Don't see it on here, Counsel.

Q. (BY MR. SHAPIRO) Do you know if you've billed the railroad yet for your time and services?

A. I do not know whether they have been billed.

Q. And I think you have just been retained on this case in the last 60 days, 90 days. Right?

A. I believe the initial phone call came in late July. That's a guess but I believe it was late July. It was certainly earlier than mid August when we did the walk over the railroad tracks and so, you know, a contract and retainer was in place by that time but I believe it was early July that the initial inquiry was made.

Q. Do you know what your retainer requirements were?

A. I believe it was $2,000.

Q. Okay. And you said you are not sure how much you are billing per hour?

A. No, sir, I do not know that.

Q. But certainly, it's an hourly rate?

A. Yes, indeed it is an hourly rate.

Q. I first wanted to ask you,

Dr. Kocher, about this report that Ms. Young asked you about.

This is the one you wrote about cesium contamination along the railroad tracks in Oak Ridge dated December 1990. Right?

A. That's correct.

Q. And as you said, you're not usually the person that goes out and takes the measurements but you're the person that works on writing the report. Correct?

A. Somebody gives me the recipe and I cook the stew.

Q. And I looked through here and would you agree that it looks like the tests were done in about 1986?

A. It appears -- my recollection is that there were at least two surveys done out there, one a little more thorough than the other once they saw they had a problem, but, yes, it would have been in the late 1980's when this was done.

Q. Okay. And you had to also look into how cesium got down into railroad ballast rock as part of emission, if you will. Right?

A. No, actually I didn't. Because the assessment is just based on the survey data. It was

not part of this assessment to be concerned about how it got there and just exactly where it is. It's -- the survey data tell you what the radiation environment is.

Q. You're the principal author of the report. Right?

A. I'm the sole author of the report.

Q. Okay. Can you turn to Page 1? Third paragraph from the bottom.

A. Okay.

Q. You said the source of the cesium contamination along the railroad tracks is somewhat uncertain. Is that what you said?

A. Yes. There didn't -- at the time I did not have a clear documentation trail about this. There was what I would call anecdotal evidence about what it was.

Q. And you said that the waste, that waste was routinely shipped to Oak Ridge by train and the particular source of the contamination has been tentatively identified as leaking concrete casks containing mostly cesium-bearing animal carcasses.

A. That's correct. That's the belief as to how this came about.

are the radioactive principles and characteristics of cesium?

A. Well, cesium is a -- cesium-137 is a radioactive isotope, it's produced in copious amounts in nuclear reactors, it has many beneficial uses. Cesium-137 has a half-life of about 30 years which means that every 30 years the amount of activity is reduced by a factor of 2 by emissions of radiation, the principle of radiation that cesium emits is a fairly high energy gamma ray so this is a penetrating radiation, it can go through paper no problem. Can travel long distances. So it's a radionuclide that, you know, it demands respect.

Q. What are the health hazards associated with inhalation of cesium or cesium on your skin?

A. The health hazards from inhalation of cesium on your skin or inhaled are basically no different from exposure to any other radioactive material.

An exposure to cesium will deliver some dose and the importance of that dose depends entirely on how big the dose is. If the dose is very small, the impact is trivial; if the dose is very, very large, it can kill you.

early '60s or late '60's?

A. It would have been no later than 1968 or so because other burial grounds started opening about 1969 and Oak Ridge was no longer used.

Q. Did you investigate anything about the level of shipments of concrete casks holding animal carcasses?

A. No. The only thing that mattered for me was how much cesium contamination was on the tracks and what the radiation levels were.

Q. But you concluded that cesium radioisotopes penetrated right through concrete casks and ended up being detectable in the ballast rock, what, two decades later?

A. Well, it wasn't going anywhere. Cesium is fairly immobile in the environment so it stayed around and it could be detected 20 years later. At very low levels.

Q. And this section after the surveying was all done, there were sections of railroad track between the Y-12 spur and certain areas that ran through the -- I guess the town of Oak Ridge that were cleaned up, that is the track, the ballast rock was taken up, the railroad track was taken up and it was remediated. Right?

Energy with Martin Marietta about this, right?

A. Yes.

Q. They told you that there was an area seven feet by seven feet that had slightly elevated activity readings for contamination of radioactive substances, right?

A. Well, it was specific for cesium.

Q. Okay. Is cesium a radioactive substance?

A. Yes.

Q. And there was a cleanup that was scheduled, correct?

A. Yes.

Q. Who was doing the cleanup?

A. That was being done by contractors for DOE.

Q. Okay. And in some of your other documents you talked about your details of who you contacted and what they found near the railroad property, right?

A. What they found in the plume.

Q. And you had a note here, it was on railroad property but not on the tracks itself.

A. Correct.

Q. So it was on the right-of-way

beside the tracks?

A. Right, there was a 50-foot right-of-way is my understanding.

Q. And did it come to your attention after 1986 or 1987 that that Y-12 CSX spur was remediated or cleaned up at some point?

A. I know there was some work done in that area where they cleaned up radioactive material close to the track.

Q. When you say "they," who cleaned up the materials?

A. Contractors for DOE.

Q. Okay. And, in fact, at some point CSX closed up those entire tracks after the cleanup, right?

A. I don't know that.

Q. You do know that there was a cleanup of the Y-12 Oak Ridge spur and that those tracks are no longer used?

A. I knew that there was a cleanup, I didn't know that they closed the tracks.

Q. Well, you do know that the cleanup involved cleanup of radioactive contamination, don't you?

A. Yes.

they applied the brakes, he would be in that immediate vicinity.

As far as a railcar, no. I wouldn't expect him to be in the immediate vicinity of a railcar being in a braking operation on line of road, freight hauling runs. He wouldn't be anywhere near it.

Q. As a bystander to a locomotive which is having its brakes applied, would he have any exposure to asbestos, in your opinion?

A. No. There were studies that were performed by the Federal Railroad Administration showing that the heat of combustion of brakes on railroad equipment physically destroys the asbestos fiber.

Q. So a bystander to a locomotive brakes being applied, in your opinion, is that person being exposed to asbestos?

A. No.

Q. Can you tell me, Mr. Badders, do railroad brake shoes, do they contain asbestos?

A. They don't currently contain asbestos. They have in the past.

Q. And was there a time when the asbestos was taken out of the brake shoes?

A. Yes.

Q. In the manufacturing process, I mean.

A. Yes. They started to get rid of the asbestos from brake shoes on rail equipment in the late 70's, and it was completed by the early 80's.

I'm not sure if they were manufacturing asbestos-containing brake shoes in the early 80's, but it's possible that we could have received some brake shoes that still had it in it as a result of shipments that were received during that time period.

MS. YOUNG: Moving to 19.

Q. Mr. Badders, let me show you what's been marked as Defendant's Exhibit 22. There's 26 separate documents.

Can you take a look at these and identify them for the record?

A. These are studies that -- these are diesel exhaust studies of train runs on CSX Transportation. It also looks like the last two or three documents were asbestos on exposure for train crews. And I think we've already discussed these with some previous exhibits.

but they're also using the assumption of you have to have zero exposure to have zero risk. And I don't think that's in agreement within the scientific community.

I think there is generally some -- most of the scientists would agree there is some level of asbestos you could be exposed to, but because of the individual variability from person to person, and other conditions, no one can actually put a specific value on it, but asbestos is present in your -- is present in the environment.

Q. Let me ask you this: At some point CSX began systematically removing asbestos from its diesel locomotive engines, correct? That is, in a batch basis removing asbestos from engines that were diesel engines?

A. We were removing it from engines when they were coming into a major shop for a major renovation where the piping systems were going to be disturbed, and since they were going to be disturbed at that point, we removed the asbestos from them.

Q. I'm not asking you about the individual running repairs. I'm asking you --

A. That's not a running repair.

Q. Okay.

A. That's a project.

Q. When did CSX begin systematically bringing in groups of engines and having contractors abate locomotive engines' asbestos?

A. We've never had a program specifically where we were bringing in locomotives just to abate asbestos.

If we had a major renovation of a locomotive and if that involved the removal of the lines, which may contain asbestos, then we would have a contractor come in and remove those lines.

Q. But CSX did do that, you did hire contractors to do that?

A. Oh, yes.

Q. When was the first time that you hired contractors to do that? You were the industrial hygienist from 1984.

A. The earliest time was on the Chessie System at the Huntington locomotive shop. But I don't have an exact date as to when that occurred. It occurred before the merger.

Q. After 1980?

A. Well, I don't know if it occurred in 1980 or not, it was before the merger in the mid 1980's.

Q. Once the merger happened and you were with CSXT, when was the first systematic removal of asbestos from diesel engines?

A. The only time that it's being -- that it's still being removed from the engines is if there is repair work that needs to be done on the lines which may have asbestos heat shield on them, and then -- then it's removed.

But there is no -- there has never been any program specifically where we brought in an engine to remove asbestos, it was always associated with something else.

Q. Well, you are aware that there is -- there was asbestos in a number of gaskets, pipe coverings on EMD and GE locomotives that were diesel locomotives, correct?

A. Well, many of the high-temperature gaskets on locomotives, both General Electric and EMD, had asbestos until probably the late 1980's.

Q. Now, one of the heating lines, heating pipes on diesel engines was insulated with asbestos on most EMD and GE locomotives, correct?

A. On the cab heater lines, particularly on the EMD locomotives and asbestos will maintain perhaps as a heat shield.

Q. And what does the heater do for an engine, it provides heat to the engine, right?
A. It provides heat to the cab.
Q. And that heat blows in, right?
A. Well, you have the pipe -- you have the pipe going in and then you have the hot water coming from the engine and then the air blows across that pipe and -- which, at that point, it's not insulated and it blows heat into the locomotive cab. It's like a space heater.
MR. SHAPIRO: Lower on that same page.
Q. Okay. Now, you're unaware of any Seaboard asbestos air sampling test inside either a diesel locomotive or a caboose between 1932 and the 1960's?
A. No, I'm not aware of any.
Q. You're unaware of any information to indicate that Seaboard Railroad or its predecessors ever told employees in the 50's, 60's, or 70's that asbestos dust was a potential carcinogen?
A. I've not seen any documents where that was -- where that was not told to employees.
Q. I want to quickly turn your

published in the literature since that time. That's a very old study, 1985.

Q. Well, you were working at the same time as Dr. Selikoff did the study?

A. Yes, and we criticized that rather vigorously at the time.

Q. And he was studying asbestos at Mount Sinai.

A. Yes, shipyard workers, yes.

Q. All types of asbestos can contribute to lung cancer, correct?

A. If there is a sufficient exposure to result in asbestosis, to the best of my knowledge, yes.

Q. You've testified before that in theory one fiber of asbestos alone can cause mesothelioma?

A. Yes, in theory.

Q. Of course, you saw a thyroid cancer in Mr. Payne, didn't you?

A. Yes.

Q. And that's caused by radiation, isn't it?

A. That's one of the contributing causes, yes. It's not the only cause. Most

individuals we don't know what the cause was.

Q. I believe since you started doing consulting work you've handled over 5,000 cases, is that right?

A. Roughly that, yes.

Q. That's all I have, thank you.

MR. BAKER: I have nothing further of this witness.

THE COURT: Thank you, Doctor. You can be excused. We'll take a 15 minute break and then come back.

(Jury dismissed from courtroom).

THE COURT: Something you want to talk about right now, Mr. Baker?

MR. BAKER: Yes, Your Honor.

THE COURT: What is that?

MR. BAKER: Mr. Gilreath, plaintiff's counsel, asked this witness about thyroid cancer. This court has excluded thyroid cancer as a cause through the deposition testimony of Dr. Manning and others.

As we all know, everyone concluded that he could not have thyroid cancer, that what they thought was a lesion turned out

THE COURT: Before we get to the next witness, in the cross examination of the last witness, mention was made of the term thyroid cancer. As you previously heard, there's no claim in this case that the plaintiff suffered from thyroid cancer or that that caused him anything that is the subject matter of this case.

So who is your next witness?

MR. BAKER: Your Honor, I propose to read certain portions of the deposition of Mr. Payne that was taken on October the 2nd, 2008.

May I proceed?

THE COURT: All right.

MR. BAKER: The plaintiff, Mr. Payne gave a deposition on October 2nd, 2008.

THE COURT: This is a different deposition than the one that was previously presented to me.

MR. BAKER: And after being duly sworn testified as follows, at Page 5, Line 4 through 6.

(Whereupon, excerpts from the

case. The lawyers said something about I was going to help you in your decision making process.

Well, I'm not really here to help you make a decision because in any case I do not, cannot or would not assume, indicate or suggest that any contested fact has or has not been proved or any witness has or has not told the truth because you, again, the jury are the sole, the only judges of the evidence and the credibility of the witnesses and the weight of the value to be given to their testimony. Again, what I am trying to do is cover the possibilities that can arise from this particular type of situation.

It's for you to say what happened in the case and what should be done as a result of what happened.

Now, we talked about a lot of things today. Anything you want me to say more about?

(Bench conference)

MR. SHAPIRO: I think need to give them a present value and the future --

THE COURT: Okay.

Okay. Just a couple minor things here.

As I mentioned the first day, this is not a workers compensation case and we are more familiar with those types of cases because they are things that we deal with every day. So nothing in the law of workers compensation has any applicability to this.

And when we figure damages in a case such, if we do figure damages, we have to reduce such damages for future loss or harm to what we call present cash value.

So in determining any damages that would arise in the future, that is after today, you must determine the present cash value of those damages. So that means you must adjust the award of such damages that would occur after today to allow for the reasonable earning power of money and the impact of inflation upon on any award that you make.

Now you're on your own.

Take the case, select a spokesperson. When you are ready with your

verdict -- if you have a question about the law, notify Mr. Hines.

Just remember as a jury you can have no prejudice, no sympathy, allow anything but the law and the evidence to have an influence upon your verdict. You must return that verdict with absolute fairness and impartiality according to the law and the evidence as you think justice and truth indicates.

You're excused. Thank you very much.

(Jury dismissed from courtroom at 4:37 p.m.)

MR. BAKER: Make a statement for the record on the jury instruction.

For the record, Your Honor, we submitted to you various instructions that we asked that you instruct the jury on and continue to ask that you instruct the jury on as follows:

Defendant's Special Request No. 20, Causation Instruction No. 1.

Defendant's Special Request No. 21, Causation Instruction No. 2 dealing with proximate cause. That reads, "In order to

establish that an injury was caused by the defendant's negligence the plaintiff must show that the injury resulted in whole or in part from the defendant's negligence and, secondly, that the defendant's negligence was the proximate cause of the injury.

Defendant's Special Request No. 23, Causation Instruction No. 4.

Defendant's Special Request No. 24, Causation Instruction No. 5.

Defendant's Special Request No. 25, Causation Instruction No. 6.

Defendant's Special Request No. 26, Causation Instruction No. 7.

Then Defendant's Special Request No. 2 dealing with consideration of evidence, the duty to follow instructions, no bias against corporate parties. There was not a word about that in this charge.

THE COURT: Said they cannot have prejudice against anybody.

MR. BAKER: Defendant's Special Request No. 10, FELA standard of care negligence defined. "I charge you that the standard of care that the defendant owed the

plaintiff was that of a reasonable ordinary and prudent railroad employer under the circumstances as they existed at the time of decedent's employment with the railroad.

Defendant CSX's Special Request No. 15, dealing with notice. That was not instructed.

Defendant's Special Request No. 16, dealing with foreseeability, charging the plaintiff must prove the requirement of "from reasonable foreseeability of harm". That was not in the charge.

Defendant's Special Request No. 7, medical and scientific evidence. We are not presumed to know everything that's written in the medical or scientific journals, we are not held to the duty of an expert but of a railroad.

We would ask the Court to make a charge on contributory negligence, specifically as it relates to cigarette smoking, which would be Special Request No. 28.

And then Defendant's Special Request No. 39, "The mere presence alone of

a potentially harmful substance is insufficient to find negligence."

And then -- we had one on cesium, Your Honor.

MS. THOMPSON: And exposure to Oak Ridge.

MR. BAKER: That was No. -- off the record.

And finally, Special Request No. 40, cesium and alleged Oak Ridge exposures.

And for the record we would like to make these a collective exhibit.

THE COURT: All right.

(Exhibit 573 marked for identification).

MR. BAKER: Finally, Your Honor, this is our last objection, I believe.

Dealing with the request that we ask the Court to charge on the issue of Superfund, as that obviously became a bone of contention by motion at the beginning of the trial and throughout the trial, and we objected again and again on that, and we had asked the Court to do a curative instruction on that issue to the jury.

MR. SHAPIRO: We on the plaintiff's side object to the failure to give what I've marked as Instruction No. A about foreseeability.

B, about the nature and types of damages that may be awarded under the FELA.

C, it's sort of an issues and a finding outline which was different than the Court did give the jury.

D, is about the railroad's duty to guard against risks and dangers that it should have known about.

E, is about the degree of care varying with the level of risk.

F, is also about dangers or hazards and the duty of an employer to make provisions against foreseeable dangers.

G, is an instruction relating to safe and suitable equipment and safety rules.

H, is that the plaintiff had a right to assume that the railroad maintained safe locomotive engines.

I, is that there could be more than one cause of injury

J, is that the assumption of risk is no bar to recovery under the FELA.

And K, is the particular negligence claims made.

And L, is about a different description of non-delegable duty under the FELA.

(Exhibit 573 marked for identification).

MS. YOUNG: Your Honor, we do have an objection to Plaintiff's Exhibit 8. It's the CSX 2008 Annual Report. It was addressed or talked about in either Bullock or Badders, but we object to this going back to the jury.

MR. SHAPIRO: It was an exhibit and for some reason they raised their objection later after it was in.

THE COURT: Exhibit 8 is not going back.

MR. SHAPIRO: Offering the deposition of Mr. Bohm as part of the record. The DVD has already been marked.

(Exhibit 574 marked).

(Off the record at 4:48)

(Jury suspended deliberations at 5:30 p.m.)
(Whereupon, court was adjourned at 5:30 p.m.)
(Whereupon, court resumed at 9:00 a.m. on Novemeber 30, 2010)
(Jury resumed deliberations at 9:00 a.m.)
(On the record at 1:40 p.m.)

THE COURT: Okay. The jury asked me a question since I read a lot of stuff and some of it is hard to follow.

They wanted to know again what I read to them about the laws and regulations that would relate to the claims of the plaintiff in this case, the laws and regulations that the plaintiff claims were violated in this case.

The Court's instruction is if you do find that such a law or regulation was violated, then you have to find whether that could cause, in whole or in part, harm suffered by the plaintiff in this case.

In that regard, I read portions of certain laws and regulations and told you that the -- what has been referred to as the Locomotive Inspection Act makes it unlawful for any railroad to use or permit to be used

on its line any locomotive unless the entire locomotive and its appurtenances are in proper condition and safe to operate in the service to which they are put without unnecessary peril to life or limb.

Another regulation states that products of combustion shall be released entirely outside of the cab and other compartments. Exhaust stacks shall be of sufficient height or other means provided to prevent entry of products of combustion into the cab or other compartments under usual operating conditions.

Another regulation states that all systems and components on a locomotive shall be free of a condition that would endanger the safety of the crew, the locomotive or the train.

Another regulation says that -- it related to railcars, and it says that each transport vehicle used for transporting radioactive materials have exclusive use as defined by the law, must be surveyed with appropriate radiation protection instruments after each use.

A vehicle may not be returned to service until the radiation dose rate at any accessible service is .5 millirem per hour or less, and there is no significant removable radioactive surface contamination as identified by the law.

A 1961 regulation stated that no persons shall remain in a car containing radioactive material unnecessarily, and the shipper must furnish the carrier with such information and equipment as is necessary for the protection of the carrier's employees.

A regulation which came into effect in 1976 stated that a person may not remain unnecessarily in a rail car containing radioactive materials.

Another regulation stated that radioactive material means any material or combination of materials which spontaneously emit ionizing radiation. Materials in which the estimated specific activity is not greater than .002 microcuries per gram of material and in which the radioactivity is essentially uniformly distributed are not

considered to be radioactive materials.

So those were regulations and laws that I read to you. It's for you, the jury, to say if there was a violation of any of these. If there was such a violation, did that violation cause, in whole or in part, harm to the plaintiff? Your spokesperson said that's all you could think of right now to ask me.

While we are in here, can you think of anything else?

JURY FOREMAN: Your Honor, did you go over the FELA?

THE COURT: What the FELA says itself?

JURY FOREMAN: Yes.

THE COURT: Just a minute and I'll tell you what it says about that.

The sections of the FELA that I read to you stated, in its first section, that every common carrier by the railroad engaging in commerce between any of the several states shall be liable in damages to any person suffering injury while he is employed by such carrier in such commerce

for such injury resulting, in whole or in part, from the negligence of any of the officers, agents or employees of such carrier.

Got that, or do you want me to go over it again?

JURY FOREMAN: Go over it again.

THE COURT: Okay. Then the other section that I read to you -- if I can find that.

It stated that in all the actions brought against any railroad to recover damages for personal injuries to an employee, the fact that the employee may have been guilty of contributory negligence shall not bar a recovery, but the damages, and we are talking about the FELA Act, the damages shall be diminished by the jury in proportion to the amount of negligence attributable to the employee.

So those are the two sections that came directly from the FELA Act that I read to you.

JURY FOREMAN: There's a request to read the first part of that again, please.

THE COURT: The first part of the FELA?

JURY FOREMAN: Yes.

The first section of the FELA says that every common carrier by railroad engaging in commerce between any of the several states shall be liable in damages to any person suffering injury while he is employed by such carrier in such commerce for such injury resulting, in whole or in part, from the negligence of any of the officers, agents or employees of such carrier.

MR. SHAPIRO: Your Honor, may I approach the bench one second?

THE COURT: There's no question in this case that, in this particular situation, this defendant and its predecessors were engaged in interstate commerce and the plaintiff was an employee at the time.

So you have to determine, as we suggested, was there negligence on the part of the railroad and did that negligence, in whole or in part, cause harm to the

defendant. If the harm the defendant suffered was due to some other cause not related to the railroad, then the railroad would not be liable. They want to make that clear. I think it is clear.

The question, again, for you as set out in the verdict form is to determine, first of all, was the railroad negligent. Second, did the negligence on the part of the railroad contribute, in whole or in part, to harm suffered by the plaintiff. Then we ask you about the specifics about that.

If you found that there was an -- if you find that either the railroad was not negligent or the negligence did not contribute, in whole or in part, to harm suffered by the plaintiff, then your verdict would be for the defendant.

If you find that there was, then you go ahead and answer the rest of the questions.

Anything else while we are in here?

JURY FOREMAN: I have a request. Would you repeat the section where you were

talking about ordinary and reasonable care?

THE COURT: Okay.

I told you that negligence in this sense is the doing of some act which a reasonably prudent and careful person would not do or the failure to do something that a reasonably prudent and careful person would do when prompted by considerations which ordinarily regulate the conduct of human affairs.

Negligence is, in other words, the failure too use ordinary and reasonable care under the circumstances shown to have existed at the time.

Ordinary care, again, is that care which a reasonably prudent and careful person would exercise in the management of their own affairs in order to avoid injury to themselves or their property or the persons or property of other people.

Ordinary care is not an absolute term, but as we are using it here in court, ordinary care is a relative term. That is to say in deciding whether ordinary care was exercised in a given case, the conduct of

the question must be viewed in light of all of the surrounding circumstances as shown by the evidence in the case.

Because the amount of care exercised by a reasonably prudent and careful person varies in proportion to the danger known to be involved in what is being done, it follows that the amount of caution required in the exercise of ordinary care will vary with the nature of what is being done and all of the surrounding circumstances shown by the proof to have existed at the time in the particular case.

To put it another way, as any danger that should reasonably be foreseen increases, so the amount of care required by law would also increase.

I also told you that the mere fact that a person suffered harm, injury or death, standing alone without more information, does not, in itself, permit an inference that harm, injury or death was caused by anyone's negligence.

Anything else?

JURY FOREMAN: Did you have

something in there about reasonable safety, sir, and where it --

THE COURT: Okay. It was the continuing duty of the defendant as an employer to use ordinary and reasonable care under the circumstances then existing in furnishing the plaintiff with a reasonably safe place to work.

This continuing duty does not depend upon whether the employee is working on the employer's premises or on the premises of others. The employer is required to use ordinary and reasonable care under the circumstances then existing to maintain and keep places of work in a reasonably safe condition for the employee.

This does not mean that the employer is an absolute guarantor or insurer of the safety of the place to work. The extent of the employer's duty is to exercise ordinary care under the circumstances then existing to see that the place in which the work is to be performed is reasonably safe for the employee, again, under the circumstances shown by the evidence to have

existed at the time in the particular case.

Okay. So let us know if you have more questions or how you are getting along.

(Jury dismissed from courtroom at 1:58 p.m.)

(Jury returned with verdict at 3:56 p.m.)

THE COURT: Okay. Mr. Alexander has been chosen here. If you will refer to the verdict, you can tell me briefly.

Question No. 1, was the defendant negligent as defined in these instructions?

JURY FOREMAN: Yes.

THE COURT: Question No. 2, did that negligence cause, in whole or in part, the harm suffered by the plaintiff?

JURY FOREMAN: Yes.

THE COURT: Question No. 3, was the defendant negligent with regard to asbestos exposure?

JURY FOREMAN: Yes.

THE COURT: With regard to diesel exposure?

JURY FOREMAN: Yes.

THE COURT: With regard to radiation exposure?

JURY FOREMAN: Yes.

THE COURT: Did the negligence of the defendant cause, in whole or in part, the harm suffered by plaintiff as a result of asbestos exposure?

JURY FOREMAN: Yes.

THE COURT: Diesel exposure?

JURY FOREMAN: Yes.

THE COURT: Radiation exposure?

JURY FOREMAN: Yes.

THE COURT: Did the defendant violate the Locomotive Inspection Act or any regulation concerning locomotives regarding asbestos, and was any such violation a legal cause of the plaintiff's harm?

JURY FOREMAN: Yes.

THE COURT: Did the defendant violate the Locomotive Inspection Act or any regulation concerning locomotives regarding diesel fumes, and was any such violation a legal cause of the plaintiff's harm?

JURY FOREMAN: Yes.

THE COURT: Did the defendant violation any regulation regarding the operations of railroad cars and transportation of radioactive materials, and

was any such violation a legal cause of harm suffered by the plaintiff?

JURY FOREMAN: Yes.

THE COURT: Question 5, was the plaintiff negligent with regard to the harm he suffered?

JURY FOREMAN: Yes.

THE COURT: Your answer was yes.

To what extent, expressed in percentages, did the plaintiff's negligence cause, in whole or in part, the harm that he suffered?

JURY FOREMAN: 62 percent.

THE COURT: And finally, what amount of money do you find, without deduction for any the negligence, that would the fairly represent adequate compensation in this case?

JURY FOREMAN: 8.6 million.

THE COURT: Okay. Now, let me further inform you that by answering yes to questions listed on this form in Part 4 about the Inspection Act or any regulations, by answering yes to all of those questions, the concept of contributory negligence may

not apply in this case. In that situation, the plaintiff would receive the entire amount of money that you have listed on the answers to the seventh question.

If that is what you intend in this particular case, please indicate by raising your right hand?

(Jury foreman raised hand).

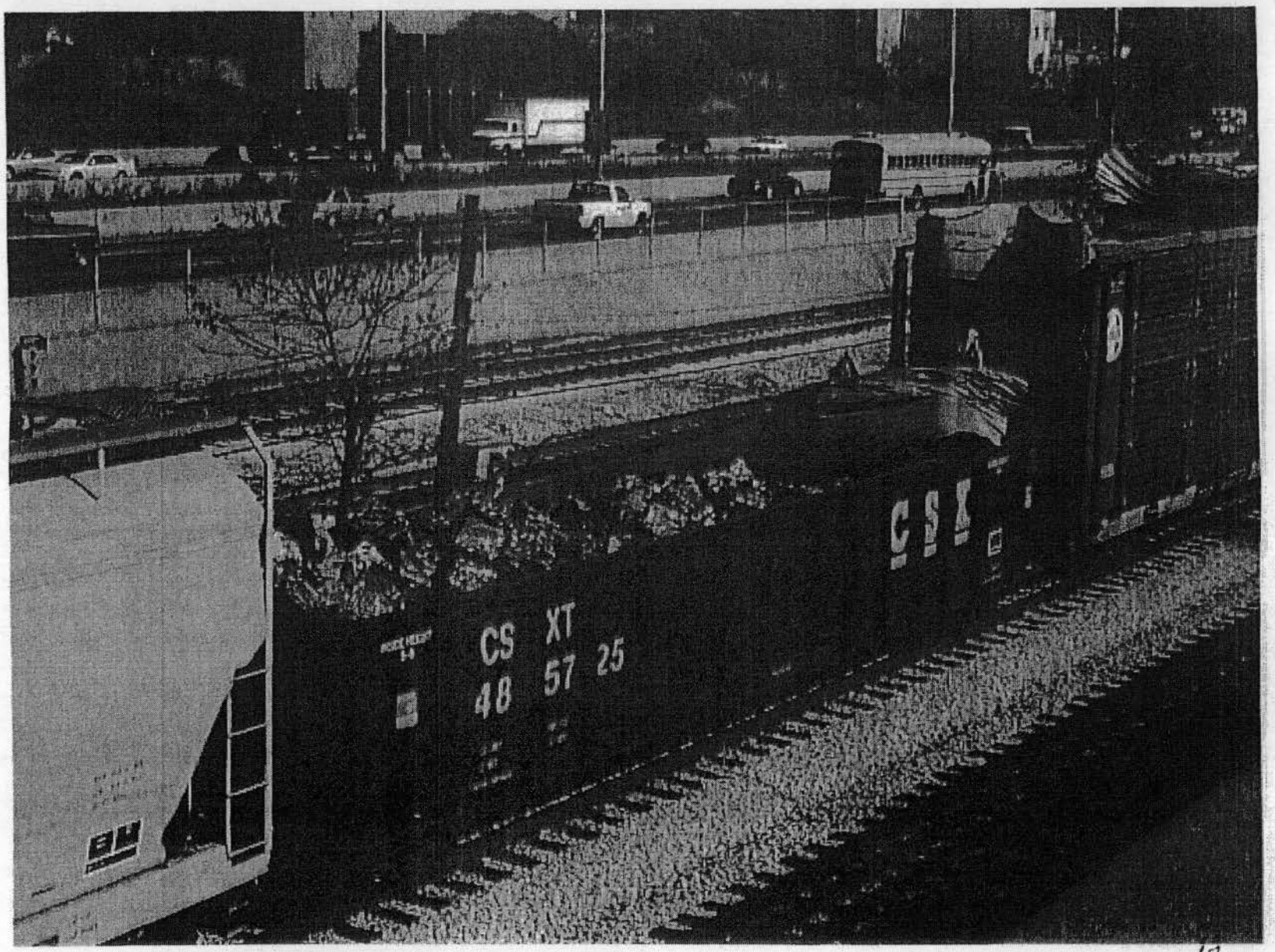
THE COURT: Okay. That is something that we hadn't talked about before, but under the authority of that case that was handed to you by Mr. Shapiro yesterday, we need to know if that is your intention.

Again, by answering yes to the questions listed under Part 4 of the verdict form, the effect of yes answers there is that the recovery would be 100 percent of the amount listed on the response to Question 7.

MR. SHAPIRO: Your Honor, can we approach the bench one moment, the attorneys?

THE COURT: Yes.

MR. SHAPIRO: Your Honor, under the



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CURRICULUM VITAE

NAME	Arthur L. Frank, MD, PhD
DATE AND PLACE OF BIRTH	June 9, 1947; Sacramento, CA
CITIZENSHIP	United States of America
MARITAL STATUS	Married: Joanne B. Frank Three children: Matthew and Rebecca 8/5/81 Aaron 3/8/89
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EDUCATION	
College	State University of New York at Buffalo Buffalo, NY 14214 1964-1968, BA, May 31, 1968 Major: Anthropology
Medical School	Mount Sinai School of Medicine of the City of New York New York, NY 10029 1968-1972, MD, June 4, 1972

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EDUCATION (continued)

Graduate School	The City University of New York Biomedical Sciences Doctoral Program Mount Sinai Medical Center New York, NY 10029 1971-1977, PhD, June 2, 1977 Thesis Title: Quantitation of Asbestos-Induced Hyperplasia in Hamster Trachea Epithelium Maintained in Organ Culture

INTERNSHIP AND RESIDENCY

Straight Medical Internship, Internal Medicine Residency, Mount Sinai Hospital, New York, NY, 1972-1973, 1975-1977
Occupational Medicine Residency, 1975-1977, Mount Sinai

MILITARY SERVICE

Commissioned Officer (Active), United States Public Health Service
Rank: SA Surgeon (03) 1973-1975
Lung Cancer Branch, DCCP, National Cancer Institute, National Institutes of Health, Bethesda, MD 20014
Member, Inactive Reserve, 1975-Present. Permanent Rank: Surgeon (04)
Active Duty (variable), 1992-1994. Temporary Rank: Medical Director (06)

HONORS AND AWARDS

College - BA, Cum Laude, with High Honors in Anthropology, 1968
Medical School - National March of Dimes Award, 1971
Residency - Chairman's Award-Department of Medicine, Mount Sinai Hospital, 1977
Graduate School - Sigma Xi, 1977
Horowitz Memorial Award of the Mount Sinai School of Medicine, 1983.
Educator of the Year Award, Association of Teachers of Preventive Medicine (First Annual Award), 1987
University of Kentucky Faculty Grant Award, 1988-91 (Awarded to top 20% of University-wide faculty)
Honorable Order of Kentucky Colonels (3)
Senior Associateship, National Academy of Science, 1990-91 (NIOSH)
Honorary Ambassador of Labor, Labor Secretary, Commonwealth of Kentucky, 1992
BRASH 1994 Chaos and Strange Attractor Award
Topperman Professorship-The University of Texas Health Center at Tyler 1994-2002
Arthur L. Frank, M.D., Keynote Lectureship, UTHCT 2002
Marcus Key Lecture, TOMA, 2003
American College of Preventive Medicine Distinguished Service Award, 2/2004
Sappington Lectureship, American College of Occupational and Environmental Medicine, 5/2005
Canadian Board of Occupational Medicine Lectureship, 06/2006
Hygeia Society-Drexel University School of Public Health, 2009

CERTIFICATION & LICENSURE

National Board of Medical Examiners, 1973 [Certification No. 123394, 7/2/73]
Kentucky State License, MD, #22985 [9/29/83]
New York State License, MD, #116288 [7/2/73]
Maryland State License, MD, Certificate D16595 [5/17/74]
Diplomate, American Board of Internal Medicine [#58896, 9/13/78]
Diplomate, American Board of Preventive Medicine (Occupational Medicine) [#21574, 11/26/79]

EDUCATION (continued)

Texas State License [Distinguished Professor's License issued 12/28/94]
(Converted on 3/2/96 to unrestricted Texas License J9855)
Pennsylvania State License, MD, #418954 [3/20/02]

ACADEMIC APPOINTMENTS

Professor of Public Health, Department of Environmental and Occupational Health, Drexel University School of Public Health 2002 to Present (tenured)

Professor of Medicine, Drexel University School of Medicine (Secondary), 2002 to present

Sam Topperman Professor of Medical Education; Professor of Occupational and Environmental Medicine; Professor of Cell Biology and Environmental Sciences
University of Texas Health Center at Tyler
1994-2002

Adjunct Professor
Department of Preventive Medicine and Community Health
The University of Texas Medical Branch at Galveston
1995-present

Clinical Professor
Department of Medicine
The University of North Texas Health Science Center at Fort Worth
1997-Present

Clinical Professor
Department of Occupational Medicine
University of Texas Health Center at Tyler
3/2004 - Present

Adjunct Graduate Faculty
Stephen F. Austin State University
Nacogdoches, Texas
1997-2002

Adjunct Faculty
US Air Force School of Aerospace Medicine
Brooks AFB, TX
2001 - Present

Professor
Department of Preventive Medicine and Environmental Health
University of Kentucky College of Medicine
1983-1994

Member, Graduate Faculty
Graduate School
University of Kentucky
1987-1994

ACADEMIC APPOINTMENTS (Continued)

Member, Graduate Center for Toxicology
University of Kentucky
1988-1994

Associate Member
Appalachian Center
University of Kentucky
1989-1992

Instructor, Assistant Professor, Associate Professor
Department of Community Medicine (Environmental Medicine)
Mount Sinai School of Medicine
1977-78, 1978-82, 1982-83

Instructor
Department of Medicine
Mount Sinai School of Medicine
1978-1983

Member, Graduate Faculty
City University of New York
Biomedical Sciences Program
1980-1983

ADMINISTRATIVE APPOINTMENTS
Chairman
Department of Environmental and Occupational Health
Drexel University School of Public Health
2002 - Present

Vice President for Medical Education (title change as of 2/99)
Associate Director for Medical Education (1994-1999)
University of Texas Health Center at Tyler
1999-2002

Ethics Officer
University of Texas Health Center at Tyler, 1998- 2002

Center Director
Southwest Center for Agricultural Health, Injury Prevention and Education. 1995-2001, Renewed 2001

Medical Director
Lake Country Area Health Education Center
The University of Texas Medical Branch at Galveston
1995-2002

Chairman
Department of Preventive Medicine and Environmental Health
University of Kentucky College of Medicine
1983-1994

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ADMINISTRATIVE APPOINTMENTS (Continued)

Director
Occupational Medicine Residency Program, 1984-1994
General Preventive Medicine Residency Program, 1984-1989
Department of Preventive Medicine and Environmental Health
University of Kentucky College of Medicine

Principal
Behavioral Research Aspects of Safety and Health Working Group (BRASH)
1984-1994

Director of Graduate Studies, Master of Science in Public Health Degree Program
1987-1994, University of Kentucky Graduate School

Deputy Director
Southeast Center for Agricultural Health and Injury Prevention 1992-1994

Scientific Administrator
Environmental Sciences Laboratory
The Mount Sinai School of Medicine
1981-1983

Director
Residency Programs in Community Medicine, 1977-1981
The Mount Sinai School of Medicine

HOSPITAL APPOINTMENTS
Attending Staff and Chief of Service
University Hospital, University of Kentucky Medical Center
1983-1994
Consultant Appointment, Veterans' Administration Hospital
Lexington, Kentucky

Courtesy Staff Appointments
Middlesboro ARH 1985-1994
Hazard ARH 1985-1994

Assistant Attending
Mount Sinai Hospital
New York, NY 10029
1982-83
Senior Clinical Assistant, 1978-1982
Clinical Assistant, 1977-1978

FELLOWSHIPS AND MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
American Association for the Advancement of Science, 1972-Elected to Fellowship, 1996
American College of Physicians, Fellow
American College of Preventive Medicine, Fellow, Occupational Medicine Regent, 1997-1999, Chair, CME Committee, 1997-present, Board of Directors, American Journal of Preventive Medicine, 1999-2003, Secretary - Treasurer, 2000 - 2004
American Public Health Association
American Thoracic Society
Association of Teachers of Preventive Medicine; Secretary, 1981-84; Board of Directors, 1987-90, Education Committee, 1992-1994
FELLOWSHIPS AND MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS (Continued)

Association of Teachers of Preventive Medicine Foundation, Inc.; Board of Directors, 1981-84
New York Academy of Sciences, Life Member
Society for Occupational and Environmental Health, Founding Member; Governing Council, 1992-1994, Vice-President 1998-2000
American College of Occupational and Environmental Medicine
Collegium Ramazzini, Executive Board 2002-2006
International Society for Preventive Oncology
Kentucky Occupational Safety and Health Network, Founding Member; Board of Directors, 1986-94; Executive Board, 1991-94; Secretary, 1992-93; President-Elect, 1993-94
National Occupational Safety and Health Education Association, Founding Member, 1989 Chair, 1990-91
Farm Safety for Just Kids
British Occupational Hygiene Society
Sigma Xi, Life Member
Texas Council on Agricultural Safety and Health, President 1999 – 2001
College of Physicians of Philadelphia 2002 -, elected to Fellowship, 2005

TEACHING ACTIVITIES

Course Coordinator, Occupational and Environmental Medicine, Georgetown University School of Medicine; 1975
Division of Industrial Safety, District of Columbia Industrial Safety Board, Washington, DC 1974, 1976
Page and William Black Post-Graduate School of Medicine, Mount Sinai Medical Center, 1977-82
Continuing Education, Mount Sinai Hospital Department of Nursing, 1976-78
Hahnemann Medical School, 1978-82
Hahnemann Hospital, 1980
University of Pennsylvania School of Medicine, 1979
University of Medicine & Dentistry of New Jersey, 1979-1981
Senior Medical Consultants, 1979-83
Practicing Law Institute, 1980-85
State University of New York at Buffalo, 1980-81
State University of New York at Stony Brook, 1981-82
IBM/University of Kentucky EXCEL Program, 1985-89
University of Kentucky Annual Family Medicine Review (Continuing Medical Education), 1985-86, 1993
University of Kentucky Annual Physician Assistant Review, 1987
University of Kentucky College of Engineering, Continuing Education 1984-89, 1994
University of Louisville College of Medicine, 1986-87, 1991
Bay State Medical Center, Springfield, Massachusetts, 1988
Preceptor, William Osler Program, UK Medical Center, 1988-1994
American College of Preventive Medicine, Board Review Course, 1989, 1990
EPOCH Awardee, NIOSH, 1989-91
St. Elizabeth's Hospital, Edgewood, KY, 1991, 1992, 1993, 1994
University of Texas Health Center at Tyler, Tyler, TX, 1993
Beijing Medical University, Beijing, People's Republic of China, 1993, 1995
Methodist Hospital, Indianapolis, IN, 1993
American Occupational Health Conference, Chicago, IL, 1994
Forum Program, Donovan Scholars Program, University of Kentucky, 1994
Kentucky Thoracic Society, 1994 (L. E. Smith Lectureship)
Southern Agromedicine Consortium, Keynote Luncheon Address, 1994
TEACHING ACTIVITIES (Continued)

Kentucky School Board Insurance Trust, 1994
Qingdao Sanitation and Anti-Epidemic Station, 1995
School of Public Health, University of Texas, Houston, 1995
School of Public Health, University of Texas, San Antonio, 1997
Qingdao University School of Medicine, Qingdao, PRC, 1997
Ain Shams University Institute of Postgraduate Studies, Cairo, Egypt, 1998
UTMB, Course on Occupational Medicine, Galveston, 1999, 2000, 2001
Qingdao Centers for Disease Control and Prevention, Qingdao, PRC, 2000
UTMB, Department of Family Practice, Galveston, Texas, 2000, 2001,2002
UT Southwestern Public Health Program, Dallas, Texas 2000
UNTHSC, Fort Worth, Texas, 7/2001
Air Force School of Aerospace Medicine, Brooks AFB, TX 2/02, 2/03, 6/06
GI Conference, Drexel 2/03
Pulmonary Conference, Drexel 2/03, 5/03

CONSULTANCIES AND RELATED ACTIVITIES

Consultant, George Washington University School of Medicine, Science Communication Division, 1976-78
Consultant, Environmental Protection Agency; Ad Hoc Committee for the in-vitro study of fibrous amphiboles, 1977
Consultant, DHEW Committee to Coordinate Toxicology, Subcommittee on Asbestos, 1978
Consultant, State University of New York at Stony Brook, School of Medicine, Department of Community Medicine, 1980
Consultant, National Academy of Sciences Committee on Indoor Air Pollution, 1981
Invited Participant, Conference on Vision Effects of VDT Use, National Academy of Sciences, 1983
Ad Hoc Grant Reviewer, Health Resources Administration, Division of Medicine, Study Section on Environmental Medicine Curriculum Development Grants, 1979; Preventive Medicine Residencies, 1980, 1983, 1988, 1991
Site Visitor, National Institute for Occupational Safety and Health, 1983-91
Editorial Board, *American Journal of Industrial Medicine, Environmental Research, Journal of Community Health, Toxicology and Industrial Health, Cancer Detection and Prevention, International Journal of Occupational Medicine and Toxicology, International Journal of Hygiene and Environmental Health, etc.*
Article Reviewer, *Journal of the National Cancer Institute, Journal of the American Medical Association, Journal of Environmental Pathology and Toxicology, Science, American Journal of Public Health, The American Statistician, Journal of Occupational and Environmental Medicine, Archives of Environmental Health, Southern Medical Journal, Law and Social Inquiry, Occupational and Environmental Medicine, American Journal of Preventive Medicine, Archives of Internal Medicine, etc.*
Associate Editor, Environmental Health Section, *Maxcy-Rosenau-Last Public Health and Preventive Medicine*, 12th Edition, 13th Edition
Advisor, New York City Health Systems Agency Task Force on Environmental Health, 1979
Member, Environmental Health Committee, New York City Health Systems Agency, 1979-80
Member, New York Lung Association Committee on Occupational Hazards to the Lung, 1977-78
Consultant, University of Arizona College of Medicine, Department of Family and Community Medicine, Project on Incorporation of Preventive Medicine into Family Practice, 1985-86
Consultant, Occupational Cancer Project, Workers Occupational Health Clinic, Cincinnati, Ohio, 1985-87
Member, NIOSH Study Section for Occupational Safety and Health, 1985-89;Chairman, 1988-89
Consultant, Labor Cabinet, Commonwealth of Kentucky, 1987-1994
Member, National Board of Medical Examiners, FLEX Examination Committee, 1985-91; NBME Pulmonary Medicine Subcommittee, 1989-91; USMLE Content Reviewer, 1994
CONSULTANCIES AND RELATED ACTIVITIES (Continued)

Consultant, Toyota Motor Manufacturing, USA, Inc., 1986-1994

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-1988 Acting Medical Director
Member, Steering Committee, National Conference on Residencies in Occupational Medicine, 1988
Chair, Association of Occupational Medicine Residency Directors, 1988-1989
Grant Reviewer, Arizona Disease Control Research Commission, 1988-2003
Consultant, Ashland Oil, Ashland, Kentucky, 1988-1994
Member, Advisory Board Center for Applied Energy Research, University of Kentucky, 1990-1995
Member, Board of Directors, Occupational Physicians Scholarship Fund, 1988- present
Consultant, Urgent Treatment Center, Lexington, Kentucky, 1989-1994
Consultant, NIOSH Review of Document on Workplace Screening, 1990
Consultant, Natural Resource and Environmental Protection Cabinet, Commonwealth of Kentucky, 1990-1994
Consultant, Island Creek Corporation, 1990-1993
Member, NIOSH Board of Scientific Counselors, 1992-1996
Presenter, International Conference on Exposure to Carcinogens and Mutagens in the Industrial and Ambient Environment, "Issues of Asbestos Carcinogenicity". Jerusalem, Israel, January 30, 1992.
Member, Environmental Board, Commonwealth of Kentucky (Appointed by the Governor), 1991-95
Presenter, Ohio AFL/CIO Worker's Compensation Institute, "The Role of the Primary Care Physician in Occupational Disease". Akron, Ohio, March 1992.
Presenter, (20th Anniversary Class Representative) Alumni Day Program, Mt. Sinai School of Medicine, "The Mt. Sinai-Kentucky Connection". New York, NY April 11, 1992.
Presenter, NIOSH Grand Rounds, ALOSH, Morgantown, WV, 1992.
Associate Editor, *Mosby Year Book of Occupational and Environmental Medicine*, 1992-94, Co-Editor-in-Chief, 1995-98
Guest Editor, Memorial Volume of *Environmental Research* honoring Dr. Irving J. Selikoff, 1992
Consultant, Qingdao Hygiene and Anti-Epidemic Station, Qingdao, Shandong Province,1993-2003
Guest Professor, Beijing Medical University, Peoples Republic of China, 1993-1996
Presenter, From Rio to the Capitals: State Strategies for Sustainable Development, May 25-28, 1993, Louisville, KY
Presenter, State of Ohio Workers Compensation Program, 1993
Presenter, Kentucky Laborer's Union Asbestos Training Program, 1993
Presenter, Collegium Ramazzini Scientific Session, 1993, Session Co-Chair
Kentucky Nominee, Technical Oversight Committee, Southern Appalachian Mountain Initiative, 1993
Consultant, EPA Panel on the Use of Genetic Monitoring for Risk Assessment in Communities Exposed to Hazardous Waste, University of Texas Medical Branch at Galveston, 1994
Member, Residency Advisory Committee, U.S. Air Force Residency Program in Occupational Medicine, Brooks Air Force Base, San Antonio, TX, 1994-
Advisory Board Member, "Cost-effective Medicine Reports", Mosby Publishing Co. 1994-1996
Presenter, Collegium Ramazzini Scientific Session, Carpi, Italy, October 29, 1994
Advisory Board Member, BRASH (Behavioral Research Aspects of Safety and Health) Working Group, University of Kentucky, 1994-
Presenter and Session Chair, SOEH Conference on Tuberculosis in the Workplace. December 1-2, 1994, Washington, DC
Presenter, Andrews Publications Seminar on Asbestos-Related Diseases, Houston, TX March, 1995
Presenter, Bar Ilan University, Israel, March 1995
Presenter, Hadassah Medical School, Israel, March 1995
Presenter, 1st International Congress of the Minia School of Medicine, Minia, Egypt April, 1995
Program Participant, Kentucky Governor's Safety and Health Conference, Louisville, KY April, 1995
Member, Advisory Board, Southwest Center for Occupational and Environmental Health, Houston, Texas, 1995-1998.

CONSULTANCIES AND RELATED ACTIVITIES (Continued)

Consultant, Texas Medical Association, Council on Medical Education, 1994-2002.
Subcommittee on Accreditation, 1995-2001, Chair for 1997-2001, CME Committee, 1997-2001.
Presenter, Occupational and Environmental Respiratory Disease Course, The University of Texas

School of Public Health, Houston, TX 1995.
Presenter, Departmental Seminar, The Department of Preventive Medicine and Community Health, The University of Texas Medical Branch, Galveston, Texas 1996.
Presenter, Second International Conference of Environmental Mutagenesis in Human Populations at Risk, Prague, Czech Republic 1995.
Session Chair, Annual Meeting of the Society of Occupational and Environmental Health, Bethesda, MD. Dec-6-8, 1995.
Member, Advisory Board, Lake Country AHEC, 1995-2002. Board chair, 1996-1997.
Member, Advisory Board, NIEHS, Toxicology Center, UTMB, 1996-2002
Session Chair and Rapporteur, Third Annual NIOSH Agricultural Health and Safety Conference, Iowa City, Iowa, March, 1996.
Seminar Program Chair, AOHC, San Antonio, Texas, ACOEM 1995-96.
Alumni Day Centennial Program, Mount Sinai Medical Center, New York, NY. April 13, 1996.
Speaker and Session Co-chair, The 6th International Conference on "Preservation of our World in the Wake of Change", Jerusalem, Israel, June, 1996.
Speaker, VIII Inhaled Particles Meeting, Cambridge, England, August, 1996.
Presenter, Collegium Ramazzini Scientific Session, Carpi, Italy, October 27, 1996.
Member and Chair, Residency Advisory Committee, Occupational Medicine, University of Texas Medical Branch, Galveston, Texas 1997-
Member, University of Texas System Master Planning Organization and Task Force for Distance Learning and the Virtual University, 1997.
Member, Advisory Board, Texas A&M University Rural School of Public Health, College Station, Texas, 1997-2002
Presenter, TOMA meeting, Houston, Texas, March 14, 1997
Presenter, Environmental Information Association, New Orleans, Louisiana, March 25, 1997
Presenter, The University of Texas Medical Branch, Galveston, Texas, April 18, 1997
Member, University of Texas Telehealth Committee, 1997-2002
Presenter, ACOEM, AOHC Session, Orlando, Florida, May 12, 1997
Regent, Occupational Medicine, American College of Preventive Medicine, 1997-1999
Presenter, Qingdao Municipal Hospital, Department of Radiology, June, 1997
Presenter, Research in China, Directors Associates. Tyler, June, 1997
Presenter and Session Co-Chair, Collegium Ramazzini meeting, Carpi, Italy October, 1997
Presenter, Medical Education Grand Rounds, Mount Sinai School of Medicine, Nov.,1997, New York, NY.
Member, Shared Student Information Systems Committee, U.T. System, Austin, Texas, 1997-98.
Member, Shared Administrative Support Systems Committee, U.T. System, Austin, Texas, 1997-1998
Member, Texas Council for Agricultural Safety & Health 1997-Chair-elect, 1997-99.
Presenter, "Children in the Workplace", presented at the Annual Ain Shams University Institute of Child Studies Conference, Cairo, Egypt, March, 1998.
Presenter, Texas Academy of Mathematics and Science, University of North Texas, Denton, "Medical Sleuthing: Environmental Toxins", 4/13/98
Grand Rounds Presenter, Presbyterian Hospital of Dallas, Environmental Toxins, April 29, 1998
Member, International Scientific Advisory Committee Third International Conference on Environmental Mutagens in Human Populations, 1998
Member, Telehealth Steering Committee Working Group on Education/Community Networks/ Libraries, Telecommunications Infrastructure Fund Board, Austin, TX 1998-1999
Presenter, AHEC-SW, Texarkana, Arkansas Conference on Respiratory Therapy. "Occupational Lung Cancer" and "Occupational and Environmental Lung Disease Case Studies", Texarkana, Arkansas 8/28/98.
CONSULTANCIES AND RELATED ACTIVITIES (Continued)

Presentation, First Annual TCASH Scientific Conference, Fort Worth, Texas, 10/16/98.
Presentation on Childhood Agricultural Hazards at Collegium Ramazzini meeting, Carpi, Italy, 10/25/98.
Consultant, Medical Communities Project, Environmental Protection Agency, Washington, D.C.,

1998-99.
Two presentations for the Third International Conference on Environmental Mutagens in Human Populations, November-December, 1998, Thailand.
Presenter, TAMS Senior Seminar, 2/1/99.
Presenter, East Texas Council on World Affairs, Tyler, Texas, 2/8/99.
Presenter, Prevention '99, ACPM Session on Preventive Medicine, 3/20/99.
Presenter, Texas Occupational Medicine Association meeting, Dallas, Texas, 5/7/99.
Panelist, East Texas Minority Health Network Conference, Tyler, Texas, 6/3/99.
Presenter, 7th International Conference of the Israel Ecology Society, Jerusalem, Israel, June, 1999.
Presenter, UT Houston School of Public Health Course on Occupational Medicine for the Primary Care Practitioner, Houston, 9/25/99.
Invited Presenter, Committee on Work and Industry, Chamber of Deputies, Brasilia, Brazil, 9/29/99.
Presenter and Session Chair, Collegium Ramazzini, Oct. 1999, Carpi, Italy.
Chair, International Scientific Advisory Committee of the Selikoff Center, Ra'anana, Israel,1999-
Presenter, Texas Academy of Mathematics and Science, Denton, 1/31/00.
Presenter, Pediatrics Grand Rounds, UTHCT, Tyler, Texas, 2/17/00.
Consultant, Qingdao Centers for Disease Control and Prevention, Qingdao, PRC, 2000-
Session Chair, NYCASH Meeting on Agricultural Safety and Health, Cooperstown, 2000.
Site Visitor, NIEHS, 2000.
Guest Consultant, Annual Review of Public Health, Palo Alto, 2000.
Award Recipient, Guest Speaker, ACCME, Chicago, 2000.
Presenter: TMA CME Conference, June, 2000.
Presenter and Conference Planning Committee: International Cancer Conference, Grand Rapids, MI, 9/2000.
Presenter: Pulmonary Program, UTHCT, 9/2000.
Presenter: Collegium Ramazzini, Carpi, Italy 10/2000.
Presenter, Session Chair and Conference Planning Committee: ISPO Conference Geneva, November, 2000.
Presenter and Session Chair: Indian Association of Occupational Health Conference, New Dehli, 2/01.
Presenter: Industrial Toxicology Research Center, Lucknow, India, 2/01.
Member, Editorial Board, Annual Review of Public Health, 2001 - 2005.
Presenter: Allen Cohen Memorial Lecture, Tyler, Texas, 4/5/01.
Presenter: UTHCT Grand Rounds, 4/6/01.
Presenter: Grand Rounds, Family Practice, UTMB, Galveston, Texas 7/11/01.
Presenter: UTHSC, Grand Rounds, Internal Medicine, Fort Worth, Texas 7/8/01.
Member: Physicians Panel Member, State Claims Assistance Program, Department of Energy, 10/01 -2004.
Medical Director: Amarillo Health Council, 2001 -
Co-Moderator, Institute of Water Quality, ACPM Meeting, San Antonio, TX, 2/02.
Presenter, East Texas Council on World Affairs, 3/02.
Presenter: Scientific Program, Alumni Day (30th class year representative), Mount Sinai Medical Center, 4/6/02.
Presenter: TAMS Program UNT, Denton, Texas 4/8/02.
Presenter: University of Texas at Tyler School of Nursing, 4/15/02.
Presenter and Chair: New York Academy of Sciences, Mesothelioma Program, 4/25/02.
Presenter: Occupational Medicine Program, UTHCT, 6/02.
Presenter, UTMB, Occupational Medicine Residency Program, 7/02.
Session Chair, Collegium Ramazzini Meeting, Bologna, Italy, 10/02.
CONSULTANCIES AND RELATED ACTIVITIES (Continued)

Member, State Advisory Committee on Environmental Health Tracking, PA 11/02 –
Member, Advisory Committee, Dept. of Env. Protection, Harrisburg, PA 2003-
Drexel University SESEPS Seminar 12/02
Drexel University SPH Grand Rounds 12/02
Air Force School of Aerospace Medicine 02/03

GI Conference, Drexel 02/03
Pulmonary Conference, Drexel 02/03, 05/03
Presenter: University of Pennsylvania Residency Program in Occupational Medicine, 03/03, 3/05, 4/06
George Washington University Seminar, 04/03
Marcus Key Lecturer, TOMA Meeting 04/03
Consultant. Waste Management Corporation 04/03-
Presenter: ACPM Water Conference, Washington, DC, 06/03
Presenter: UTMB, Galveston, TX 07/03
Presenter: Fox Chase Cancer Center, 09/16/03
Presenter: APHA, 11/03, San Francisco
Moderator: ACPM National Teleconference on Pediatric Environmental Health, 5/04
Member: Environ. Justice Advisory Comm., Dept. of Environ. Protection, Harrisburg, PA, 2004-2008, Chair – 2006 -
Presenter: Harris Martin Conference, San Francisco – Manganese, 6/15/04
Presenter: UTHCT – Occupational Lung Disease 6/26/04
Presenter: UTMB – Occupational Cancers, Occupational Lung Disease, The History of Occupational Medicine 7/7/04, 7/5/06
Presenter: Graduate School of Public Health, Pittsburgh, Asthma Seminar 8/10/04
Presenter: Drexel SPH – Agriculture and Public Health, Faculty Seminar 8/13/04
Presenter: PCIEP Program 9/04
Session Chair and Discussant: Olin Seminar on Environ. Justice, Drexel University, 10/04
Presenter: Collegium Ramazzini Annual meeting, Carpi, Italy, 10/04
Presenter: UCLA MD/PhD Program, 11/04
Presenter: Qingdao Centers for Disease Control and Prevention, Qingdao, P.R. China
Presenter: Asbestos Conference, Tokyo, Japan, 11/04
Presenter: Pulmonary Conference, Hahnemann Hospital, 1/05
Member: Institute of Medicine Committee, Gulf War and Health, 2005-2006
Presenter: Post Graduate Occ. Med. Programs, New Delhi, India 3-4/05, 5/06
Presenter: Department of Labor Conference, Washington, DC 4/05
Presenter: Sappington Lecture, ACOEM, Washington, DC, 05/05
Presenter: US School of Aerospace Medicine, San Antonio, TX, 05/05, 06/06
Presenter: Nahariya Hospital, Israel, Lecture on asbestos 05/05
Presenter: University of Paris France, 6/1/05 Lectures on occupational cancers and asbestos
Presenter: AAMC Meeting on MD/MPH Programs, Chicago, IL, 6/27/05
Presenter: UTMB, Galveston TX, 7/5 and 7/6/05 (Grand Rounds, Residency Program)
Session Chair: Collegium Ramazzini Conference, Living in a Chemical World, Bentivolgio, Italy 9/19/05
Presenter: Institute of Public Health, Iasi, Romania, Keynote Address 09/22/05, Address 9/23/05
Presenter: 14th Brazilian Congress of Toxicology, Recife, Brazil 10/10/05
Presenter: Beijing Forum (2005) Beijing, P.R.C. 11/19/05
Member: ACGME Appeals Panel for Preventive Medicine, 2006 – 2012
Presenter: EPA Public Hearing on Air Pollution Criteria, Representing ATS, 3/8/06
Presenter: UMDNJ, 03/06
Session Chair: Asbestos Program, ADAO, 4/1/06
Member: Delaware River Basin Commission, Toxics Advisory Committee 2006-2009.
Presenter: Maulana Azad Medical College, New Delhi, 05/06

CONSULTANCIES AND RELATED ACTIVITIES (Continued)

Presenter: Occupational and Environmental Medical Association of Canada, Toronto, CBOM Memorial Lecture 06/06
Presenter: Summer Public Health Institute, Iasi, Romania 7/06
Session Chair and Presenter: Asian Asbestos Conference, Bangkok, Thailand 7/06
Presenter: Business Exchange Breakfast, Philadelphia, 10/17/06
Session Chair and Presenter: Collegium Ramazzini Meeting, Capri, Italy 10/29/06

Presenter: PCOEM, 11/06
Presenter: Asbestos Conference, New Delhi, India, 12/06 and Continuing Education Conference, New Delhi, 12/06
Presenter: State University of New York at Stony Brook, Occupational Lung Diseases, 12/06
Presenter: PCOM, Internal Medicine Group, 1/07
Participant: AAD Program, Drexel University School of Public Health, 3/31 – 4/1/07
Lecture: Physician Assistant Course, Drexel 04/07
Lecture: ACOEM Program, New Jersey, Asbestos, 5/1/07
Presenter: Environmental Mutagenesis Conference, Turkey, 05/22/07
Presenter: Drexel School of Public Health Program, Asbestos, 6/1/07
Presenter: Occupational Medicine Course, Maulana Azad Medical College, New Delhi, India, 06/07
Presenter: UTMB, Galveston, 7/07
Member and Chair: Ad hoc Committee to assess Liver Cancer in Bexar County Texas, San Antonio, 08/07- 12/07.
Presenter: SUNY Stony Brook, 10/07
Presenter: Collegium Ramazzini Meeting, Princess Chulaborn Institute, Bangkok, Thailand, 12/07
Presenter: Integral University, Lucknow, India, 12/07
Presenter: Sanjay Ghandi Institute, Lucknow, India, 12/07
Presenter: Joint Labor-Management Safety and Health Meeting, Vishakhaptnam, India, 12/07
Presenter: Centre for Occupational and Environmental Health, Maulana Azad Medical College, Delhi, India, 12/07
Presenter: Department of Medicine CME Program, Maulana Azad Medical College, Delhi, India, 12/07
Session Chair: 41st Annual Meeting of the Indian College of Allergy, Asthma and Applied Immunology, Delhi, India, 12/07
Presenter: ToxicLinks Meeting, Delhi, India, 12/07
Presenter: Philadelphia Zoning Code Commission, 01/08
Member and Chair: Advisory Committee, Mountain and Plains ERC, Denver, CO, 1/08 –
Speaker: George Washington University School of Public Health, Washington, DC, 02/08
Lecturer: U.S. Air Force School of Aerospace Medicine, San Antonio, TX, 03/08
Grant Reviewer: NIOSH Agricultural Center Program, 3/08.
Session Chair: ADAO 4th Annual Conference, Detroit, MI, 3/08
Lecturer: Physician Assistants Program, Drexel University, 04/08
Lecturer: Maulana Azad Medical College, Delhi, India 05/08
Presenter: National Conference on Climate Change, Delhi, India 05/08
Presenter: 1st International Conference on Mesothelioma, Sao Paulo, Brazil 06/08

CONSULTANCIES AND RELATED ACTIVITIES (Continued)

Member: City of Philadelphia Air Pollution Control Board, 06/08 –
Lecturer: UTMB, Galveston, TX 07/08
Lecturer: Qingdao Centers for Disease Control and Prevention, Qingdao, PRC 8/08
Member: Board of Scientific Counselors CDC Center for Environmental Health/ATSDR, 7/08 -6/12

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Member: Scientific Review Board, Peking Medical University 08/08
Presenter: ACPM Program on Indoor Air Pollution 08/08
Presenter: Inhaled Particles X Meeting, Sheffield, England 09/08
Presenter: FASLI Occupational Medicine Program, Mumbia, India 09/08
Presenter: ESIC Occupational Medicine Program, Mumbia, India 09/08
Invited Lecturer: University of Brescia, Italy 10/08
Lecturer: Drexel University College of Medicine, 11/08
Consultant and Speaker: Sri Lankan NIOSH, Colombo 03/09
Speaker: ESI Program, Chennai, India 03/09
Session Chair: ADAO Annual Scientific Meeting, Los Angeles 03/09
Speaker: Occupational Medicine Program, UMDNJ 03/09
Speaker: ESI Program Goa, India 05/09
Speaker: Occupational Medicine Program, Maulana Azad Medical College, Delhi, India 05/09
Participant: HarrisMartin Asbestos Program, Chicago, IL. 06/09
Speaker: University of Occupational and Environmental Health, Kitakyushu City, Japan 08/09
Speaker: Hangzhou Preventive Medicine Program, Hangzhou, PRC 08/09

Speaker: Qingdao CDC, PRC 08/09
Consultant: Qingdao Centers for Disease Control and Prevention, Qingdao, PRC 2009
Speaker: Uniformed Services University of the Health Sciences, Bethesda, Maryland 11/09
Organizer, Session Chair, Speaker: Collegium Ramazzini/Drexel/MAMC Meeting, New Delhi, India 12/09
Speaker: Clinical Case Conference, MAMC, New Delhi, India 12/09
Speaker: MAMC Center for Liver and Biliary Disease, New Delhi, India 12/09
Session Chair/Discussant: Round Table Conference on Issues Related to Asbestos Use in India, New Delhi, India 12/09
Speaker: Medical-Legal Program, Salisbury, NC 1/10
Advisory Board: Libby Epidemiology Research Program, Scientific Advisory Group 2009-2014

Planned Presentations

Speaker: Medical-Legal Program, Philadelphia, PA 2/10
Lecturer: Maulana Azad Medical College, New Delhi 6/10
Lecturer: Sri Lanka NIOSH, Colombo 6/10
Invited Speaker: Shantou Medical College, PRC 9/10
Invited Participant: Asbestos Meeting, Japan 11/10
Speaker: Maulana Azad Medical College, New Delhi, India 12/10

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1245

002456

BOOKS, REVIEWS, AND CHAPTERS IN BOOKS

1. Trump BF, McDowell EM, Barrett LA, Frank A, Harris C. Studies of Ultrastructure. Cytochemistry and Organ Culture of Human Brochial Epithelium. In *Experimental Respiratory Carcinogenesis and Bioassays*. New York: Springer-Verlag, 1974, p. 548-563.

2. Harris C, Autrup H, Van Haaften C, Connor R, Frank A, Barrett L, McDowell E, Trump B. Inhibition of Benzo(a)pyrene Binding to DNA in Cultured Human Bronchi. In *Proc 3rd Int Symposium Cancer Detection and Prevention*, Part I, Vol 2, Nieburgs H. (Ed). Amsterdam: Excerpta Medica, 1977, p. 1359-1364.

3. Frank AL. Occupational Lung Cancer. In *Pathogenesis and Therapy of Lung Cancer*, Harris C. (Ed). New York: M. Dekker, Inc., 1978, p. 25-51.

4. Frank AL. In *Public Health and Preventive Medicine*, 11th Edition, Last J. (Ed). New York: Appleton-Century-Crofts, 1980. a. Arsenic, p. 660-662; b. Antimony, p. 681; c. Thorium, p. 681-682; d. Benzidine, The Napthylamines, and Miscellaneous Carcinogenic Compounds, p. 751-755; e. Non-Ionizing Radiation, p. 777-787.

5. Frank AL. *Cancer*. New York: Matthew Bender and Co., 1978.

6. Frank AL, Spigelman M. Lung Cancer. In *Cancer*. New York: Matthew Bender and Co., 1980, p. 1-51.

7. Frank AL. *Asbestosis*. New York: Matthew Bender and Co., 1980, p. 1-51.

8. Frank AL. Definition of Preventive Medicine. In *Charting Graduate Education in Preventive Medicine*, Byrd B. (Ed). Washington, DC: American College of Preventive Medicine, 1980, p. 7-8.

9. Frank AL. Asbestos-Induced Changes in Hamster Trachea Organ Culture. In *The In-Vitro Effects of Mineral Dusts*. Brown R, et al. (Eds). London: Academic Press, 1980, p. 235-240.

10. Wade MJ, Lipkin LE, Stanton MF, Frank AL. P388D$_1$ In-Vitro Cytotoxicity as Applied to Asbestos and Other Minerals: Its Possible Relevance to Carcinogenicity. In *The In-Vitro Effects of Mineral Dusts*, Brown R, et al. (Eds). London: Academic Press, 1980, p. 351-358.

11. Frank AL. Health Effects of Fibers. *National Academy of Sciences Report on Indoor Air Pollutions*, Washington, DC, 1981.

12. Frank AL. Occupational and Environmental Exposure. In *An Introduction to Physical Diagnosis*. Swartz M (Ed). New York: Raven Press, 1981, p. 303-311.

13. Frank AL, Spigelman M. Blood-Related Malignancies. In *Cancer*. New York: Matthew Bender & Co., 1981, p. 1-123.

14. Frank AL. The Hospital as an Environmental Health Resource. In *Principles of Hospital-Based Ambulatory Care*, Pascarelli EF (Ed). New York: Appleton- Century- Crofts, 1982, p. 309-314.

14
1247

002457

BOOKS, REVIEWS, CHAPTERS IN BOOKS (continued)

15. Frank AL, Spigelman M. Cancer of the Liver, Gall Bladder, and Bile Ducts. In *Cancer.* New York: Matthew Bender and Co., 1982, p.1-43.

16. Frank AL, Spigelman M. Cancer of the Pancreas. In *Cancer.* New York: Matthew Bender and Co., 1982, p. 1-22.

17. Frank AL. The Etiology and Epidemiology of Lung Cancer. *Clin in Chest Med* 3:219-228, 1982.

18. Frank AL. The Occupational History. In *Environmental and Occupational Medicine*, Rom W (Ed). Boston: Little, Brown, and Co., 1982, p. 21-26.

19. Frank AL, Spigelman M. Cancers of the Digestive Tract. In *Cancer.* New York: Matthew Bender and Co., 1983, p. 1-108.

20. Frank AL, Spigelman M. Cancers of the Urinary System. In *Cancer.* New York: Matthew Bender and Co., 1983, p. 1-62.

21. Frank AL, Spigelman M. Cancer of the Female Reproductive Organs. In *Cancer.* New York: Matthew Bender and Co. 1984, p. 1-80.

22. Frank AL. Diethylstilbesterol. In *Cancer.* New York: Matthew Bender and Co., 1984, p. 1-15.

23. Frank AL, Spigelman M. Cancer of the Breast. In *Cancer.* New York: Matthew Bender and Co., 1984, p. 1-51.

24. Frank AL, Spigelman M. Cancer of the Head and Neck. In *Cancer.* New York: Matthew Bender and Co., 1984, p. 1-32.

25. Frank AL, Spigelman M. Specific Cancers of the Head and Neck. In *Cancer.* New York: Matthew Bender and Co., 1985, p. 1-36.

26. Frank AL, Spigelman M. Cancer of the Brain and Nervous System. In *Cancer.* New York: Matthew Bender and Co., 1985, p. 1-82.

27. Frank AL, Spigelman M. Sarcomas of Soft Tissue and Bone. In *Cancer.* New York: Matthew Bender and Co., 1985, p. 1-60.

28. Frank AL. a. The Status of Environmental Health, p. 495-497. b. Non-Ionizing Radiation (with L. Slesin), p. 714-726. In *Public Health and Preventive Medicine*, 12th Edition, Last J (Ed). Norwalk, CT: Appleton-Century-Crofts, 1985.

29. Frank AL, Spigelman M. Cancer of the Skin: Melanoma. In *Cancer.* New York: Matthew Bender and Co., 1986, p. 1-51.

30. Frank AL, Spigelman M. Cancer in Children. In *Cancer.* New York: Matthew Bender and Co., 1986, p. 1-30.

31. Frank AL, Spigelman M. Non-Melanotic Skin Cancer. In *Cancer.* New York: Matthew Bender and Co., 1987, p. 1-29.

BOOKS, REVIEWS, CHAPTERS IN BOOKS (continued)

32. Frank AL. Occupational Medicine. In *Encyclopaedia Britannica Medical and Health Annual 1987*. Chicago: Encyclopaedia Britannica, 1986, p. 404-408.

33. Frank AL. Occupational Cancers of the Respiratory Tract. In *State of the Art Reviews - Occupational Medicine: Occupational Cancer and Carcinogenesis*. Brandt-Rauf PW (Ed). Philadelphia: Hanley & Belfus, 1987, p. 71-83.

34. Frank AL, Spigelman M. Mesothelioma. In *Cancer*. New York. Matthew Bender and Co., 1987, p. 1-29.

35. Frank AL, Spigelman M. Cancer Chemotherapy. In *Cancer*. New York: Matthew Bender and Co, 1987, p. 1-20.

36. Frank AL. Smokeless Tobacco. In *Cancer*. New York: Matthew Bender and Co, 1987, p. 1-28.

37. Frank AL. Environmental and Occupational Health. In *Encyclopaedia Britannica 1988 Medical and Health Annual*. Chicago: Encyclopaedia Britannica, 1987, p. 295-299.

38. Frank AL. The Epidemiology of Lung Cancer. In *Thoracic Oncology*. JA Roth, JC Ruckdeschel, TH Weisenburger (Eds.). Philadelphia: W.B. Saunders, 1989, p. 6-15.

39. Frank AL. Occupational Cancers of the Respiratory System. In *Seminars in Occupational Medicine*. Brandt-Rauf PW (Ed), p. 257-266, 1987.

40. Spigelman M, Frank AL. Oncologic Emergencies. In *Cancer*. New York: Matthew Bender and Co., p. 1-143, 1988.

41. Frank AL. The Epidemiology and Etiology of Lung Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-13, 1988.

42. Frank AL. Environmental and Occupational Health. In *Encyclopaedia Britannica 1989 Medical and Health Annual*. Chicago: Encyclopaedia Britannica, p. 304-308, 1988.

43. Frank AL. Cancer and AIDS. In *Cancer*. New York: Matthew Bender and Co., p. 1-54, 1988.

44. Spigelman M, Frank AL. Breast Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-60, 1989.

45. Frank AL. Environmental and Occupational Health. In *Encyclopaedia Britannica 1990 Medical and Health Annual*. Chicago: Encyclopaedia Britannica, 1989, p. 306-310.

46. Spigelman M, Frank AL. Complications of Cancer Treatment. In *Cancer*. New York: Matthew Bender and Co., p. 1-30, 1989.

47. Frank AL, Spigelman M. The Basics of Cancer Epidemiology. In *Cancer*. New York: Matthew Bender and Co., p. 1-35, 1989.

48. Frank AL, Spigelman M. Cancer and Bone Marrow Transplantation. In *Cancer*. New York: Matthew Bender and Co., p. 1-27, 1990.

16
1249

002459

BOOKS, REVIEWS, CHAPTERS IN BOOKS (continued)

49. Frank AL. Laboratory Models in the Study of Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-13, 1991.

50. Frank AL. Carcinogen Update. In *Cancer*. New York: Matthew Bender and Co., p. 1-20, 1990.

51. Frank AL. The Economics of Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-40, 1990.

52. Frank AL. Cancer and Tobacco Use. In *Cancer*. New York: Matthew Bender and Co., p. 1-14, 1991.

53. Frank AL. Genetics and Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-9, 1991.

54. Frank AL. Host Factors and the Development of Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-9, 1991.

55. Frank AL. Screening for Cancer. In *Cancer*. New York: Matthew Bender and Co., p. 1-35, 1991.

56. Frank AL. Environmental and Occupational Health. In *Encyclopaedia Britannica 1992 Medical and Health Annual*. Chicago: Encyclopaedia Britannica, 1991, p. 359-363.

57. Frank AL. a. The Status of Environmental Health, p. 313-314. b. Nonionizing Radiation (with L. Slesin), p. 513-522. In *Public Health and Preventive Medicine*, 13th Edition, Last J, Wallace RB (Eds). New York: Appleton and Lange, 1991.

58. Frank AL. The Cancer Specialist. In *Cancer*. New York: Matthew Bender and Co., p. 1-15, 1992.

59. Frank AL. Carcinogen Update. In *Cancer*. New York: Matthew Bender and Co., p. 1-31, 1992.

60. Frank AL. The Occupational and Environmental History and Examination. In *Environmental and Occupational Medicine*, 2nd Edition. Rom, W. (Editor). Boston: Little, Brown & Company, 1992, p. 29-34.

61. Frank AL. Taking an Exposure History. (Guest Contributor) *ATSDR Case Studies in Environmental Medicine*, Number 26, 1992.

62. Frank AL. Case study. Health and Risk. In Stutsman R., Ed., From Rio to the Capitals: State Strategies for Sustainable Development. Proceedings of a Conference, May 25-28, 1993, pp. 123-124, 1994.

63. Frank AL. Qualitätsforderungen an den betrieblichen Gesundheitsschutz. In proceedings of a conference on Total Quality Management held at the Bundesanstalt für Arbeitsschutz, Dortmund, Germany, December 7, 1993. Pages 221-225, 1994.

17
1250

002460

BOOKS, REVIEWS, CHAPTERS IN BOOKS (continued)

64. Frank AL. Failure of Prevention in the Workplace and the Added Outrage of "Revisionist" Science. In Mehlman, M., Upton, A (Eds.) *The Identification and Control of Environmental and Occupational Diseases: Asbestos and Cancers. Vol XXIII, Advances in Modern Environmental Toxicology.* Princeton: Princeton Scientific Publishing Co., Inc., 1994, pp., 549-557.

65. Frank AL. The Environmental History. In *Environmental Medicine*, Brooks, S. (Ed) St. Louis: Mosby, 1995, p.232-239.

66. Frank AL. Occupational and Environmental Medicine. In Seltzer,V., Pearse,W.(Eds) *Primary Health Care for Women: Guidelines for Care in the Office Setting.* N.Y.; McGraw-Hill, Inc., 1995, pp 747-751.

67. Frank AL, Dodson RF, Williams MG. Lack of Tremolite in UICC Reference Chrysotile and the Implication for Carcinogenicity. In Cherry N, Ogden T (Eds) Inhaled Particles VIII. Oxford; Pergamon, 1997, pp. 287-292.

68. Frank AL. The Status of Environmental Health. In Wallace RB (Ed.) *Maxcy-Rosenau-Last Public Health and Preventive Medicine*, 14th edition. Stanford, CT: Appleton and Lange, 1998, pp 413-414.

69. Frank AL, Slesin L. Nonionizing Radiation. In Wallace RB (Ed.) *Maxcy-Rosenau-Last Public Health and Preventive Medicine*, 14th edition. Stamford, CT: Appleton and Lange, 1998, pp 627-635.

70. Frank AL, Occupational and Environmental Medicine. In Seltzer, V., Pearse, W. (Eds) Primary Health Care for Women: Guidelines for care in the office setting. 2nd edition NY.; McGraw-Hill, Inc. 1999, pp 1125 - 1130.

71. Frank, AL, Section Editor, Occupational and Environmental Medicine Self-Assessment Review. McCunney RJ, Rountree PP (Eds) Philadelphia: Lippencott-Raven, 1998.

72. Frank, AL, "Occupational Safety and Health", McMillan Encyclopedia of Preventive Medicine, Carpal Tunnel Syndrome, Cumulative Trauma; Fair Labor Standards Act; Mesothelioma; Mining; Noise; Occupational Disease; Occupational Lung Disease; Occupational Safety and Health; Worksite Drug Testing, 2002.

73. Frank, AL, "Approach to the Patient with an Occupational or Environmental Illness", Primary Care: Clinics in Office Practice, 2000, 27: 877-893.

74. Frank, AL, "Occupational Cancer". In McCunney R (Ed.) A Practical Approach to Occupational and Environmental Medicine, 3rd ed, Balt., Lipincott William & Wilkins, 2003. pp 332-341.

75. Frank, AL, Li L, Cao W, Pang Z, Zhang Z, Zhang H. "Radiographic evidence of asbestos disease in Chinese factory workers", Ann Occ Hyg 46 (suppl 1): 154-156, 2002.

76. Frank, AL, Beaty R, Levin JL. "Cigarette smoke as a cause of small irregular opacities on chest radiographs". Ann Occ Hyg 46(Suppl 1): 118-120, 2002.

77. Frank, AL. Medical Supplement Vol. 1A, Source book on Asbestos Diseases, Medical Aspects, Matthew Bender, 2003, pp1-75.

18
151

002461

BOOKS, REVIEWS, CHAPTERS IN BOOKS (continued)

78. Frank, AL, McKnight, R, Kirkhorn, S, Gunderson, P. Issues in agricultural safety and health. Ann Rev of Public Health, 2004,25: 225-45.

79. Frank, AL, The History of the Extraction and Use of Asbestos, In: Asbestos. Risk Assessment, Epidemiology and Health Effects. R. Dodson and S. Hammar eds., Francis & Taylor, Boca Raton, pp 1-7, 2005.

80. Frank, AL. Environment and Health, Public Health and Building of a Harmonious Society, Beijing Forum (2005) Organizing Committee, Beijing, P.R.C., 2005 pp. 60-66.

81. Frank, AL. The Status of Environmental Health. In Wallace RB (Ed.), Maxcy-Rosenau – Last Public Health and Preventive Medicine 15th ed. , 2007, pp 503-4.

82. Frank, AL, Slesin, L. Non-ionizing Radiation. In Wallace RB (Ed.) Maxcy-Rosenau – Last Public Health and Preventive Medicine 15th ed., 2007 pp. 743-47.

ARTICLES

1. Frank AL. Holyoke ED. Tumor fluid thromboplastin activity. *Int J Ca* 3:677-682, 1968.

2. Holyoke ED, Frank AL, Weiss L. Tumor fluid thromboplastin activity in-vitro. *Int J Ca* 9:258-262, 1971.

3. Harris C, Genta V, Frank AL, Kaufman D, Barrett L, McDowell E, Trump B. Carcinogenic polynuclear hydrocarbons bind to DNA in Cultured Human Bronchi. *Nature* 252:68-69, 1974.

4. Barrett LA, McDowell EM, Frank AL, Harris CC, Trump BF. Long-term organ culture of human bronchial epithelium. *Cancer Res* 36: 1003-1010, 1976.

5. Harris CC, Frank AL, VanHaaften C, Kaufman DG, Conner R, Jackson F, Barrett LA, McDowell EM, Trump BF. Binding of (H^3) benzo(a)pyrene to DNA in cultured human bronchus. *Cancer Res* 36:1011-1018, 1976.

6. Wade MJ, Lipkin LE, Tucker RW, Frank AL. Asbestos cytotoxicity in a long-term macrophage-like cell culture. *Nature* 264:244-245, 1976.

7. Wade MJ, Frank AL, Lipkin LE. Studies in in-vitro asbestos cell interaction. *J Env Path Tox* 2:1029-1039, 1979.

8. Frank AL, Rohl AN, Wade MJ, Lipkin LE. Biological activity in vitro of chrysotile compared to its quarried parent rock (platy serpentine). *J Env Path Tox* 2:1041-1047, 1979.

9. Frank AL. Public health significance of smoking-asbestos interactions. *Ann NY Acad Sci,* 330:791-794, 1979.

10. Frank AL. Clinical observations following asbestos exposure. *Env Health Persp* 34:27-30, 1980.

11. Ward J, Frank AL, Wenk M, Devor D, Tarone RE. Ingested asbestos and intestinal carcinogenesis in F344 rats. *J Env Path Tox* 3:301-312, 1980.

12. Nicholson W, Lilis R, Frank AL, Selikoff IJ. Lung cancer prevalence among shipyard workers. *Am J Ind Med* 1:191-203, 1980.

13. Frank AL. The insidious attackers: asbestos-related diseases. *Resp Therapy* 12:145-147, 1981.

14. Frank AL. Epidemiology of VDT-related conditions. *Ophth Times* 6:1, 1981.

15. Selikoff IJ, Frank AL. Keynote Address: Potential of *in vitro* tests in asbestos-related problems. *Env Health Perspect* 51:1-4, 1983.

16. Frank AL. Occupational medicine. *JAMA* 254:2333-34, 1985. (Also translated into Chinese and Japanese language editions of *JAMA*)

17. Frank AL. Asbestos as an air pollutant and synergism with smoking. *Can Det and Prev* 9:337-341, 1986.

18. Frank AL. Identification and surveillance of individuals at high risk. *Can Det and Prev* 9:429-434, 1986.

ARTICLES (continued)

19. van Nagell JR, Dudik LM, Frank AL, et al. Cervical cancer. *Southern Medical Journal* 80:75-81, 1987.

20. Paz JD, Milliken R, Ingram WT, Frank AL, Atkin A. Potential ocular damage from microwave exposure during electrosurgery: dosimetric survey. *J Occup Med* 29:580-583, 1987.

21. Leigh JP, Frank AL. Gas taxes and motor vehicle fatalities. *J Health Politics and Law* 13:723-734, 1988.

22. Johnson TP, Frank AL, Houghland JG, et al. Health experiences and behaviors among Appalachian and non-Appalachian Kentuckians: Results from the Kentucky Health Survey. In *Health in Appalachia: Proceedings from the 1988 Conference on Appalachia*. Lexington, KY: University of Kentucky Appalachian Center, 1989, p. 63-75

23. Frank AL. Special health problems in Appalachia. In *Health in Appalachia: Proceedings from the 1988 Conference on Appalachia*. Lexington, KY: University of Kentucky Appalachian Center, 1989, p. 187.

24. Luce EA, Frank AL, Kilner JF, et al. Lingering death from squamous cell carcinoma of the face. *Hospital Practice* 24:60-72, October 30, 1989.

25. Frank AL. Occupational medicine. *JAMA* 263:2665-2667, 1990.

26. Frank, AL. Occupational cancers of the respiratory system. Historical and international perspectives. (Part I). *East Texas Medicine* 2:36-38, 1990.

27. Frank, AL. Occupational cancers of the respiratory system. Historical and international perspectives. (Part II). *East Texas Medicine* 2:42-52, 1990.

28. Hager DW, Bird M, Callahan JC, Frank AL, David ML, Engleberg J. Promiscuity and public health: some clinical and ethical issues. *Hospital Practice* 25:63-78, 1990.

29. Frank AL, Reynolds, HT, Kluck C, and Cole H. University partnership for worksite medical programs with industry. *VIIth International Pneumoconiosis Conference*, NIOSH, USDHHS, pp. 813-815, 1990.

30. Frank AL. Occupational and environmental medicine. *JAMA Contempo* 258, 385-386, 1992.

31. Frank AL. Introduction. A Special Issue Dedicated to the Memory of I.J. Selikoff. *Env Res* 59:1-22, 1992.

32. Frank AL. The Academic Legacy of Kurt W. Deuschle. *Mt. Sinai J Med* 59:447-449, 1992.

33. Cole HP, Rubeck RF, Lin BC, Taylor R, Lineberry GT, Frank AL, Wala AM, Haley JV. Four Interactive Computer Administered Problem-Solving Simulations for Teaching Critical Health and Safety Skills to Mining Industry Workers. Final Report to U.S. Bureau of Mines, mining and Minerals Institute Title III Grant (No. G-1114121), 1992.

34. Frank AL. Global problems from exposure to asbestos. *Environmental Health Perspectives*, Vol. 101, (Suppl. 3): 165-167, 1993.

21

002464

ARTICLES (continued)

35. Kelafant G, Kasarskis E, Horstman SW, Cohen C, Frank AL. Arsenic poisoning in central Kentucky: A case report. *Am J Ind Med*, 24:723-726, 1993.

36. Cohen C, Frank AL. Liver disease following occupational exposure to 1-1-1 trichloroethane - a case report. *Am J Ind Med*, 26:237-241, 1994.

37. Frank AL. Invited commentary regarding the number of occupational medicine residencies in the U.S. *JOM*, 36:675-677, 1994.

38. Frank AL. Medical and public health approaches to asbestos disease. *Mt Sinai J Med.* 62:401-405, 1995.

39. Frank AL. The use of asbestos in Japan and China and malignancy related findings. *Med Lav* 86:457-460, 1995.

40. Frank AL. Asbestos mineralogic analysis as indicator of carcinogenic risk. *Med Lav* 86:490-495, 1995.

41. Prince TS, Frank AL. Causation, impairment, disability: an analysis of coal workers pneumoconiosis evaluations. *JOEM*, 38:77-82, 1996.

42. Levin JL, Frank AL, Williams MG, McConnell W, Suzuki Y, Dodson RF. Kaolinosis in a cotton mill worker. *Am J Ind Med*, 29:215-221, 1996.

43. Frank AL. Scientific and ethical aspects of human monitoring. *Env Health Persp* 104 (Suppl 3):659-662, 1996.

44. Frank AL. Prevention into the 21st Century. *Mt Sinai J Med*, 63:236-240, 1996.

45. Prince TS, Frank AL. Unexpected opportunities: Incidental findings detected during impairment evaluations for coal workers' pneumoconiosis. *S Med J*, 90:413-415, 1997.

46. Frank AL. The riddle of risk assessment in asbestos carcinogenicity. Med Lav, 88:333-338, 1997.

47. Frank AL. Rapporteur Report: Pesticides, Ergonomics, priority assessment. J Agromed 4:147-150, 1997.

48. Levin JL, McLarty JW, Hurst GA, Smith AN, Frank AL. Tyler Asbestos workers: mortality experience in a cohort exposed to amosite. Occupational and Environmental Medicine, 55:155-160, 1998.

49. Frank AL. Issues of agricultural safety and health. European J. Oncol, 3:357-359, 1998.

50. Frank AL. The carcinogenicity of man-made fibers. European J. Oncol, 3:211-212, 1998.

51. Frank AL, Dodson RF. Laboratory assessment of fibers. European J. Oncol. 3:339-341, 1998.

ARTICLES (continued)

52. Frank AL, Dodson RF, Williams MG. Carcinogenic implications of the lack of tremolite in UICC reference chrysotile. Am J Industrial Med 34:314-317, 1998.

53 Frank AL, Gilmore K. Childhood agricultural hazards and their prevention. European J. Oncol, 4:637-639, 1999.

54. Lowry LK, Frank AL. Exporting DBCP and other banned pesticides: consideration of ethical issues. Int J Occup Environ Health 5:135-141. 1999.

55. Kersh FW, Frank AL. Environmental awareness among physicians: what are environmental health and environmental medicine. Texas Medicine 95:39-44, 1999.

56. Frank AL. Ethical aspects of genetic testing. Mutation Research 428:285-290, 1999.

57. Frank, AL. Injuries related to shiftwork. Am J Prev Med 18 (4S): 33 – 36, 2000.

58. Frank, AL, Hubert, D, Gilmore, K. Occupational safety and health in the agricultural setting. European J. Oncol, 5:21-23, 2000.

59. Frank, AL. The ethics of exposure and the role of the Collegium Ramazzini. European J. Oncol, 5:143-145, 2000.

60. Hubert, D, Frank, AL, Igo, C. Environmental and agricultural literacy education. Water, Air and Soil Pollution, 123:525-532, 2000.

61. Frank, AL. Ethical and practical aspects of human studies. Mut. Res., 480-1: 333-336, 2001.

62. Frank, AL. Child labor and occupational cancer. European J. Oncol. 6: 133-134, 2001.

63. LaDou, J, Landrigan, P, Bailer, JC, Foa, V, Frank AL. Commentary: A call for an international ban on asbestos. Can. Med. A. J., 164: 489 – 490, 2001.

64. Frank, AL. Translating science into action: The global battle to ban asbestos. European J. Oncol. 7: 9-11, 2002.

65. Ashford, N.A., Castleman B., Frank A.L., et al. The International Commission on Occupational Health (ICOH) and its influence on international organizations. Int. J. Occup. Environ. Health, 8:156-162, 2002.

66. Frank, AL. Agricultural Safety and Health, J. Prev. Med. (Submitted)

67. Perez, HR, Frank, AL, Zimmerman, NJ. Health effects associated with organic dust exposure during the handling of municipal solid waste. Indoor and Built Env. 15 (3): 207-212, 2006.

68. LaDou, J, Teitelbaum, DT, Egilman, DS, Frank, AL, Kramer, SN, Huff, J, American College of Occupational and Environmental Medicine (ACOEM): a professional association in service to industry. Int J Occup Environ Health 13(4): 404-26,2007.

69. Frank, AL, Pang, Z, Zhang H, Zhang Y, Mesothelioma Patterns in Qingdao, 2000-2007 J Phys. Conference Series 151:012007, 2009.

ARTICLES (continued)

70. Richter, ED, Blum, R, Castleman, B, Frank, A, Stanton, GH. Ecocide: A Crime Against Humanity, Collegium Ramazzini On-Line Journal pp 1-15, 2008.

71. Frank, AL. The Continuing Challenge of Working in Developing Countries, Collegium Ramazzini On Line Journal pp1-7, 2008.

PUBLISHED ABSTRACTS

1. Trump B, McDowell E, Barrett L, Frank A, Harris C. Organ Culture of Human Bronchi: An In-Vitro Model to Study Respiratory Carcinogenesis. *Eleventh International Cancer Congress*, 1975.

2. Harris C, Kaufman D, Frank A, Barrett L, McDowell E, Trump B. Activation of Chemical Carcinogens by Human Bronchial Epithelium in Organ Culture. *Eleventh International Cancer Congress*, 1975.

3. Harris C, Frank A, van Haaften C, Kaufman D, Barrett L, McDowell E, Trump B. Metabolism of Carcinogenic Polynuclear Hydrocarbons (PNH) by Cultured Human Bronchial Mucosa. *Proceedings of the Third Annual Carcinogenesis Collaborative Program*, 1975.

4. Trump B, McDowell E, Barrett L, Sato R, Frank A, Harris C. Human Bronchus: Organ Culture and Carcinogenesis Studies. *Proceedings of the Third Annual Carcinogenesis Collaborative Program*, 1975.

5. Frank AL, Sporn MB, Kaufman DG. Hyperplasia of Hamster Tracheal Epithelium Caused by Amosite Asbestos in Organ Culture. *Proceedings of the American Association for Cancer Research* 14:113, 1975.

6. Barrett L, McDowell E, Frank A, Harris C, Trump B. Reversal of ischemic cells injury and long-term storage of human bronchus (HB) and hamster trachea (HT). *Fed Proc* 34:834, 1975.

7. Trump B, McDowell E, Barrett L, Frank A, Harris C. Ultrastructural, cytochemical, and metabolic studies on the pathogenesis of human bronchogenic carcinoma. *Lab Invest* 32:50, 1975.

8. Harris C, Frank A, Barrett L, McDowell E, Trump B, Paradise L, Boren H. Cytokinetics in the respiratory epithelium of the hamster, cow, and man. *J Cell Biol* 67:196a, 1975.

9. Harris C, Autrup H, van Haaften C, Frank A, Barrett L, McDowell E, Trump B. Inhibition of 3H-Benzo(a)pyrene Binding to DNA in Cultured Human Bronchial Mucosa. *Proceedings of the Third International Symposium on Detection and Prevention of Cancer*, p. 311.

10. Frank AL, Wade MJ, Lipkin LE. Quantitation of macrophage cytoxicity after exposure to asbestos from quarried serpentine rock. *Am Rev Resp Dis* 117: 232, 1978.

11. Frank AL. Ability of Hamster Trachea Cultures to Distinguish Particulate Carcinogens. *Proceedings of the American Association for Cancer Research* 19:79, 1978.

12. Frank AL. The Use of Hamster Trachea Cultures to Assess Potential Particulate Carcinogens. *XIX International Congress on Occupational Health* 242, 1978.

13. Frank AL, Rohl AN, Wade MJ, Lipkin LE. Quantitation of In Vitro Biological Activity of Asbestos from Quarried Serpentine Rock. *XIX International Congress on Occupational Health* 243, 1978.

14. Frank AL. Asbestos as an air pollutant and synergism with smoking. *VI International Symposium on Cancer Detection and Prevention*, ISPO, Vienna, Austria, 1984.

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PUBLISHED ABSTRACTS (Continued)

15. Frank AL. Identification and surveillance of individuals at high risk. *VI International Symposium on Cancer Detection and Prevention*, ISPO, Vienna, Austria, 1984.

16. Frank AL, Burmaster DR, Combs G, and Begley BJ. University-based occupational health services in Kentucky coal mines. *American Public Health Association 113th Annual Meeting* 1985, p. 252.

17. Frank AL, Reynolds, HT, Kluck C, and Cole H. University partnership for worksite medical programs with industry. *VIIth International Pneumoconiosis Conference*, August 23-26, 1988.

18. Frank, AL. Environmental Health Issues in Appalachia: An ounce of prevention is worth a pound of cure. *Conference Proceedings - Environment and Technology in Appalachia*. The Appalachian Center, University of Kentucky. p. 139-140, 1990.

19. Frank, AL. Global problems from exposure to asbestos. *1st International Conference on Environmental Mutagenesis in Human Populations at Risk*, Cairo, Egypt, January 20, 1992. Abstract No. 71.

20. Frank, AL. The Intersection of Two Ancient Problems: Silicosis and Tuberculosis, in press, 1995. (Infection Control and Hospital Epidemiology)

21. Frank, AL. Global transfer of occupational and environmental health risks. First International Congress of Minia, Egypt, April 2-4, 1995. Proceedings, p.60.

22. Frank, AL. Monitoring of exposed workers and communities--scientific and ethical considerations. 2nd International Conference on Environmental Mutagenesis in Human Populations at Risk, Prague, Czech Republic, August, 1995, F3-3.

23. Prince, TS, Frank, AL. Incidental findings detected during impairment evaluations for coal workers pneumoconiosis. Southern Med J 88:S66-67, 1995.

24. Frank, AL, Dodson, RF, Williams, MG. Lack of tremolite in UICC reference chrysotile and the implications for carcinogenicity. Inhaled Particles VIII, p.140, 1996.

25 Levin, JL, McLarty J, Hurst, G., Frank, AL. Tyler asbestos workers mortality update. 25th International Congress on Occupational Health, p.131, 1996.

26. Frank, AL. Ethical aspects of genetic testing. 3rd International Conference on Environmental Mutagenesis in Human Populations at Risk. Bangkok, Thailand, Dec., 1998.

27. Hubert, D., Frank, A., Igo, C. Environmental and agricultural literacy education. Proceedings of the 7th International Conference of the Israel Society for Ecology and Environmental Quality Sciences, 1999.

28. Frank, AL, Gilmore, K., Hubert, D. Children's health and safety in the agricultural environment. Proceedings of the 7th International Conference of the Israel Society for Ecology and Environmental Quality Sciences, 1999.

29. Frank, AL Ethical and practical aspects of human studies. 7th International Conference on Mechanisms of Antimutagenesis and Anticarcinogensis, 2000.

PUBLISHED ABSTRACTS (continued)

30. Frank, AL. Synergistic Exposures. Conference on Impact of Biotechnology on Cancer Diagnostic and Prognostic Indicators, 2000. Can. Det. Prev. 24: (Supplement 2000) p. S164-5, 2000.

31. Frank, AL, Li L, Cao W, Pang Z, Zhang Z, Zhang H. Radiographic evidence of asbestos disease in Chinese factory workers. Inhaled Particles IX, 2001.

32. Frank, AL, Beaty R, Levin JL. Cigarette smoke as a cause of small irregular opacities on chest radiographs. Inhaled Particles IX, 2001.

33. Frank, AL. The study of asbestos use in China; Challenges and opportunities. Global Asbestos Congress, 2004

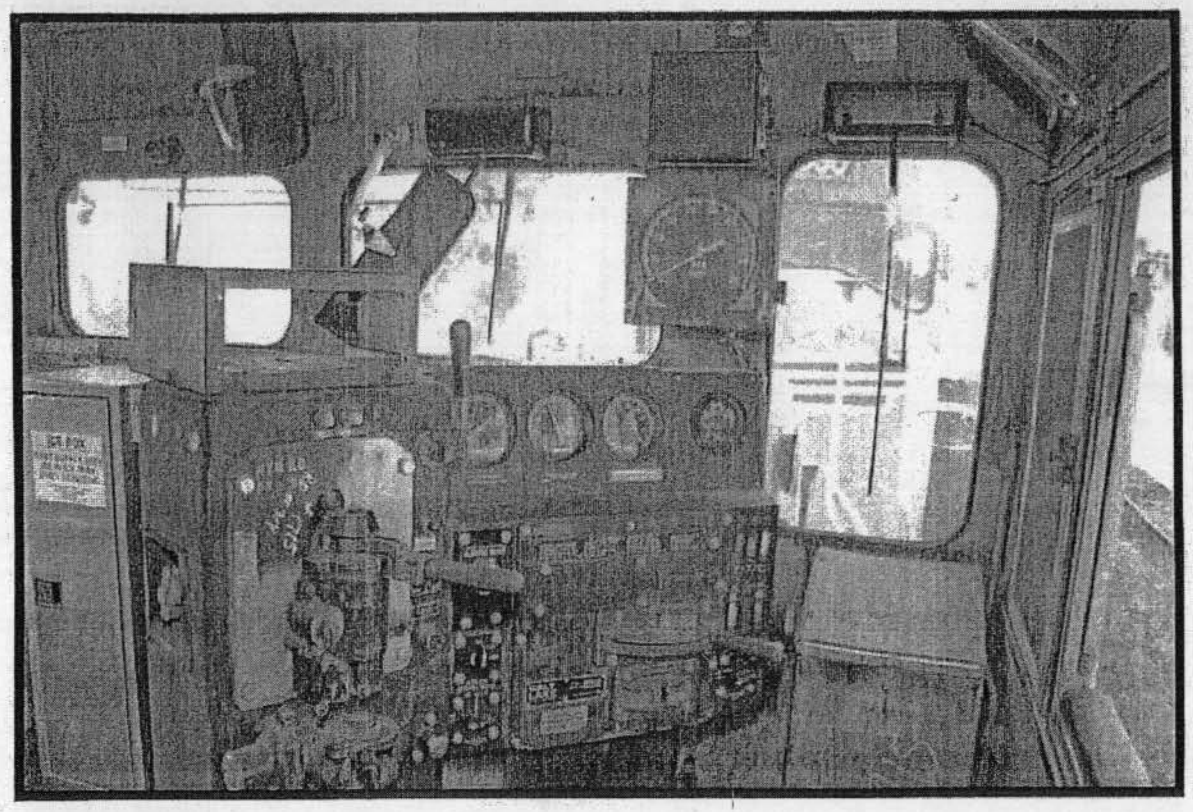
34. Frank, AL. Environment and Health. Beijing Forum 2005

35. Frank, AL. Science for sale. Asia Asbestos meeting 2006

36. Frank, AL. Prevention of Exposure to Hazardous Substances – Social and Ethical Issues. The 5th International Conference on Environmental Mutagens in Human Populations, 2007. P. 20.

37. Frank, AL, Pang Z, Zhang H, Zhang Y. Mesothelioma Patterns in Qingdao, PRC, 2000-2007. Inhaled Particles X, Sheffield, England, 2008

February 2010



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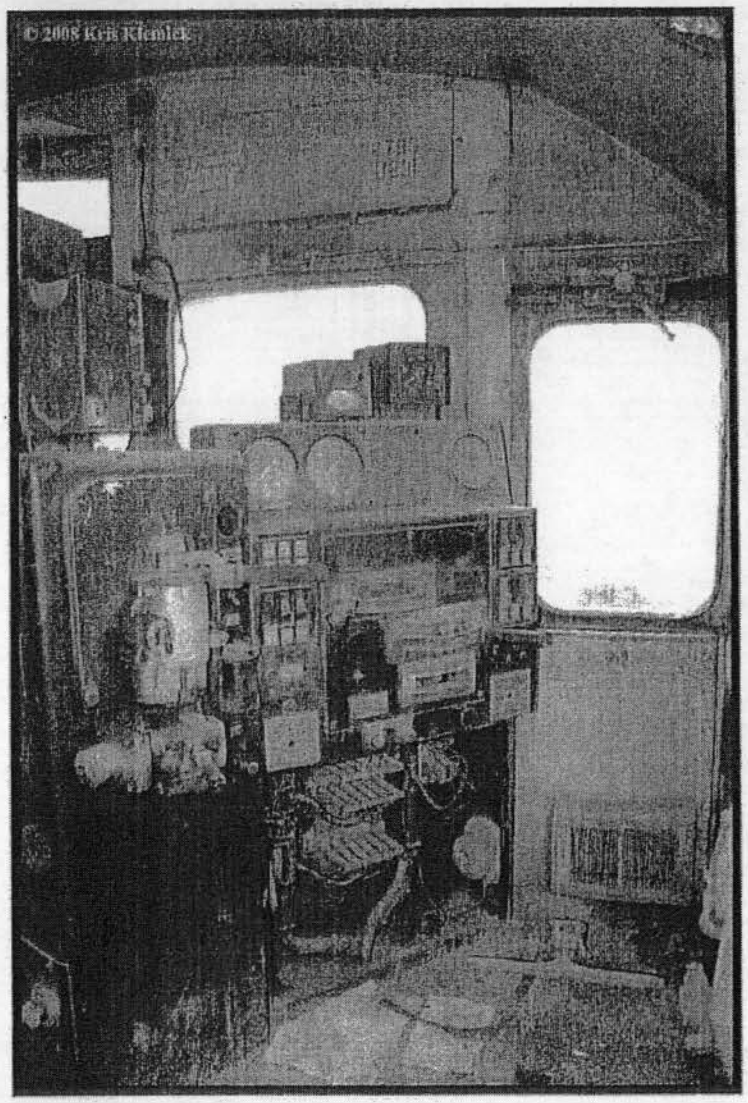

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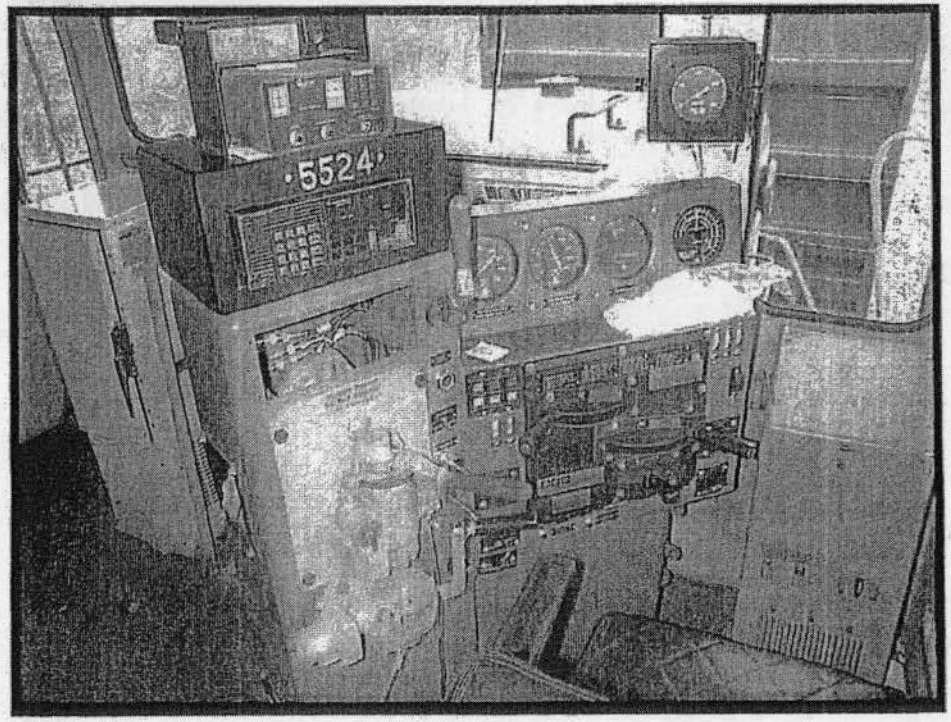

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Associate Professor, Department of Epidemiology & Community Health
Virginia Commonwealth University/Medical College of Virginia

Professional Engineer	(PE)
Certified Industrial Hygienist	(CIH)
Certified Safety Professional	(CSP)
Attorney at Law	

COLLEGIATE TRAINING

Institution	Degree	Year	Major
Virginia Polytechnic Institute	B.S	1962	Chemistry
University of Virginia	Ph.D.	1969	Inorganic Chemistry
University of Richmond	J.D.	1975	Law

PROFESSIONAL ORGANIZATIONS:

National & Virginia Society of Professional Engineers
American Academy of Industrial Hygiene;
American Chemical Society; Sigma Xi;
American Industrial Hygiene Association
American Conference of Governmental Industrial Hygienists
American Society of Safety Engineers
American Soc. of Heating, Refrig., & Air Cond. Engineers
American & Virginia Public Health Associations
American Institute of Hazardous Materials Managers
American and Richmond Bar Associations;
Virginia State Bar; Virginia Environmental Council

PROFESSIONAL LICENSES:

Licensed to practice law in Virginia;	# 15305
Licensed to practice engineering in Va.,	# 0402029662
Board certifications: Industrial Hygiene;	# 4155
Safety;	# 12407
Hazardous Materials Management	# 8699

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PAST MEMBER AND CHAIR: Virginia Board for Asbestos, Lead & Home Inspectors;
Virginia Department of Professional & Occupational Reg.

Past Member: Board of Governors, Environmental Law Section, Virginia State Bar

OCCUPATIONAL HISTORY:

1986 through present
Associate Professor, Dept. of Epidemiology (Preventive Medicine until 1/1/2005) & Community Health
Va. Commonwealth University/Medical College of Va.

1982 to 1986
Director of Health Standards
U.S. Occupational Safety and Health Administration
Washington, DC

1976 to 1982
Assistant Attorney General of Virginia

Chemistry Department Faculty:
Virginia Commonwealth University; 1970 to 1981
Danville Community College; 1968 to 1970

July, 1986 to present: Associate Professor, Department of Epidemiology (Preventive Medicine until 1/1/2005)& Community Health, Medical College of Virginia, Virginia Commonwealth University. Teach graduate courses in industrial hygiene, preventive medicine, occupational and environmental health and safety, public health law, and environmental law. Principal instructor in University's EPA & Virginia accredited asbestos & lead continuing education programs. Develop additional occupational & environmental training programs in such areas as mold, hazardous waste, indoor air quality, etc. Also hold appointments in VCU Center for Environmental Studies and Department of Chemical Engineering.

September,1987 to June, 1994: Co-owner, officer, corporate director, laboratory director (87-90) of Schneider Laboratories, Inc., (SLI), an environmental testing laboratory performing testing services on asbestos, lead, heavy metals, and other materials. SLI held/holds numerous accreditations and licenses, including, American Industrial Hygiene Association (AIHA), US National Institute of Standards & Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP), USEPA Environmental Lead Laboratory Accreditation Program (ELLAP), drinking water (Virginia & other states); as a 30% owner, carried out both management and analytical duties.

1982 to 1986: As Director of Health Standards, prepared occupational health standards governing toxic substances for promulgation by OSHA. Developed priorities for Assistant Secretary of Labor for Occupational Safety and Health for regulation of workplace exposure to toxic chemicals. Hired and managed scientists, engineers, industrial hygienists, and physicians for OSHA health standards projects. Served as OSHA representative on various federal interagency committees, such as Federal Asbestos Task Force and IRMC carcinogen, risk assessment, and formaldehyde committees. Delivered Congressional testimony, public hearing presentations, and speeches to national and international bodies on behalf of OSHA. Prepared for delivery to the Assistant Secretary the following specific OSHA health standards:

Access to Medical Records	Formaldehyde
Asbestos	Hazard Communication
Benzene	Laboratories
Cancer Policy	Lead
Cotton Dust	Methods of Compliance
Ethylene Dibromide	Methylenedianiline
Ethylene Oxide	Respirators
Field Sanitation	

1976 to 1982: Assistant Attorney General of Virginia handling environmental and public health litigation involving solid and hazardous waste, occupational safety and health, kepone and other toxic substances, public water supplies, sewage, public health nuisances, radiation, milk and shellfish sanitation; drafted legislation and regulations in these areas. Presented testimony before various legislative and regulatory bodies.

1968 to 1981: Taught general, analytical and advanced inorganic chemistry and instrumental analysis on a full and part time basis.

Co-author: Virginia OSHA Compliance Handbook; Government Institutes; 1992
Railroad Health and Safety; A Litigator's Guide; 1999

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Tennessee Cancer Specialists, PLLC

CURRICULUM VITAE

Ross E. Kerns, M.D.
8731 Inlet Drive
Knoxville, TN 37922

EDUCATION:	1988-1990	Fellow, Hematology/Oncology University of Kentucky Medical Center Lexington, Kentucky
	1987-1988	Chief Resident, Medicine University of Kentucky Medical Center Lexington, Kentucky
	1985-1987	Resident, Medicine University of Kentucky Medical Center Lexington, Kentucky
	1984-1985	Internal Medicine University of Kentucky Medical Center Lexington, Kentucky
	1984	East Tennessee State University Johnson City, Tennessee
	1979	East Tennessee State University Johnson City, Tennessee B.S., Cum Laude
EMPLOYMENT:		Tennessee Cancer Specialists Hematology and Oncology
CERTIFICATION:		Board Certified Internal Medicine Board Certified National Board of Medicine Examiners Board Certified Medical Oncology

Tennessee Cancer Specialists, PLLC

Ross E. Kerns, M.D.

LICENSURE:

Tennessee ID# MD0000020355
Kentucky ID# MD0000024011

DANIEL S. MANTOOTH, CHP
Senior Health Physicist

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Richland, Washington 99354
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Specializing in Occupational and Environmental Health Sciences

EDUCATION/QUALIFICATIONS

M.S., Radiation Biology, University of Tennessee, 1978
B.S., Zoology, University of Tennessee, 1971

Certified for Comprehensive Practice, American Board of Health Physics, 1990

Hanford Site Radiological Worker Training
Respiratory Protection Qualification (Air-Purifying Respirator and Powered Air-Purifying Respirator)
40-hour Hazardous Waste Operations Training

PRESENT POSITION

Senior Health Physicist, Dade Moeller & Associates, Inc.

PROFESSIONAL SUMMARY

Mr. Mantooth has 27 years of experience in occupational radiation safety and waste management and 10 years of line and project management experience. He has provided staff and consulting support to the U.S. Department of Energy (DOE), U.S. Department of Defense (DOD), U.S. Environmental Protection Agency (EPA), and commercial power operations. His key areas of expertise include project and line management, radiological engineering and design review, radiological program development and implementation, and radiological program assessment.

EXPERIENCE AND ACCOMPLISHMENTS

2006 – Present *Dade Moeller & Associates, Inc.*

Mr. Mantooth is responsible for providing professional-level support to Dade Moeller & Associates projects.

- Energy Employees Occupational Illness Compensation Program Act. Mr. Mantooth supports Task 3 of the National Institute for Occupational Safety and Health Dose Reconstruction Project, which is responsible for developing technical basis documents (TBDs) for performing radiation dose reconstruction at DOE and Atomic Weapons Employer sites. He is document owner for two sites, which entails directing a team of professionals in the development of the TBDs as well as providing technical input and oversight to the process. Mr. Mantooth also supports Task 10 evaluating Special Exposure Cohort petitions.

- Hanford Plutonium Incinerator Demolition. Mr. Mantooth was a key member of the project planning team for the open-air demolition of the 232-Z Plutonium Incinerator on the Hanford Site. He provided guidance to the atmospheric dispersion modeling that determined the acceptability of the proposed demolition and load-out methodologies, such that the project would be accomplished in conformance with radiological control requirements and procedures. Mr. Mantooth evaluated a

proposed demolition and load-out process and recommended methods to accelerate project completion in a safe and compliant manner. He also provided support to the radiological work planning effort to determine appropriate air sampling and radiological survey needs.

- Hanford K Basin Sludge Closure, Stabilization and Packaging (CSAP)Project. Mr. Mantooth supported the design of the sludge stabilization process of the CSAP. He performed detailed calculations demonstrating airborne radioactivity levels would remain within acceptable levels based on expected contamination and ventilation flows.

1996 – 2005 *Fluor Hanford, Inc.*

Mr. Mantooth provided senior-level radiological engineering support to Hanford Site operational and decontamination and decommissioning (D&D) projects consisting of project design review; radiological control program development, implementation, and assessment; shielding analysis; hazards assessment; waste characterization; workplace air monitoring; and radioanalytical instrument evaluation and selection. His assignments included the following:

- K Basins D&D Project. Mr. Mantooth provided radiological engineering support to the KBC Project. Key responsibilities included (1) serving as the KBC Radiological Control point of contact (POC) responsible for the design review of the K Basin Sludge Stabilization Project, which treats, assays, and packages highly radioactive sludge remaining in the 100K Area Fuel Storage Basins; (2) serving as the lead radiological engineer for support to KBC D&D engineering, which included performing shielding calculations for basin D&D alternatives, reviewing technical/design documents for radiological issues, and serving as an ad hoc resource on radiological engineering issues; (3) supporting KBC waste management/characterization/disposal efforts with technical reviews and calculations (dose-to-curie estimates); and (4) supporting radiological control program efforts such as program assessments, instrumentation evaluations/upgrades, and air sampling assessments.

- Hanford Site Radiological Engineering. Mr. Mantooth provided expert radiological engineering support to Hanford Site D&D projects including, K Basin Closure Project D&D, Plutonium Finishing Plant Ancillary Facilities D&D (232-Z), and Central Plateau D&D.

- Nuclear Facility Stabilization and Closure. Mr. Mantooth provided senior technical support to cleanup operations for Hanford Site facilities (324 and 327) containing kilocurie amounts of mixed fission products, transuranics, and hazardous constituents. This support included shielding calculations for packaging and shipping materials, review of safety documentation, assessment of radiological safety programs, and radiological safety procedure review and development. Mr. Mantooth served as the organization POC for the implementation of key management programs including the Integrated Safety Management System and revisions to the Hanford Site Radiological Protection Program. He served as the Project Technical Authority (PTA) for Workplace Air Monitoring and the alternate PTA for Radiological Safety Training and Compliance Interpretation. He was the lead radiological engineer for the 233-S Demolition Project Team. He provided design input to demolition methodology, developed the Radiological Protection Plan, and served as POC for atmospheric dispersion modeling, respiratory protection planning, and internal dose evaluation.

- 222-S Radioanalytical Laboratory. Mr. Mantooth provided expert technical support to the Waste Management Laboratory (WML) in the area of radiochemistry. He evaluated laboratory methods, results, and processes for technical validity and accuracy. He identified and assessed new analytical

methods for implementation at WML. He provided the technical interface between laboratory and analytical customers to assist in the resolution of issues.

- Manager, Laboratory Client Services. Mr. Mantooth was responsible for ensuring that analytical laboratory performance met customer expectations and requirements. He directed the development of marketing strategies to maintain or increase laboratory workloads with the prospect of decreasing Hanford Site needs from traditional customers. He developed metrics for laboratory performance, managed commercial analytical service contracts, and managed the integration of Site analytical services.

- Team Coordinator, Hanford Analytical Services Integration Support. Mr. Mantooth was responsible for leading the effort to integrate all analytical services for the Hanford Site. He directed the development of key integration elements including (1) the integration management strategy, (2) the evaluation and implementation of applicable requirements of the *Hanford Analytical Services Quality Assurance Requirements Document*, (3) the review of safety, radiological control, and environmental compliance status for each facility and assistance in corrective actions, and (4) the development of performance measurements and performance indicators, and tracking of performance.

- Manager, Analytical Services Occupational and Radiological Safety. Mr. Mantooth directed the development and implementation of Radiological Control and Occupational Safety Programs essential to the operation of analytical laboratory facilities. He worked closely with facility operations management to seek ways to implement high-quality programs in the most cost-efficient and effective manner. He ensured compliance with 10 CFR 835, the *Hanford Site Radiological Control Manual*, Occupational Safety and Health Administration requirements, and applicable DOE Orders. He maintained the appropriate staffing level and ensured the correct mix of skills and qualifications.

1987 – 1996 *Foster Wheeler Environmental*

Mr. Mantooth served in the following capacities:

- Health Physics. Mr. Mantooth was responsible for radiological protection and safety programs at the project, regional, and corporate level for a large environmental consulting firm. Government clients included DOE, DOD, and EPA. Mr. Mantooth managed projects valued at more than $2M for DOE and DOD. Specific support included Radiological Protection Program development and assessment [DOE, Taiwan Power Company (TPC), Foster Wheeler], radiological waste site characterization (DOD, DOE, EPA), safety analysis reports (DOE), and D&D (DOE, DOD).

- Team Lead, Radiological Data Validation Support. Mr. Mantooth served as the team lead for radiological data validation for the DOE Fernald Site. He developed and implemented validation procedures, interacted with customer and laboratory personnel, and directed the efforts of as many as 10 professionals.

- Site Radiological Characterization. Mr. Mantooth was Delivery Order Manager for DOD Site Characterization Projects at Kirtland Air Force Base, New Mexico, and the Sacramento Army Depot in California. At Kirtland Air Force Base, he was responsible for planning and directing radiological characterization of 50 acres contaminated with thorium for a project valued at about $2M. The Sacramento Army Depot scope involved evaluating characterization data collected for commercialization of the facility. Successful completion required interaction with the customer (U.S. Army Corps of Engineers), site personnel, state regulators, and the public.

- Commercial Nuclear Power. Mr. Mantooth developed a training program and procedures on the control of "hot particles" for Chin Shan and Kuosheng Power Stations. He presented classroom and in-plant training to station health physics personnel. He developed and implemented a site radiation survey plan in response to revised TPC requirements for exposure rates in uncontrolled areas. Both projects involved extended periods "in country" and required successful interaction with station personnel, regulators, and Taiwan project personnel.

  Mr. Mantooth was a key contributor to the draft petition to the U.S. Nuclear Regulatory Commission for levels of radioactivity Below Regulatory Concern. This project for the Edison Electric Power Institute involved performing risk assessments for aspects of the nuclear fuel cycle to determine the anticipated exposure to maximum and typical members of the public.

- Radiological Waste Site Characterization. Mr. Mantooth served as Health and Safety Officer for monitoring well installation on and adjacent to a deactivated radioactive/mixed waste disposal site. Maxey Flats was one of the first licensed radioactive waste sites and received waste from commercial nuclear, DOE, and other sources. Mr. Mantooth's responsibilities included onsite health and safety evaluations and successful interaction with the Commonwealth of Kentucky, EPA, and the managing contractor for the site.

1985 – 1987 *Westinghouse Hanford Company*

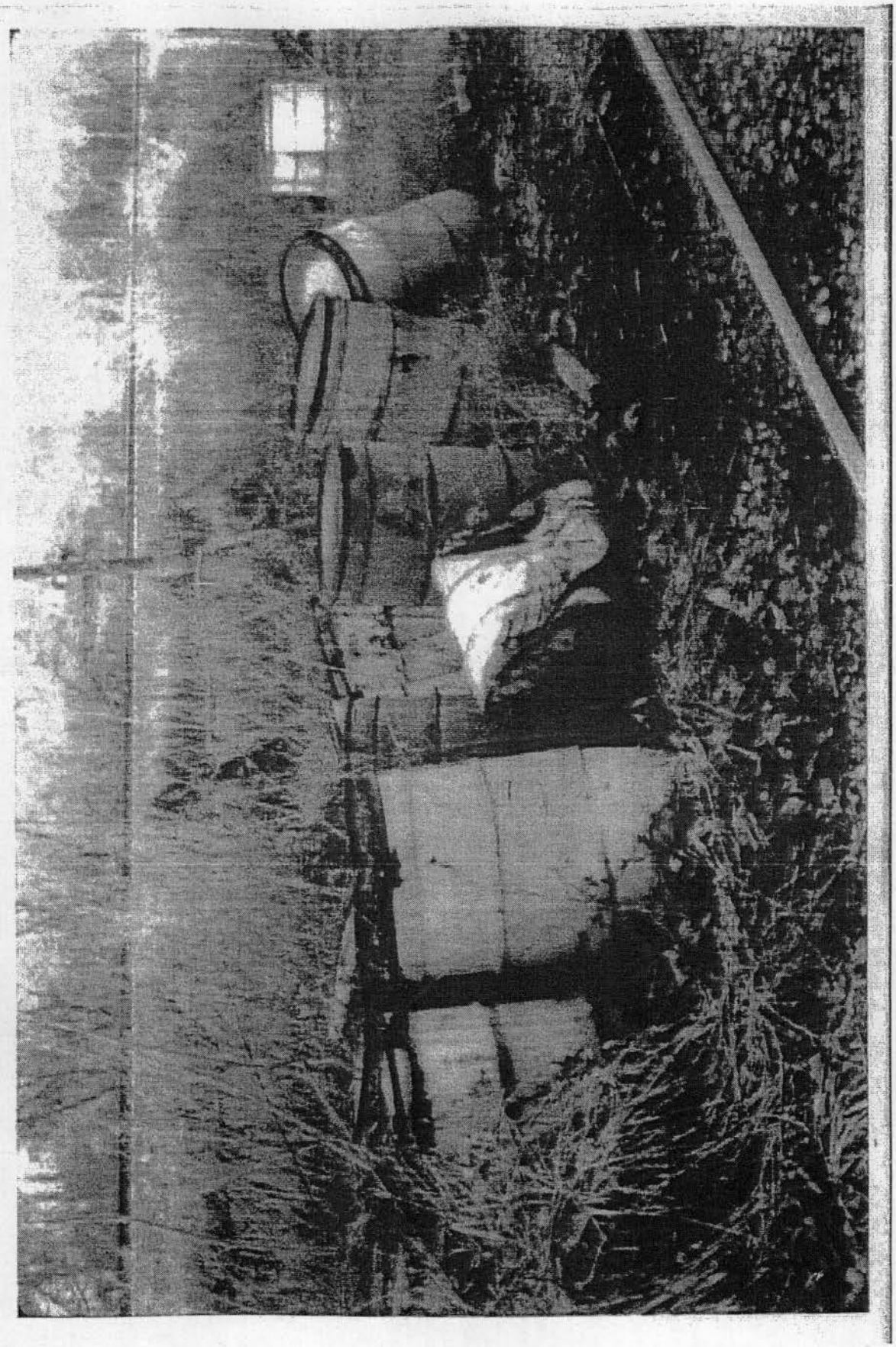
As Manager, Radiological Engineering, Mr. Mantooth was responsible for 10 personnel and a $750K budget at the DOE N-Reactor. He developed and administered company radiological control policy, directed compliance audits and appraisals, provided annual radiological safety improvement criteria, and directed efforts of technical personnel in the implementation of the radiological safety program. DOE Technical Safety Appraisal teams recognized the Radiological Control Program as noteworthy.

1983 – 1985 *Martin Marietta Energy Systems*

As a Health Physicist, Mr. Mantooth directed the radiological survey program at the K-25 facility on the Oak Ridge National Laboratory. He supervised five health physics technicians; consulted with maintenance, operations, and construction personnel on radiation safety; and reviewed maintenance and operational procedures for good radiation safety practices.

1979 – 1983 *Oak Ridge Associated Universities*

Mr. Mantooth was a Health Physics Technician and Biochemist, responsible for maintaining a teaching laboratory associated with courses in applied health physics, environmental monitoring, nondestructive assay, and radionuclide uses in research and medicine. He provided analytical support for studies of the *in vivo* metabolism and transport of radioactive, toxic, and carcinogenic materials.



JOHN E. CRAIGHEAD, MD
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April 3, 2009

Randall Jordan, Esquire
The Jordan Firm
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St. Simons Island, GA 31522

Dear Mr. Jordan:

I am writing you regarding my evaluation of the medical records and pathologic material from Mr. Winston Payne who was born in 1942 and would be currently 67 years of age. The last medical records available to me are from December 30, 2008. Mr. Payne worked as a trainman, switchman, and conductor for the CSX Railroad from 1962 to 2002, a 40 year period. He contends that he was exposed to asbestos, diesel exhaust and ionizing radiation

Occupational Background:

From the deposition of Winston Payne taken on October 2, 2008, I learned that Mr. Payne was employed by the railroad beginning in 1962 and retired in 2002, a 40 year period. He estimates that 80% of his employment with the railroad was working in the yard, and 20% on the road. His initial position was an agent operator, responsible for outlying depots for approximately 6 months. Subsequently, he became a trainman and worked in the train yard. His primary responsibility was putting trains together in a small train yard with seven tracks. He walked around outside in the yard moving cars. Between 1962 and 1975, Mr. Payne primarily worked in the yard. During this time he also worked as a dispatcher for one year.

Occasionally, he would work "industry jobs" where he would be on a train of cars and drop off or pick up at various industries in the area spending up to an hour in each location. Mr. Payne alleges that for one particular industry, they would transport cars loaded with scrap metal consisting of pipes and boiler parts and sealed drums with a radiation symbol on the drum. Cars were placed in a magnet house where cutting, welding, crushing and baling of the scrap metal was going on; "dust boiling around" with loud noise. Mr. Payne alleges that there was asbestos in this scrap metal. Train work

included dropping off scrap metal, and then picking it up again after it had be processed and sold and returning it to the train yard.

Another local industry the railroad serviced about three times a week was a nuclear plant. Mr. Payne worked as a flagman at the rear of the train in the caboose, and would enter the industry yard to uncouple and move train cars to drop off and pick up, taking about 30 minutes each time. Some of these cars were tankers containing helium or natural gas.

From approximately 1975 to approximately 1983, he worked on "the road", riding the train in the engine as a brakeman. From approximately 1983 to 2002, Mr. Payne returned to working in the yard, and riding the train for "locals". His duties were similar to those working in the yard from 1962 to 1975. He recalls the old buildings in the yard including a roundhouse and car shop were pipefitters and engine mechanics worked. Mr. Payne would enter the roundhouse in the mornings to get the engine and occasionally enter the car shop to check on a repair. He reported to work in the yard office and had lunch there as well. He alleges that there was asbestos insulation on the pipes in these buildings. He also alleges asbestos from a heat shield in the cabooses, and while riding in the caboose, if the train brakes were engaged the smoke would trail directly into the caboose, which he alleges came from asbestos brakes. Mr. Payne alleges exposure to asbestos while staying on a layover at a YMCA. He claims there was exposed insulated piping all over the building, including the rooms where the crew would sleep.

Medical Background:

Mr. Payne smoked cigarettes at a rate of one pack per day for a 17 year period. According to a consult with Dr. Michael Brunson, he had a 30 pack year history of smoking. I cannot account for this discrepancy.

Mr. Payne did not use alcoholic beverages.

The family medical history is not relevant to this evaluation.

Mr. Payne has essential hypertension and has experienced scattered skin neoplasms, one of which was considered to be a melanoma on the scalp in 2002. There is no evidence to suggest that the melanoma was incompletely excised, and there is no evidence to suggest it has disseminated.

In October of 2005, Mr. Payne sought medical attention because of blood in the sputum. A chest x-ray was said to reveal an effusion of fluid in the left chest and a mass in the chest behind the heart. A computer axial tomography study demonstrated the lesion to be in the infrahilar region of the left chest obstructing the bronchus of the lower lobe and measuring 6.1cm in greatest dimension (2.1cm=1inch). Emphysematous changes

were noted in the upper lobes of the lung and atelectasis was demonstrated peripheral to the aforementioned mass.

On October 25, 2005 a bronchoscopy revealed a nodular lesion in the bronchus intermedius and a biopsy yielded the diagnosis of a non-small cell carcinoma. (SM05-12890) I have examined this specimen and concur.

A neoplastic survey revealed no evidence of tumor spread beyond the thorax and both chemotherapy and irradiation therapy were initiated with a consequential reduction in the tumor size by approximately 70% at the end of 2005.

In June of 2006, a PET scan demonstrated hypermetabolic activity in the region of the tumor in the left lung, but incidentally showed a hypermetabolic nodule in the right lobe of the thyroid. A fine needle aspiration of this nodule demonstrated a papillary thyroid carcinoma. I have examined this specimen and concur (CM06-926).

During 2006, Mr. Payne was monitored clinically and the lesion of the left lung treated with irradiation. In November of 2006 a pericardial effusion developed suggesting spread of the neoplasm to the pericardium. The mass in the left hilum persisted. Concern mounted regarding the possibility of a cardiac tamponade. At the end of 2007, the neoplasm was considered to be "stable", but management with chemotherapy was continued. In May of 2008, the left pleural effusion increased in size and in July of 2008 a right pleural effusion appeared.

The last medical records (available to me) are from December of 2008. They documented bilateral pleural effusions without a dramatic change in the size of the left lung tumor lesion. Apparently the thyroid nodule decreased in size and metabolic activity in the interim.

Radiological Evaluation:

I have reviewed the reports of numerous radiological studies of the chest including computer axial tomograms. No evidence of pleural plaques or bilaterally symmetrical pleural thickening was observed and there was no evidence of the disease process asbestosis.

Summary and Conclusions:

Mr. Winston Payne is a 66 year old man who was employed by the railroad for a 40 year period working as a trainman, switchman and conductor on freight trains. He claims exposure to asbestos, diesel exhaust, and radiation. He also smoked cigarettes for an extended period of time.

It is my opinion with a high degree of medical probability that Mr. Payne's lung cancer was caused by tobacco product abuse. Asbestos exposure, diesel exhaust and radiation played no causative or contributory role in the development of the cancer as discussed below.

As indicated above, there was no radiological evidence of asbestosis. Accordingly, it is my opinion with a high degree of medical probability that in the absence of asbestosis in a smoker, asbestos plays no causative or contributory role in the development of a lung cancer. The basis for my conclusion is summarized below.

Four review articles, more specifically by Browne (Br. J. Med. 43: 145-149, 1986), Cagle (Am.J. Clin. Pathol. 117: 9-15, 2002), Craighead (Arch. Path. Lab. Med. 116: 16 – 20, 1992), and Weiss (Chest 115: 536-549, 1999), have considered the association of asbestos exposure with the development of lung cancer. These reviews clearly demonstrated that the occurrence of lung cancer in a smoker is not influenced by exposure to asbestos, unless, there is clinical evidence of the disease process asbestosis. These observations correlate with the well-recognized finding of a dose-response relationship between asbestos exposure and the occurrence of lung cancer. At low levels of exposure, the incidence of lung cancer does not increase, whereas when exposure is sufficiently heavy to cause asbestosis the incidence increases by approximately 3 to 4 fold. A considerable body of experimental evidence suggests that long term exposure to tobacco smoke alters the biology of the bronchial lining cells ultimately resulting in cancer in approximately 10 to 15% of smokers. Simultaneous exposure of the bronchial wall to asbestos increases the carcinogenic effects of cigarette smoke. Thus, it is not the scarring of asbestosis, but an exposure to asbestos sufficient to cause asbestosis. Asbestosis is a marker of heavy and prolonged exposure to asbestos.

A report by Selikoff and Hammond is often cited in consideration of this issue, inasmuch as these workers demonstrated a 55-fold increase in lung cancer among asbestos-exposed workers. This study, although an important early contribution to the literature, did not provide information as to whether or not the workers had clinical or pathological evidence of asbestosis. Thus, it is inconclusive. A report from South Africa also demonstrated an association of bronchogenic carcinoma with asbestosis using pathological autopsy information. Unfortunately, these investigators did not provide information as to their criteria for the histologic diagnosis of asbestosis and the presence of associated chest x-ray changes in their subjects.

In long term smokers the carcinogenic effect of cigarette smoking is known to persist indefinitely after cessation. (Halpern; J. Nat. Cancer Instit., 1993)

It is my opinion that diesel exhaust did not cause or contribute to the development of the lung cancer for the reasons discussed below.

After the energy crisis in the early 1970's, the U.S. government and the transportation industry repeatedly asked the question: Does exposure on a long-term basis to diesel engine exhaust cause the development of lung cancer in members of the general population and heavily exposed members of occupational groups? Three types of studies have been carried out. In the first, epidemiological investigations have been conducted in large population groups, such as railroad employees and teamsters, to assess for an increased prevalence of cancer. In the second type of study, experimental animals have been exposed under controlled conditions to various exhaust constituents as well as the exhaust as a whole. Finally, a great many studies have been done using cell cultures to assess the genotoxic potential of diesel exhaust constituents.

Diesel exhaust contains multiple constituents, consisting of a plethora of gases and countless fine carbon particulates with a vast variety of adherent chemicals including various polycyclic aromatic hydrocarbons. Despite considerable effort, long term epidemiological studies have failed to demonstrate a biologically meaningful increase in the prevalence of lung cancer attributable to diesel exhaust exposure in members of the general population, and in worker groups, largely those in the railroad and trucking industries.

These are difficult investigations to conduct inasmuch as even the most subtle of variables must be critically evaluated. And, the investigator is obliged to rule out confounding factors influencing outcomes. In a few studies of large populations of teamsters and railroad workers statistically significant increases in the Relative Risk of 1.2 to 1.4 have been found. But, it is generally agreed in the scientific community that a Relative Risk of 2 or greater is required before the data are meaningful from the perspective of causation. Accordingly, at the end of the day, diesel exhaust exposures in the human population have not been found to be a consequential hazard and diesel exhaust has not been established as a human carcinogen. If it were otherwise EPA and OSHA would promptly act to rigorously control exposures. Obviously, this has not happened.

Animal investigations are replete with confounding problems and small laboratory animals prove to be poor and unreliable models for neoplastic disease in man. Although a sufficient amount of chemical introduced into a cell culture system can cause damage to the cell's reproductive mechanisms simulating carcinogenesis, there is no consistent pattern of effects when cultures are exposed to chemicals found in diesel exhaust. Thus, we have accumulated over the last 30 some years a substantial body of experimental and observational information that in my opinion excludes diesel exhaust as an environmental cause of cancer in humans. The question has been addressed by a number of scientific expert committees with concurrence regarding this matter. And, with the passage of time the efficiency of diesel engines have dramatically improved with a concomitant reduction in exhaust effluents.

It is my opinion that Mr. Payne's alleged exposure to irradiation while traveling on trains allegedly transporting radioactive material from the Oakridge National Laboratories to Knoxville, TN did not cause or contribute to the development of his lung cancer. Although claims of exposure were enunciated in the documentation you have provided me including Mr. Payne's depositions, no specific measures of radioactivity (i.e. dosimetry) are available to permit an estimation of possible exposures and no data on the type of irradiation exist. This is obviously critical information. It is my understanding that while various radioactive contaminants may have been present in certain debris originating in the Oakridge Laboratories there is no reasonable basis for speculating that the alleged contaminated material was in a respirable form, or active with a broad radius of potential health effects on the respiratory system (such as x-rays or gamma particles). Thus, I conclude Mr. Payne was not exposed to radiation having consequential health effects on the respiratory tract, and more specifically having the capacity to cause or contribute to the development of lung cancer.

Epidemiological studies have demonstrated a carcinogenic effect of irradiation on the development of cancer. With regard to lung cancer, pitchblende in central Europe and uranium in the Four Corners region of the United States have been implicated in the causation of lung cancer among underground miners. In these studies the evidence strongly suggests that the exposure of critical importance is the inhalation of an alpha ray emitter, radon, a radioactive gas, emanating from the degradation of uranium. Or, dust particulates of uranium ore aerosolized and inhaled into the respiratory tract by the miner in exceedingly high concentrations, particularly in mines where air circulation and venting is limited. The miners believed to be at greatest risk have been those employed on a daily basis underground for extended periods of time. Obviously, the above considerations do not apply to Mr. Payne's allegations of exposure.

Long term studies have been conducted on Japanese acutely exposed to radioactive substances after the Hiroshima event in 1945. A small number of residents located near the epicenter of the explosion have developed lung cancer believed to be attributable to irradiation. However, the complexity of the exposures and their transient nature differ from the allegedly, undocumented exposures occurring on trains believed by Mr. Payne to be transporting radioactive debris.

Based on these considerations, it is highly unlikely that a trainman would have been exposed to pathogenic amounts of irradiation sufficient to cause or contribute to the development of lung cancer while allegedly exposed for short periods of time on a sporadic basis abroad trains.

Papillary adenocarcinomas of the thyroid develop spontaneously and are generally idiopathic except in persons imbibing radioactive iodine. These cancers customarily have

a good prognosis and usually are not life threatening. They are not causatively related to asbestos and diesel exhaust exposure.

The opinions enunciated above are made with a reasonable degree of medical probability.

If I can provide any additional information, or elaborate on the considerations above please feel comfortable in calling upon me.

Sincerely,

John E. Craighead MD/mll

Signed in Dr. Craighead's absence
to expedite transmission

John E. Craighead, MD

JEC/mll

Craighead, J: *The Pathology of Environmental and Occupational Disease*, Mosby, 1995.
Craighead, J and Gibbs, A: *Asbestos and its Diseases*, Oxford, 2008.

IN THE CIRCUIT COURT FOR KNOX COUNTY, TENNESSEE

Winston Payne,
deceased
plaintiff

v. 2-231-07

CSX Transportation, Inc.
defendant

VERDICT FORM

1. Was the defendant negligent as defined in these instruction?

yes

2. If you answered yes to question one, did that negligence cause in whole or in part the harm suffered by plaintiff?

yes

3. If negligent, was the defendant negligent with regard to:

Asbestos exposure? yes

Diesel exposure? yes

Radiation exposure? yes

If your answer to any of these is yes, did negligence of the defendant cause in whole or in part the harm suffered by plaintiff as a result of:

Asbestos exposure yes

Diesel exposure yes

Radiation exposure yes

4 A. Did the defendant violate the Locomotive Inspection Act or any regulation concerning locomotives read to you regarding asbestos and was any such violation a legal cause of plaintiff's harm?

YES

B. Did the defendant violate the Locomotive Inspection Act or any regulation concerning locomotives read to you regarding diesel fumes and was any such violation a legal cause of plaintiff's harm?

YES

C. Did the defendant violate any regulation read to you regarding the operation of railroad cars and transportation of radioactive materials read to you and was any such violation a legal cause of harm suffered by plaintiff?

YES

5. If you answered yes to question two, was plaintiff negligent with regard to harm he suffered and did his negligence cause in whole or in part the harm he suffered?

YES

6. If your answer to question five is yes, to what extent, expressed in percentage, did plaintiff's negligence cause in whole or in part the harm he suffered?

62 %

7. What amount of money do you find, without deduction for any negligence which you may find on plaintiff's part, will fairly represent adequate compensation?

$ ~~8.6 million~~

3.2 million @ 100% MLR 1/30/10

IN THE CIRCUIT COURT FOR KNOX COUNTY, TENNESSEE

ANNE, PAYNE, widow of WINSTON PAYNE, deceased,

Plaintiff,

vs.

CSX TRANSPORTATION, INC.,

Defendant.

No.: 2-231-07
Jury Demand

2011 MAR 14 P 2:38
CATHERINE F. QUIST
CIRCUIT COURT CLERK

ORDER OVERRULING DEFENDANT'S RENEWED MOTION FOR MISTRIAL

The Defendant, CSX Transportation, Inc.'s Renewed Motion for Mistrial, based upon the Defendant's contention that it was entitled to a mistrial on the issues relating to thyroid cancer and cesium contamination at Oak Ridge, came on for hearing on the fourth day of January, 2011, and the Court, after considering the Motion, the Defendant's Memorandum in Support of the Motion together with Exhibits, the Plaintiff's Reply to the Motion and the Defendant's Reply to the Plaintiff's Reply to the Motion and the argument of counsel, found that the Motion was not well taken and should be denied.

Accordingly, it is ORDERED that the Defendant's Renewed Motion for Mistrial be, and the same hereby is denied.

Enter this 14 day of MARCH, 2011.

The Honorable Harold Wimberly
Circuit Court Judge

APPROVED FOR ENTRY:

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IN THE CIRCUIT COURT FOR KNOX COUNTY, TENNESSEE

WINSTON PAYNE,)
)
Plaintiff,)
)
v.) No. 2-231-07
)
CSX TRANSPORTATION, INC.,)
)
Defendant.)

* * * * * * * * * * * * * * * * * *

RULING

(Motion for New Trial)

August 19, 2011

Hon. Harold Wimberly, Judge

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(Proceedings began at 2:02 pm.)

THE COURT: So, is everybody hooked up and ready?

MR. GILREATH: I guess.

THE COURT: Well, I took a lot of time to go over all this again and we had a number of motions that we discussed at our last meeting. The Court has come to this conclusion, that the motion for new trial is warranted. I hate to admit this because a lot of the problems come back to me, but in particular the jury instructions I feel were incomplete, therefore insufficient and inadequate and incorrect. This was illustrated graphically by their response and what we had to do to try to understand what they meant.

During the trial itself I agree that there were too many things that had been ruled improperly for the jury to consider that were considered and the presented to the jury, and probably the worst of those was when we started talking about this thyroid cancer which he apparently didn't have. The Court took it

upon itself to make a comment about that and made a comment which could well have been misinterpreted. I just made -- did not express what I tried to express by saying that is not part of this lawsuit. It could be understood that he actually had that and it was not being considered now.

I deeply regret what I just said because, you know, I like to get cases over with, but at the same time I feel that this one was probably not handled appropriately and needs to be handled again, whether by me or somebody else. So that's the extent of what I want to say today.

MR. BAKER: All right, Your Honor, we'll prepare the order.

(End of Proceedings at 2:04 p.m.)

C E R T I F I C A T E

STATE OF TENNESSEE:

COUNTY OF KNOX:

I, Jeffrey D. Rusk, Registered Professional Reporter and Notary Public, do hereby certify that I reported in machine shorthand the foregoing proceedings; that the foregoing pages, numbered 1 to 4, inclusive, were typed by me using computer-aided transcription and constitute a true and accurate record of said proceedings.

I further certify that I am not an attorney or counsel of any attorney or counsel connected with the action, nor financially interested in the action.

Witness my hand and official seal this the 19th day of August, 2011.

_____

Jeffrey D. Rusk
Registered Professional Reporter
Notary Public at Large
My Commission Expires: 6/3/14
TCRB License No. 212

IN THE CIRCUIT COURT FOR KNOX COUNTY, TENNESSEE

ANNE PAYNE, widow of WINSTON PAYNE,	)	
Plaintiff,	)	
v.	)	No. 2-231-07
CSX TRANSPORTATION, INC.,	)	
Defendant.	)	

* * * * * * * * * * * * * * * * * *

EXCERPT OF PROCEEDINGS

Before: Honorable Dale Workman, Judge

Friday, October 5th, 2012

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TRUESDEL & RUSK

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THE COURT: The parties stipulate there was never -- the parties stipulate that this individual plaintiff never had an individual monitor to know how much if any radiation he was exposed to?

THE WITNESS: To my knowledge, he was never monitored.

THE COURT: The parties stipulate that?

MR. JORDAN: We agree.

MR. SHAPIRO: Yes.

THE COURT: Okay. Go ahead.

BY MR. SHAPIRO:

Q And as far as surveys of actual equipment, where a survey device was brought into Witherspoon and things were tested, that was done at different times, wasn't it?

A Well, as a licensee Witherspoon had an obligation to do surveys. Whether they wrote them or recorded them or not --

THE COURT: Counsel, I don't know where you're going, okay, and you may know and I don't. But as I understand their attack here, their attack relates to one scientific issue, and that scientific issue is can you say

any radiation exposure can cause lung cancer if it's not measurable above 10 rems -- is attack one. Attack two is that your witness cannot say what exposure your client had. Now, those are, I understand, the two attacks on the science, not on the reliability, not on the weighing of the evidence, not on whether you should believe this expert or that expert. Those are the two things I think they're trying to deal with. Now, this may relate to some of that, I don't know, but let's -- let's get there if it does, okay?

BY MR. SHAPIRO:

Q Well, Dr. Dooley, first of all, you're -- the Health Physics Society is not -- you're not offering any medical causation opinions in this case, are you?

A I'm not a medical doctor, so no. It's based on radiation science, not on my medical expertise.

Q So this whole thing that the Health Physics Society puts in this paper is an opinion of the Physics Society about what, in their view, causes what?

A Well, it's not just the opinion of the Society, counselor, it's the opinion of the National