versus John Hancock Funds, and it talks about the qualification, and then they talk about the methodology and all of those things. And "will substantially aid" is the question that comes in here. So let's -- all I'm dealing with, though, is specific questions, specific answers, and the base objection is that within his field of expertise, which is health physics, that the field, the science, says in order to determine whether radiation exposure is harmful or could be harmful you must have a certain dose, and that to say if you don't know he got that dose, "is it harmful" would not be acceptable science.

Page 904 of the witness's opinion, questioning by Mr. Shapiro, the question is: "Is there anything that you would infer or deduct or about whether there was any unsafe level" -- unsafe level -- "of radiation exposure to Mr. Payne at the time he would have worked at Witherspoon site all these years?"

Answer -- remember the word is "unsafe," not just whether there was an exposure -- "Well, we've talked about surveys and measurements been done all the way from the

early '60s to 2007. And of course Mr. Payne was there for a good part of that period, so my inference would be that certainly he did receive radiation that was above background level, which means it's more radiation than he would have received had he not been there and doing those duties." Period. "And since -- so previously discussed the fact that there hasn't really been a lower threshold on radiation exposure, what is safe and what is not safe, then you could infer that there was an unsafe level."

And the Court finds there's no science to back up that last sentence and that last sentence only. So the Court is going to strike on Page 905, Line 1 from the word "and" through the word "exposure," because that's not backed up by the science. Because the science clearly is, on radiation exposure, that there are levels by which you cannot say it's unsafe.

The next page, "Would you agree" -- Page 927.

MR. BAKER: 927?

THE COURT: 927.

"Would you agree there's a dose

MR. SHAPIRO: Yes.

THE COURT: Page 953, Line 1 through Line 4 is stricken.

And that's the end of Mr. Mantooth.

Do you want to go on to the next one now or do you want to get something to eat?

MR. BAKER: Let's get something to eat.

MR. JORDAN: That's fine.

THE COURT: We'll take a 30 minute recess.

(Recess.)

Now, the next one is Dr. Vance. I understand you all have resolved the issues as to Dr. Vance.

MR. JORDAN: We have, Your Honor.

THE COURT: Can you, for the record, say how you've resolved it?

MR. SHAPIRO: Yes, Your Honor.

THE COURT: Tell me.

MR. JORDAN: Yes, sir. On Page 537 of the trial transcript, Line 16 to Line 18, that one sentence, "Particularly with respect to the locomotive cab, I think that there were injurious levels of exposure."

THE COURT: Take out "I think there was"?

MR. SHAPIRO: Taking that out.

MR. JORDAN: Yes. Starting with the word "particularly" --

THE COURT: From "particularly" through that whole sentence. Okay.

MR. JORDAN: Yes, sir.

And then on Page 539, at Line 15, where it says, "unsafe levels of," those three words, take those out.

THE COURT: So we're taking out only "It's my opinion he was exposed to injurious levels of diesel exhaust"?

MR. JORDAN: Yes, sir, we're taking that out as well.

THE COURT: That's the only thing that comes out?

MR. JORDAN: Well, on Page --

THE COURT: At that point. I don't mean from thereafter. At that point that's the only thing that comes out?

MR. JORDAN: Yes, sir. At Line 15, those three words: "unsafe levels of."

THE COURT: Okay.

MR. JORDAN: And it's at Line 22, that one sentence, "It's my opinion," that comes -- that whole sentence comes out.

THE COURT: Okay. Well, okay. "Based upon your review of the materials in this case, was Mr. Payne exposed to exhaust fumes" -- is that now how we're going to rephrase the question?

MR. JORDAN: Well, "to diesel exhaust fumes" -- "was he exposed to diesel exhaust fumes."

THE COURT: "Diesel exhaust fumes"?

MR. JORDAN: Yes, sir.

THE COURT: And then, "In my opinion he was exposed to injurious levels" comes out. And where it says "He said in his deposition" stays in? Okay?

MR. JORDAN: Yes, sir. And that resolves --

MR. SHAPIRO: That's it.

THE COURT: Is that it? All right. Let's go.

MR. JORDAN: And as to Dr. Weill, who is going to testify by Skype, we are really just objecting and moving to strike a couple of

passages on Page 536 -- I'm sorry, I've got the wrong thing.

THE COURT: Yeah, I've got 580-something, is the first one I've got.

MR. JORDAN: Yeah, I'm sorry. I picked up the wrong stack. Page 385, starting at Line 8, to 386 through Line 2, we're objecting to that.

THE COURT: Okay.

MR. JORDAN: And on Page 418, Line 3 through Line 15, we're objecting to that.

THE COURT: Three -- well, if you do that, you take out the answer but not the question. If you take out all of that, you've got to object to the question too, or --

MR. JORDAN: Yes, sir, we do need the question. So that would be beginning on Page 417. I'm sorry, I don't have that line.

THE COURT: Okay. So you're objecting to all that question and answer?

MR. JORDAN: Yes, sir.

THE COURT: All right, what's the next one?

MR. JORDAN: That's really it.

MR. BAKER: And that's Frank, right?

Section 7 he states that I exclude background exposures. I have never so testified, instead I have always said that they are part of overall exposure that a person gets in their lifetime."

The last paragraph: "CSX defendant experts agree that a general cause of lung cancer is asbestos, smoking, and radiation. I agree. I have considered these causes and others in my differential diagnosis."

He never says I have indication of there's any science that says it causes. All he's ever said is it substantially increased the risk. How does he move from that to causes? He agrees -- just went through agreeing with the same thing Dr. Weill said specifically, as we know, on radiation, that once you get above a certain number -- there's a certain number, the dose, we accepted, cannot be found to causative of anything. That's accepted within the science we went though.

As to this patient, there's no proof of the number of his exposure to radiation, so with that background, with this, how does he reach causation when he does not show, cannot

show quantitatively, a dose exposure to radiation?

MR. SHAPIRO: First of all, the Health Physics Society are not doctors. They are physicists. And I don't believe Dr. Frank in any way agrees, and it's in his testimony at trial --

THE COURT: Then what did he use to reach that conclusion?

MR. SHAPIRO: He reached what doctors do, that's a differential diagnosis based on the --

THE COURT: But that's not what we're talking about. Differential -- that's the reason I took the time to try to go through with Dr. Weill and make sure my understanding and his understanding of what a differential diagnosis is. A differential diagnosis recognizes this person has something. Then to try to determine causation, you try to determine what things occurred out there which could have been the cause, which may have increased the risk of that thing, whatever you're treating, which is what he did. Then you have to go through and eliminate those that

THE COURT: Mr. Payne's. Is there anything about the workplace of CSX that is any part of a cause of his cancer? That's the test, isn't it?

MR. SHAPIRO: Sure. And Dr. Frank had an interview with the plaintiff about asbestos exposure, had documents, lots of documents --

THE COURT: But he says he could not quantify what exposure he had, and just said it again in his affidavit.

MR. SHAPIRO: He said there's no survey or dosing done by the employer --

THE COURT: No, he said he cannot quantify the amount of exposure.

MR. SHAPIRO: He said he couldn't quantify, correct.

THE COURT: That's what I'm saying.

MR. SHAPIRO: And Dr. Weill said he's never had a patient that he could --

THE COURT: Well, what tells him it wasn't caused by what he gets -- exposure walking up and down the streets versus whether it was caused by the exposure he got at the railroad?

MR. SHAPIRO: Your Honor, this is

10 rems. How this witness got to substantial as to the radiation appears nowhere in the record and nothing to indicate -- to back it up.

The next question goes to asbestos. There's absolutely no -- nothing that's been shown to me today to indicate where this witness got the idea of "substantial." Yes, there's some evidence that's going to come in to indicate he may have been exposed to some asbestos. Yes, a minority of doctors -- which he has a right, I think, under the law -- he doesn't have to agree with the majority. It must be somewhat -- it must be accepted within -- even if it's by a small -- he can't just make it up just because him and one other person. That's what Daubert's all about. It doesn't have to be what the majority thinks. But here, he has no -- moving from that to say it's substantial asbestos exposure, I don't know how he reached that idea. He's quantifying the degree or amount of exposure with no -- absolutely no background whatsoever as to the quantifying measure of that exposure.

As to diesel, there's been no proof

advised them that asbestos could cause cancer, and the peer review literature had lots of discussion of that back in the -- back in the 60's.

OSHA issued a standard for asbestos in 1971. It was the first chemical that OSHA regulated, and so there was that kind of knowledge as well.

So the knowledge and information that the railroad had extended back to 1935.

Q. Based on your review of all your materials and everything that you analyzed, was Mr. Payne exposed to asbestos dust at work?

A. My opinion --

MR. JORDAN: Objection, Your Honor. Lack of foundation.

THE COURT: He may answer the question. Go ahead.

We discussed earlier that the jury can decide the value of the answer to the question.

Go ahead.

A. It's my opinion that he was exposed to asbestos, particularly in the locomotive cab, because there's a lot of history of the presence of asbestos in the cab heaters. The asbestos in those

heaters was blowing out by the fan that was present in the heater. There's a lot of vibration that takes place on locomotives, and that contributes to rendering asbestos fibers airborne.

He had additional exposure through brake shoes, as well as some of the buildings that he was in. Particularly with respect to the locomotive cab, I think that there were injurious levels of exposure.

Q. (BY MR. SHAPIRO) Are there any pertinent regulations that apply in the railroad industry with regard to locomotive engines and asbestos?

A. There are. There's a statute, as well as Federal Railroad Administration regulations, that state that a railroad carrier may use or allow to be used a locomotive when the locomotive and its parts are in proper condition and safe to operate without unnecessary danger and have been inspected.

Well, the evidence from Mr. Payne is that the locomotives he was in were never inspected. The fact that they were -- that they had asbestos in the heater that was on the cab, and experience shows that that's typically in bad condition and poor condition, indicates that the

monitoring with the thermoluminescent -- PLD that I showed you, and also internal monitoring through urinalysis, this type of thing. Monitoring the air that's workers are breathing, that would be critical as well.

Q. Now, we talked a few moments ago about the Tennessee the Department of Radiological Health files. You reviewed those files, right?

A. Right.

Q. Were there material produced from the 1960's all the way through 2006 or 2007 by the Tennessee regulators?

A. Yes, sir.

Q. In various materials do they talk about surveys?

A. Yes.

Q. Do you understand when you see references to a survey and a background level what it means from your experience as a health physicist?

A. I understand what it means when they get a measurement relative to background, whether it's higher than background or lower than background, yes.

Q. I'm going to ask you about your review of those materials in three phases, the 60's

through the 70's, the 1980's, and this period from like '91 or '90, '91 through 2007.

Now, in '90 or '91 was there something that took place at the Witherspoon Scrapyard that was significant as far as regulation?

A. Well, yes, it came part of the Superfund.

Q. Okay. And did you review a number of reports and documents in that time frame once it was under scrutiny to become regulated?

A. From '91 forward.

Q. Tell the jury what if anything in these records of surveys and inspections that you found was relevant as far as whether there was radiation contamination at that site?

A. There was actually three reports. The key one was done by the SAIC company. It was done in 2007, and this is long after the metal has been taken out, there's been remediation of the soil and everything else, but still they found detectable levels of uranium and plutonium on the site. It was a health hazard study, I believe.

In the late 90's there were two reports --

Q. Slow down a second.

What did the SAIC report find as to plutonium?

A. They found -- well, plutonium they basically in the surface soil, they found they had established what they called a level that above that level it was a contaminant of concern, which means they were going to analyze that for health impacts. And there were several samples in soil -- and memory fails, maybe even some of the groundwater that had levels of plutonium above that contaminant of concern threshold.

Q. You told us earlier, would that be found naturally there?

A. No, absolutely not.

Q. What about enriched uranium, what did the SAIC report in 2007 report find about enriched uranium?

A. They found levels of uranium isotopes which includes 238, 234, 235 all above what you would call background levels.

Q. Now, when they detected those levels in the soil or water, was this during the cleanup or was this after the cleanup had started in 1991?

A. It's my understanding that it was

well after the cleanup.

Q. Is there anything as a health physicist that you can derive from finding plutonium in the soil on that ten acre site?

A. Well, it didn't -- as we've already discussed, it didn't get there naturally so it had to have been brought there.

The only people that I know of that deal with plutonium on a regular basis is the DOE or its predecessor, the AEC, so it had to have been brought there from one of those sites.

Q. What about enriched uranium?

A. I would make the same statement about enriched uranium.

Q. Okay. Was there anything else in that time frame, in that cleanup time frame that you want to tell the jury about?

A. Well, there were two other reports. They were called remedial investigation feasibility study reports where essentially they look at all the data that's been taken and offer the feasibility of remediating a site and look at different alternatives.

The thing that I was particularly interested in was their tables of analytical

results, and they also recorded detectable measures of plutonium and uranium on the site.

Q. What years were those done?

A. There were two. There was one in 1996 and then another in 1999.

Q. Okay.

A. I think it was two different subcontractors.

Q. All right. Does that cover that time frame, that last time frame now?

A. Yeah, I think so.

Q. All right. What about -- what was in the Tennessee regulator records from any time in the 60's through the 1970's that you felt was relevant to tell this jury about?

A. Well, again, the thing that impressed me was the sheer mass of contaminated metal that was shipped. I did a quick calculation just from Oak Ridge. There was like nearly 3,000 gross tons of contaminated metal.

Q. Let me stop you. How did you know it was contaminated?

A. Because it said at the top of the page, contaminated metal. I mean, on the records that I reviewed it was an inventory metal shipped

and it said contaminated metal shipped to Witherspoon.

Q. Okay. Go ahead.

A. All right. Records from the contracting officer relating to David Witherspoon's contract clearly state this is -- the vendor should -- or the buyer, the purchaser should understand that this is not being -- I'm paraphrasing here, that the metal is being sold as not uncontaminated or contamination-free and it should not be assumed that it can be free released to the public. So David Witherspoon held an AEC and later a Tennessee license for radioactive material, so this was not a problem, they knew it was contaminated, he was licensed to received it and so they sent it.

The other thing was is that, also from the contracting organization was a note regarding material specifically in the right wing yard that came from ORNL that the material is -- I forget whether they said likely or possibly contaminated with plutonium and that they could not guarantee the levels of plutonium that was on the metal, that it was going to meet any type of level.

Q. Is that -- what is surface

contamination?

A. Well, it's pretty self-explanatory. Surface contamination is contamination that is fixed to the surface of a piece of equipment, a piece of metal, something like that. It can be rubbed off. It's not integral to the metal -- it's not -- you know, short story is that surface contamination can be released into the air, it can be transferred to your hands and then to your mouth if you don't have the proper controls.

Q. Okay. Anything else in the -- what about any specific Tennessee regulator tests out there in the 60's or 70's, were there any that you noted in your records?

A. Yes, there were several that I noted.

There was an inspection -- the Tennessee regulators got wind that there was some stuff coming from a plant up in Lynchburg, Virginia, so they went out. They found readings as high as 25 millirem per hour, which I don't know if you guys have been educated on that, but basically background -- background levels for exposure, for gamma, the natural background is something like a thousand times less than that, okay? So just to

kind of give an idea that what they were reading was not natural.

Q. What is gamma radiation?

A. Gamma gradation is photon. It has no mass. Very penetrating, goes right through.

Q. Can it go right through the human body?

A. Oh, yeah. Yeah.

Q. And so what year was that detected and where?

A. That was in 19 -- 1968, an inspection of DWI, 1968.

Q. It that David Witherspoon, Inc., DWI?

A. Yes.

Q. All right. Any others that you made note of?

A. Well, I just kind of picked out the things of note in the report. They found alpha contamination, not specific, whether it was uranium or plutonium, but alpha contamination, 400,000 counts per minute.

Q. What does that mean? We have no idea.

A. Well, a picocurie is around two

counts per minute, okay, and so the natural -- somewhere in the tens of picocuries is a natural level for uranium. So you're looking at maybe 20 counts per minute, 20 would be a natural background, somewhere in that range. So they were receiving -- they were detecting 400,000 counts per minute.

Q. Where did they detect that; did they say in the records where at the site?

A. It was on a piece of equipment, which by the way was my next point, that contained what they call yellow cake, which is a form of uranium that's kind of an intermediate step in the processing of uranium for use in weapons.

Q. So the regulators said they saw yellow cake on some equipment or what?

A. Yes, it wasn't surface contamination, it was like bulk quantities of yellow cake in this piece of equipment.

Q. Okay. What else did you record in that phase from the 60's to the 70's sir?

A. Early 70's there was another inspection in the early 70's again. I'm sorry, I didn't note actual readings, but more deposits of yellow cake there. There was another inspection in '73 where they detected uranium turnings which --

Q. What are uranium turnings?

A. Well, uranium turnings are -- the uranium left over from a machining process. If you've ever done metal work, you know, you try to make a part out of metal and the trimmings drop on the floor. Same thing with uranium, when you are making parts for other things, you have turnings left over. And so these were drummed up and at some point deposited on Witherspoon's site.

They were reading another deposit of yellow cake, reading up to 150mr per hour.

Q. What does that mean compared to what you would expect at that normal --

A. Well, that's about 150,000 times what your background would be, so --

Q. Where did they find that?

A. That was -- I think that was associated with the yellow cake deposit, was 150mr per hour. Yeah.

The inspector also made a note that the evidence exists that the material was leaching from the metal and the equipment into the ground.

Q. Okay. Did you have any others up through the 70's or do you want to move to the 1980's?

A. Let's move to the 80's.
Q. All right. Let's talk about 80's. What notes do you have of relevant activities there?
A. Well, the '85 was a banner year. There were two -- there were -- actually there were two workers from DWI that were interviewed, and they reported high levels of contamination --
MR. JORDAN: Your Honor, may we approach, please?
THE COURT: Is this what we talked about before?
MR. JORDAN: Yes.
THE COURT: We already ruled on that. It's hearsay. Jury won't consider it. Go ahead.
THE WITNESS: -- okay.
Q. (BY MR. SHAPIRO) What was the next inspection or finding that the regulators had?
A. Well, actually I forget who actually did this for the railroad, but some of their -- they contracted some of their own measurements and recorded a 7 micro R per hour background. Measurements on the site were 16 micro R per hour to 400 micro R per hour, so --
Q. What does that mean compared to a

background level?

A. Well, background of 7, then the maximum would be about 35 times background.

Q. And what year was that done?

A. That was '85. And they collected soil samples that the range was 7 picocuries to 74 picocuries.

You could probably assume that the 7 picocuries was about background level.

Q. So what was the highest?

A. 74 picocurie, so ten times background.

Q. Any others in the 80's of relevance to you?

A. That's the year that the metal was removed, was in 1986 by DOE, and I'm almost positive that the yellow cake they reported was what we've already reported on as they were moving this metal out of here.

They also reported that they found uranium metal at which they identified by -- uranium is called a pyrophoric metal, will catch on fire so. If you take a piece of uranium metal and take a file or a nail or something and scrape it, it will spark, and that's -- they identified that as uranium by the

fact that it would spark.

In 1987 there was a survey by Bechtel National that found soil at 23,000 picocuries per gram background --

Q. So how far over background was that finding?

A. Well, one is 23,000 and the other one is roughly 10, and that's about 2300 -- 2300 times, right.

They found gamma readings, the photon readings 70 times background.

Q. And this is Bechtel?

A. Bechtel National.

Q. Are they a known consultant in the field of radioactive materials?

A. Oh, yeah, they are. They are a huge company, yes.

Q. Anything else they found that is relevant? I interrupted you.

A. Yeah. And they reported in their report where they -- where I found these, these results, they reported that the contamination extends beyond DWI, David Witherspoon, Incorporated.

Q. What did they mean by that, or did they detail it?

A. Well, they did. They said it seemed to be moving off the site to the east and I believe the south, but then they recorded that it seemed to be contained by the ditches on the other two sides. But it appeared from their readings that they -- that it was not being contained within where the metal had been.

Q. Anything else in the 80's, sir?

A. I think that covers it.

Q. Okay. Now, you told us a few moments ago that you reviewed a whole lot of materials, and I take it you obviously reviewed these materials that you just talked about, and you wrote a written report.

What was the first report you wrote in this case?

A. It was May 20, 2009.

Q. And I posed questions to you about whether CSX had a radiation protection program in place during Mr. Payne's career.

How did you answer that broad inquiry?

A. No. I found no evidence that they had any nature of a radiation protection program in place.

Q. Based on the materials that you just told us about, do you have any evidence from which you could infer or deduce whether Mr. Payne, a worker going on that site and handling train cars in and out of there, had any unsafe level of radiation exposures while he was there?

MR. JORDAN: Objection, Your Honor. Complete lack of foundation for this witness to offer that opinion.

THE COURT: Well, we'll let the witness answer the question.

A. Would you repeat it, please?

Q. (BY MR. SHAPIRO) Was there anything that you could infer or deduct about whether there was any of unsafe level of radiation exposure to Mr. Payne at the time that he would have worked at the Witherspoon site all these years?

A. Well, we've talked about surveys and measurements that had been done all the way from the early 60's through 2007. And of course, Mr. Payne was there a good part of that period, so my inference would be that certainly he did receive radiation that was above background level, which means that it's more radiation than he would have received if he had not been there or been doing

those duties. And since -- so previously discussed the fact that there hasn't really been a lower threshold on radiation's exposure, what is safe and what is not safe, then you could infer that that was an unsafe level of radiation exposure.

Q. Can you tell this jury an exact or precise amount of radiation that he got exposed to?

A. No, I cannot. The record simply won't support that.

Let me clarify that.

When I say the records won't support it, not just the -- I mean, there were no surveys, no personal dosimetry, no contamination measurements recorded that was on the metal that was being transported, no air monitoring -- well, there was one -- one air sample taken during one switching operation, but I think that was actually conducted by the state of Tennessee. But at any rate, for the most part there was no real data for Mr. Payne.

Q. I asked you earlier about surface contamination on metal, okay, and I guess did you understand whether Witherspoon was manipulating the scrap metal on a routine basis at the site?

A. Yeah. I forget which exactly which documents, but I did read in the documents reviewed

those duties. And since -- so previously discussed the fact that there hasn't really been a lower threshold on radiation's exposure, what is safe and what is not safe, then you could infer that that was an unsafe level of radiation exposure.

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Q. I asked you earlier about surface contamination on metal, okay, and I guess did you understand whether Witherspoon was manipulating the scrap metal on a routine basis at the site?

A. Yeah. I forget which exactly which documents, but I did read in the documents reviewed

his main -- his main thrust with the metal there, number one, he separated iron-containing metal from noniron-containing metal, and he did that with a bringing magnet, and he basically would take the magnet over a rail car and pick it up and what stuck was iron containing and what didn't stick fell back into the car.

And he was also baling metal and shredding metal, shredding and baling and then sending it to another operation. All those are very aggressive mechanical processes which for cases where the metal has surface contamination, you can expect that at least some of that was released.

Q. Do we know anything -- or I should rephrase this. As a health physicist what do you know about airborne radioisotopes? Once they come off a piece of metal that's being moved around, how far can it go?

A. Well, it's highly variable and depends on a lot of factors, but I mean it's not unusual for it to go miles. I mean, it's -- depending on wind conditions and everything else.

Q. Well, how big was the Witherspoon site?

A. I understand the whole site was

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*

SUPPLEMENTAL AFFIDAVIT OF ARTHUR L. FRANK, M.D., PH.D.

Before the undersigned, a Notary Public in the city of ARDMORE, state of PENNSYLVANIA this 13th day of October, 2012, the aforesaid, who being duly sworn, doth depose and say;

1. My name is Arthur L. Frank, M.D., Ph.D. and I am a professor/instructor at the School of Public Health, Drexel University, Department of Environmental and Occupational Health in Philadelphia, Pennsylvania.

2. I am currently a professor of public health at Drexel, a professor of medicine associated with Drexel University's School of Medicine, and chairman of the Department of Environmental and Occupational Health at Drexel University School of Public Health.

3. I am a board-certified diplomate by the American Board of Internal Medicine and by the American Board of Preventive Medicine (occupational medicine). One of my specialties involves cancer and I have written or taken part in numerous books and publications studying cancer in various respects.

4. I was retained by Richard N. Shapiro to provide opinions in this case relating to Winston Payne. Prior to arriving at my opinions, I reviewed extensive materials provided by the parties and provided by Mr. Shapiro, including but not limited to Winston Payne's deposition testimony, extensive materials relating to his occupational exposures, and I consulted with numerous resources, and also cited various resources in arriving at my opinions.

5. Along with my specific background and training, outlined on my resume submitted previously, I was specifically provided the following general materials on this case before forming my opinions which formed my 2010 trial testimony:

A. Medical treatment records of Winston Payne, cancer biopsy results, imaging studies, history and physicals in medical records, miscellaneous cancer-related treatment records.

B. Interview and history received directly from Winston Payne that I personally conducted, including a complete social and occupational history.

C. Voluminous materials addressing radiation, asbestos and diesel exhaust issues, either from CSX/L&N Railroad, from railroad industry or governmental sources, as well as peer-reviewed medical studies and articles.

D. Reports and Affidavit of Certified Industrial Hygienist Leonard Vance, detailing Winston Payne's occupational history, including his exposure to radiation, discussing workplace radiation exposures, discussing asbestos exposures and diesel exhaust fume exposures during his railroad employment, including discussion and asbestos abatement outlined by witness Terry Rhodes, who himself discussed removing friable asbestos insulation from diesel engines

of the same make and model as would have been operated by Winston Payne during his work career, including discussion of diesel exhaust workplace exposures outlined by Winston Payne while working for CSX, and which discussed radiation exposures during the period of time Winston Payne worked at or near the Witherspoon scrapyard outside Knoxville.

E. Reports and Affidavit of Daniel Mantooth, outlining Winston Payne's exposure to radioactive isotopes during his work at or near the Witherspoon scrapyard, including discussion of the scrapyard closure and radioactive remediation due to that contamination, and reports detailing both enriched uranium, including yellow cake, and plutonium contamination, discovered at the Witherspoon scrapyard in the years following its closure, and further discussion of the lack of any radiation protection program during Winston Payne's entire employment with CSX.

F. My extensive involvement in previous evaluations over my thirty year career many relating to diesel exhaust exposures to railroad workers, asbestos exposure to railroad workers, and some prior involvement in cases involving radioactive or radiation exposures to workers.

G. I provided written reports dated August 25, 2008; June 8, 2009; an affidavit dated September 3, 2009; and, most recently, an affidavit dated October 2, 2012.

6. Additionally, I reviewed all of the materials outlined in the index attached hereto as Exhibit A, which were provided to me by counsel of the plaintiff prior to my testimony received during the trial in 2010.

7. As for Winston Payne's likely exposure to plutonium, while calling at Witherspoon scrapyard, plutonium is recognized to be a lung cancer carcinogen, and there is no safe level of inhalation of this radioisotope known.

Arthur L. Frank MD

ARTHUR L. FRANK, M.D., PH.D.

Subscribed and sworn to before me this 13th day of October, 2012.

Deborah Francis

Notary Public

My Commission Expires: 12/7/2013

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
DEBORAH FRANCIS, Notary Public
City of Philadelphia, Philadelphia County
My Commission Expires December 7, 2013

INDEX OF MATERIALS RELIED UPON BY
DR. ARTHUR FRANK

Payne v. CSX

Various medical records of Winston Payne (attached as Exhibit 1)

Various non-medical documents (attached as Exhibit 2)

Reports of R. Leonard Vance, Ph.D., P.E., CIH (2008, 2009, Affidavit)

Reports of Daniel S. Mantooth, CHP (2008, 2009, Affidavit)

Report of William R.C. Stewart, III, M.D., MPH

August 30, 2008, report authored by R. Leonard Vance

Various diesel materials (attached as Exhibit 3)

Various asbestos materials (attached as Exhibit 4)

Various radiation exposure materials (attached as Exhibit 5)

Winston Payne deposition exhibits – photographs

September 6, 1984 deposition transcript excerpt - Isadore Kaplan, M.D.

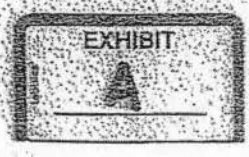
Article - Public Health Statement for Polycyclic Aromatic Hydrocarbons (PAHs)

Article - Polycyclic Aromatic Hydrocarbons (PAHs) - ToxFAQs: *Agency for Toxic Substances and Disease Registry (ATSDR)*, www.atsdr.cdc.gov/toxfaq (Sept., 1996)

Article - Lung Cancer in Railroad Workers Exposed to Diesel Exhaust: Garshick, E., et al., *Environmental Health Perspectives*, Vol. 112, No. 15 (Nov., 2004)

Article - A Case-Control Study of Lung Cancer and Diesel Exhaust Exposure in Railroad Workers: Garshick, E., et al., *American Review of* Respiratory *Disease*, 1987; 135:1242-1248

Article - A Retrospective Cohort Study of Lung Cancer and Diesel Exhaust Exposure in Railroad Workers: Garshick, E., et al., American Review of Respiratory Disease, 1988; 137:820-825



FrankAff000001

Article - Diesel Emissions and Lung Cancer: Epidemiology and Quantitative Risk Assessment - A Special Report of the Institute's Diesel Epidemiology Expert

Article – Chronic Obstructive Pulmonary Disease Mortality in Railroad Workers: *Occup Environ Med*,, 2009; 66:221-226

Defendant CSX Transportation, Inc.'s Expert Disclosures

Interoffice memorandum dated December 17, 1991 regarding Plutonium

Radiation and Mortality of Worker's at Oak Ridge National Laboratory: Positive Associations for Doses Received at Older Ages: *Environmental Health Perspectives*, Vol. 107, No. 8 (Aug., 1999)

Acute Inflammatory Responses in the Airways and Peripheral Blood After Short-Term Exposure to Diesel Exhaust in Healthy Human Volunteers. *Am J Respir Crit Care Med*, Vol 159, pp 702-709, (1999)

Respiratory Function Changes from Inhalation of Polluted Air. Archives of Environmental Health, Vol. 49, No. 31, (May/June 1994)

Asbestos – "breathing" slides for review (5)

State of Tennessee Memorandum regarding Dorothy Hunley (8/9/85)

FrankAff000002

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email: RShapiro@hsinjury.com

Richard N. Shapiro (VA, WV, DC, NC)
John M. Cooper (VA, WV., NC)
James C. Lewis (VA, NC)
Randall E. Appleton (VA, WV, NC, KY, SC)
Emily Mapp Brannon (VA)

2008 Reliance Materials

COPY

August [illegible], 2008

VIA OVERNIGHT DELIVERY

Arthur Frank, M.D.
Drexel School of Public Health
1505 Race Street, 13th Floor
MS-1034
Philadelphia, PA 19102

Re: Winston C. Payne v. CSX
DOB: April 20, 1942
Years of employment with CSX / L&N Railroad: 1962 - 2003
Date of Last Work:

Dear Dr. Frank:

This confirms that I am retaining you to render opinions with regard to my client, Winston C. Payne, who currently suffers from lung cancers and other associated cancers. The retention has to do with whether you believe, to a reasonable degree of medical certainty, whether Mr. Payne's cancers are caused and / or associated with any occupational exposures he suffered during his 40 year career with CSX Transportation, Inc. (CSX), previously the Seaboard Coast Line and / or the Louisville and Nashville.

In association with requesting your expert and professional opinions, I have enclosed materials on Mr. Payne, including medical records in one binder, and non-medical records relating to occupational exposures in other binders.

EXHIBIT 1

FrankAff000008

Our client believes he was exposed to the following:

1. Radiation;
2. Extensive diesel exhaust fumes, and
3. Asbestos containing materials

I would appreciate it if you could obtain a history from Mr. Payne (home 865-922-8163, cell 865-898-8163), and advise us if you need any further materials in order to render opinions with regard to this matter.

Very truly yours,

Richard N. Shapiro

RNS/mgc
Enclosures

FrankAff000004

Medical Records of Winston Payne

Family Medical Associates of Knoxville
11/10/94

1. Summit Medical Group at Halls - Rickey D. Manning, M.D.
11/10/94 - 04/11/07

Allied Clinical Laboratories
03/16/95 - 04/28/95

Summit Medical Group - Laboratory
07/05/95 - 12/24/07

2. Knoxville Dermatology Group, P.C. - Clark Julius, M.D.
10/11/96 - 03/08/04

3. University Pathologists, P.C. - Paul Googe, M.D.
10/15/96

Knoxville Dermatopathology Laboratory - Paul Googe, M.D.
06/27/02 - 03/04/03

Heena Patel, CFNP
12/08/03

4. Innovative Pathology Services
10/26/05 - 07/21/06

5. Tennessee Cancer Specialists, PLLC - Ross Kerns, M.D.
11/01/05 - 05/06/08

6. St. Mary's Medical Center - Ross Kerns, M.D./Srinivas Boppana, M.D./Michael Brunson, M.D
11/02/05 - 04/09/08

7. Horizon WP Physician Portal
02/10/06 - 04/02/08

8. University Surgeons - Hobart Akin, M.D.
07/28/06

9. Summit Medical Group at Halls - Sonya McWilliams, C-FNP
02/14/07

FrankAff000005

10. Knoxville Medical Center - William R.C. Stewart, III, M.D., MPH
04/04/07

11. Knoxville Pulmonary Group, P.A. - Elise Schriver, M.D.
07/12/07

12. Gastrointestinal Associates, Inc. - Meade Edmunds, M.D.
02/20/08

EXHIBIT 2

I have enclosed the following documents to assist in your review:

1.	1968	TN Dept of Radiological Health typed memo (outlining miscellaneous purchases of radioactive scrap by Witherspoon (typed with 1968 hand written on first page) (8 pages)
2.	4/21/1969	DOE – nuclear memo (light and hard to read) relating to plutonium potential
3.	9/26/1969	Miscellaneous sub-contract document – Union Carbide to Witherspoon (2 pages)
4.	8/12/1971	TN Dept of Radiological Health typed memo relating to Witherspoon license number S-4715-H1 (summary of receipt of radioactive materials) (2 pages)
5.	5/9/1985	TN Department of Health and Environment, Division of Radiological Health "Final Order" regarding David Witherspoon, Inc. Radioactive license
6.	12/4/1985	Michael Jugan, Waste Management Branch, Research and Waste Management Division, Oak Ridge employee to file (outlining the Witherspoon contamination issues) (12/4/1985)
7.	11/30/1990	Potential Hazardous Waste Site, Preliminary Assessment by TN Department of Superfund, Knoxville field office (including site survey and test results)
8.	4/23/1991	Badders to Pugh (soil sampling results and cover letter)
9.	3/8/1993	Dynamic Corp. site inspection prioritization plan- Witherspoon (to U.S. EPA – includes sampling results, site plat, etc.)
10.	8/12/1996	Land lease between CSX and DOE (to be provided)
11.	1991-2000	Miscellaneous photographs (Set A – taken Witherspoon site, 901 Maryville Pike – Set B – Ariel photographs – Chris Andel)
12.	1/2007	Human Health Risk Assessment – Witherspoon, 901 site by Science Applications International INT Corp.

13.	9/25/2007	Interim Action Report – Witherspoon, 901 site for Dept. of Energy (introduction outlines 10 acre Witherspoon site includes .4 acre owned by CSX Corporation
14.	1999	Oak Ridge Reservation Offsite Program – U.S. Department of Energy
15.	1943 – present	Oak Ridge National Laboratory (X-10) and Oak Ridge Gaseous Diffusion Plant (K-25)
16.	1988	Historical Radionuclide Releases from Current Doe Oak Ridge Operations Office Facilities – Dept. of Energy (1988)
17.	4/4/2007	Independent Medical Exam – William R.C. Stewart III, M.D., M.P.H.

DIESEL EXHAUST DOCUMENT INDEX

1. **Carcinogenic Effects of Exposure to Diesel Exhaust**, Bulletin No. 50, NIOSH (August, 1988)
2. Letter from Centers for Disease Control to Norfolk Southern (January 7, 1988) (relating to diesel exhaust)
3. Letter from J.R. Sexton, Engineer to J.H. Kinzel, Superintendent (July 1, 1985) (Diesel exhaust complaint letter)
4. **Transportation Systems Business Division**, Report TSBD-497-A (November 24, 1985)
5. Letter from H.B. Wyche, Jr. To W.M. Westerman (April 23, 1990)(Internal Norfolk Southern report concerning *Diesel Fumes on Units 8669 and 8539)*
6. **Sixth Sixth Annual Meeting**, AAR, General Claims Division (May, 1955) (see "Potential Dangers from Exposure to Diesel Locomotive Exhaust, pg. 63)
7. **Testimony of Lawrence M. Mann**, U.S. Congress, Committee on Education and Labor, Subcommittee on Health and Safety (July 19, 1989) (relating to diesel engines on locomotives)
8. Letter from David L. Benson, UTU to Hon. Robert C. Byrd, U.S. Senator (July 17, 1987)
9. Letter from Richard E. Jeskey, UTU to F. L Kite, N&W Supervisor (August 15, 1988)
10. **First Ever "Diesel Asthma" Verdict Upheld** Railroad Engineer is Entitled to $625K:Lawyers Weekly, Vol. 7, No. 11 (April 28, 2001)
11. Letter from Davidson, Grand Chief Engineer to Bradley, NJ State Dept. of Health (Jan. 9, 1964)
12. Letter from Currie, General Chairman UTU to Emerick regarding unsafe working conditions around diesel fumes (Aug. 25, 1995)
13. Letter from McLaughlin, President BLE to Young regarding Union Pacific Railroad worker and the affects of him working in and around diesel fumes (Jan. 4, 1996)
14. Letter from Dubroski, President BLE to Faerber regarding diesel asthma (Dec. 23, 1999)
15. EPA Reports Diesel Exhaust Linked to Lung Cancer: ACS News Center www.cancer.org (Sept. 9, 2002)

EXHIBIT 3

ASBESTOS RELATED MATERIALS

ASSOCIATION OF AMERICAN RAILROADS DOCUMENTS

1. Proceedings of the 12th annual meeting of the medical and surgical section of the American Railway Association (June 1932)(excerpt)(Exhibit sticker 41)

2. Proceedings of the 17th annual meeting of the medical and surgical section of the Association of American Railroads (June 1937)(Exhibit 42 sticker - excerpt)

3. 1960: Miscellaneous C&O Railway Company asbestos invoices [showing purchase of asbestos containing materials] (Exhibit sticker 37)

4. 1964-1979: Various asbestos containing product inventory sheets maintained at CSXT [showing purchases from John Mansville, H.K. Porter, for packing materials, asbestos sheets, insulation for camp cars and cabooses]

5. 1970's: Product identification - B&O railroad asbestos containing invoices [B&O railroad summary relating to invoices for asbestos containing purchases in the 1950's and 1960's]

6. 1970: Gaskins Company invoiced to Seaboard Coastline Railroad (9-3-1970) [relating to sales of asbestos rope] (Exhibit 6 sticker)

7. 1972: C&O Railway/B&O Railway Dwyer letter to Dr. Laden [letter relates to hazards of exposure to asbestos, letter ponders extent of exposure to asbestos]

8. 1976: Magazine advertisement - Abex Corporation [Abex introduces non-asbestos ontaining brake shoes for railroad cars] (Exhibit 5 sticker)

9. 1977:Wingate, superintendent safety to Williams, VP operations [discusses 265 trade name products containing carcinogens, discusses eliminating or alternatives to asbestos]

10. 1977: Letter - Stringfellow to Williams [Carcinogens - discusses the AAR letter, carcinogens, cc to Hutcheson]

11. 1977: Sutphin - Chief medical officer to Williams, VP Operations [discusses mesothelioma]

12. 1977: Meigs to Stringfellow letter [attaching a list of items and code numbers materials obtaining asbestos in general]

13. 01977: I. Kaplan, M.D. (Chief Medical Officer, Chessie System) to Mr. Howes [letter

EXHIBIT 4

discussing dangers of asbestos and cancer called mesothelioma] [Chessie later became a part of CSX and Dr. Kaplan was a CSX=s Medical Officer]

14. 1977: Wingate - General Superintendent Safety to Williams, VP Operations [2-page letter relating to AAR distribution of 265 trade names, asbestos, reference to OSHA standards, recommendations on action and response by railroad]

15. 1977: Bennett, Assoc. Admin. of Safety of FRA to Risendal, AAR Director [August 2, 1977 letter outlining NIOSH list of carcinogens and trade names of 265 products, many used in railroad industry]

16. 1977: AAR letter to all railroad chief operating officers - attaching FRA notification letter about carcinogens and asbestos - from AAR to Railroad COO=s (Exhibit 7 sticker)

17. 1982: Internal CSX documents for remediation or renovation of asbestos containing materials [This internal document has a date of January 12, 1982]

18. 1985: Internal bulletin notifying employees will be required to wear respirators when doing removal of asbestos materials (Exhibit 47 sticker)

19. 1987: Harshaw safety director to Jolley/Carroll, internal July >87 memo relating to procedures to remove asbestos-containing gasket material

20. 1990: CSX internal memo for procedure for removing GE dynamic brake grids from GE locomotives (Exhibit 50 sticker)

21. 1990's: Handwritten memo from Morgan - Atlanta [relates to presence or non-presence of asbestos in electro-motive division (EMD) locomotives - relates that the air duct, the soak back filter, the cylinder head support frame gasket, the cylinder test valve packing, the wagon body back-end housing and the 12 cylinder oil manifold all had asbestos containing materials in tests

22. 2000: CSX internal document relating to providing material safety data sheets under OSHA hazard communication standards

23. 1950 – 1980: E.M.D. LOCOMOTIVE SPECIFICATION DOCUMENTS - Collective sheeth of materials relating to General Motors Corporation EMD locomotives and asbestos containing parts and materials - the sheath of documents includes reference to many parts of EMD diesel locomotive specifications (1950's & 1960's) referencing asbestos containing materials

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Emily Mapp Brannon (VA)

Of Counsel
Francis Hajek (VA)

2004 Reliance Materials

April 2, 2009

VIA OVERNIGHT DELIVERY

Arthur Frank, M.D.
Drexel School of Public Health
1505 Race Street, 13th Floor
MS-1034
Philadelphia, PA 19102

Re: Winston C. Payne v. CSX

Dear Dr. Frank:

Pursuant to our recent discussion on this case, I have enclosed for your review the following:

1. August 30, 2008, report authored by R. Leonard Vance;
2. Various diesel materials;
3. Various radiation exposure materials;
4. Winston Payne deposition exhibits – photographs, and
5. September 6, 1984 deposition transcript excerpt - Isadore Kaplan, M.D.

Very truly yours,

Richard N. Shapiro

RNS/mgc
Enclosures

EXHIBIT 5

ATLANTIC INK ATTORNEY

FrankAff000012

Dr. Frank Letter of April 2, 2009

1. NIOSH Current Intelligence Bulletin 50 (Diesel), August 1988
2. General Claims Division Association of American Railroads Sixty-Sixth Annual Meeting, May 4, 5, 6, 1955
3. United Transportation Union Letter Regarding Unsafe Working Conditions, August 25, 1995
4. EPA Reports Diesel Exhaust Linked to Lung Cancer, September 9, 2002
5. CA: A Cancer Journal For Clinicians on Diesel Exhaust, May 3, 2008
6. Occupationally Induced Airways Obstruction, July 1996
7. Diesel Asthma, February 1993
8. Prevention and Early Detection, January 5, 2009
9. U.S. Department of Labor Chemical Sampling Information on Diesel Exhaust, January 5, 2009
10. 1965 Association of American Railroads, 1965
11. 1955 Association of American Railroads, 1955
12. Proceedings of the Twelfth Annual Meeting of the American Railway Association Medical and Surgical Section, June 13, 14, 1932
13. Chessie System Letter Regarding the Study of Health Effects on Railway Workers as a Result of Exposure to Diesel Exhaust, August 29, 1980
14. Association of American Railroads Letter Regarding the Study of Health Effects on Railroad Workers as a Result of Exposure to Diesel Exhaust, August 15, 1980
15. CSX Transportation Letter Addressed to Mr. Benny W. Cox, Jr. From Charles A. Mead, M.D., September 24, 1986
16. Letter from J. Allen Meadows, III, M.D. Regarding Bennie W. Cox, Jr., September 9, 1986

FrankAff000013

17. Memorandum from B. W. Cox, Jr. Regarding his Smoke and Diesel Fume Inhalation, July 1986 Attached is Memorandum dated September 8, 1986

18. CSX Transportation Letter From W. G. Merritt to Mr. Raymond C. Wolf, October 2, 1986

19. CSX Labor Relations Department Letter From Mr. Ralph Miller to Mr. B. R. Weaver, April 24, 1986

20. CSX Labor Relations Department Letter From Mr. Ralph Miller to Mr. B. R. Weaver, June 16, 1986

21. Seaboard System Railroad Locomotive Inspection Report, August 23, 1984

22. CSX Transportation Letter Regarding Proposes AAR Study of Diesel Exhaust Emission Exposure to Employees, May 10, 1988

23. Letter from C.A. Mead, M.D. to Mr. J. T. Williams Regarding Arbitration Board 419 award, G-31-Spec., October 12, 1983

24. Letter from CSX Transportation With Enclosure on Diesel Fume Exposure, October 6, 1988

25. Oak Ridge Inspection by Mr. Witherspoon (Radiation Materials), January 12, 1968

26. Subcontract With Witherspoon, Inc. for White Wing Yard Scrap, April 21, 1969

27. Subcontract Number UCNC-749, Supplemental Agreement Number 8, September 26, 1969

28. Memorandum From Witherspoon Inc., August 12, 1971

29. State of Tennessee Department of Health and Environment Final Order, May 9, 1985

30. CSX Transportation Letter Regarding Results of the Soil Sampling Survey, April 23, 1991

31. Site Inspection Prioritization Submitted to U.S. Environmental Protection Agency Region IV, March 8, 1993

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

Tuesday, October 16th, 2012

==========

TRUESDEL & RUSK

Allison L. Gossett, LCR
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disease or injury from which the patient is suffering, not to diagnose causation. That's a quote/unquote legal issue. It's not part -- the diagnosis. It's a treatment issue.

Yes, the next thing is risk factors. All of the things are risk factors. One exception of the three things we kept harping on, the thing that I mentioned before -- in regard to the previous doctor, Dr. Frank, even though Dr. Weill says it is a minority, there's a minority of thought that any exposure to asbestos is contributory to lung cancer. It doesn't have to be the majority opinion so long as it is an accepted medical opinion.

And so there is a group out there in the -- that as to asbestos exposure is accepted that dose response is not the key issue. As compared to radiation, which as I said before with the experts we have, everybody agrees that there's a minimum dose that you've got to show to fit that diagnosis, which this doctor never considers. There's a minimum dose as to diesel fumes that this doctor has never considered -- and which is in his deposition.

Page 686, Line 19, through 687. It is

IN THE CIRCUIT COURT FOR KNOX COUNTY, TENNESSEE

ANNE PAYNE, Widow of

WINSTON PAYNE, Deceased

Plaintiff,

vs.

CSX TRANSPORTATION, INC.,

Defendant.

FILED
2012 OCT 22 AM 1 49
CATHERINE F. QUIST
CIRCUIT COURT CLERK

No.: 2-231-07

Jury Demand

AFFIDAVIT OF ROSS E. KERNS, M.D.

Before the undersigned, a Notary Public in the city of Knox, Tennessee, this 19th day of October, 2012, the aforesaid, who being duly sworn, doth depose and say:

1. My name is Ross Kerns, M.D., and I am a board-certified oncologist practicing with Tennessee Cancer Specialists.
2. Before providing my medical opinions in this case, I was provided extensive materials by Winston Payne's attorney, Richard N. Shapiro, and an index of the materials that I have reviewed, and which is accurate, is attached as an exhibit to my affidavit.
3. As part of the materials I relied on, I was provided a 2009 industrial hygiene analysis and report authored by Leonard Vance, attached as an exhibit, which discussed the nature of radiation exposure, asbestos exposure, and diesel exhaust fume exposure relating to Winston Payne at his CSX workplace.

4. I was also provided a report on epidemiology authored by Richard Clapp, attached as an exhibit, which discussed both radiation and asbestos issues and the known connection between these carcinogenic exposures and lung cancers.
5. Prior to providing my opinions about the causes of Winston Payne's cancer, he had been my oncology patient for many years, since 2005, and I had provided him his clinical oncology care during that time and had occasion to discuss with him the nature of his workplace exposures to radioactive materials, asbestos, and diesel exhaust fumes on a number of occasions prior to providing my opinion, which was based on a medical differential diagnosis, as I explained during my testimony in 2010.
6. As part of the differential diagnosis relating to the causes of his lung cancer, I ruled out other potential causes, besides the workplace carcinogens, and cigarette smoking, and concluded, to a reasonable degree of medical probability, that radiation, asbestos and diesel exhaust fume carcinogen exposures, together with cigarette smoke carcinogens, were the causes of his lung cancer.
7. As I explained during my 2010 testimony, I did not believe it was medically possible to sort out the relative contribution of each carcinogen, but concluded that all four carcinogens contributed to cause Winston Payne's lung cancer.
8. As an oncologist, I cannot recall having precise dose or quantitative data in order to arrive at a medical opinion relating to causes of cancer in my

oncology patients. The lack of having specific dose or quantity information on my patients' exposures in the past, has not prevented me, or other oncologists in general, from providing medical care or opinions on the causes of cancer in oncology patients where called upon to do so. Oncologists evaluate these issues based on the history and physical, diagnostic and clinical results, the nature and quality of exposures, especially to known carcinogens, and where available, we rely on other occupational information, and in this situation I was provided extensive materials relating to my patient's workplace.

9. All of my past opinions, and the opinions in this affidavit, resulted from my medical training as an oncologist, and from a complete differential diagnosis/analysis, and are provided to a reasonable degree of medical probability.

R Kems MD
Ross E. Kems, M.D.

Subscribed and sworn to before me this 19th day of October, 2012.

Karen C Dotson
Notary Public

My Commission Expires: December 18, 2013

KAREN C. DOTSON STATE OF TENNESSEE NOTARY PUBLIC KNOX COUNTY

INDEX OF MATERIALS RELIED UPON BY
ROSS KERNS, M.D.
Payne v. CSX

Article – *EPA Reports Diesel Exhaust Linked to Lung Cancer*, 9/9/2002

Article –American Cancer Society (lung cancer)

Article – Health Effects Fact Sheets (diesel engines)

Article – "Diesel Exhaust," *CA Cancer J Clin*, 2001; 51; 193-198

Article – *Carcinogenic Effects of Exposure to Diesel* Exhaust, NIOSH Current Intelligence Bulletin 50, August 1998

Various documents and letters regarding Witherspoon scrapyard

Federal Register, Vol. 51, No. 119, dated June 20, 1986 (cigarettes and asbestos)

Letter from C&O Railway to Dr. H.N. Laden, dated July 24, 1972

Wingate letter to J.L. Williams, dated September 16, 1977 (asbestos)

Kaplan letter to Mowes, dated September 2, 1977

CSX Hardsaw letter to Jolley and Carroll, dated July 22, 1987

Interim control procedures for handling GE Dynamic Brake Grids

Winston Payne's deposition transcript, dated October 17, 2008

DOE Interoffice memorandum dated December 17, 1991 regarding Plutonium

Article – "Radiation and Mortality of Workers at Oak Ridge National Laboratory: Positive Associations for Doses Received at Older Ages," *Environmental Health Perspectives*, Vol. 107, No. 8 (Aug., 1999)

Article – "Chronic Obstructive Pulmonary Disease Mortality in Diesel-Exposed Railroad Workers," *Occupational Environmental Medicine*, 66:221-226 (2008)

Supplemental Report of Dr. Leonard Vance, dated June 8, 2009

Report of Mr. Richard Clapp, dated June 9, 2009
Life expectancy table

Video deposition testimony and transcript of Dr. Arthur Frank, dated March 1, 2010

R. Leonard Vance, Ph.D., PE, CIH
Department of Epidemiology & Community Health
Virginia Commonwealth University
1008 East Clay Street, Room 324
Box 980212
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June 8, 2009

Richard N. Shapiro, Esq.
Shapiro, Cooper Lewis & Appleton, P.C.
1294 Diamond Springs Road
Virginia Beach, VA 23455

Re: Winston Payne v. CSX

Dear Mr. Shapiro:

As you know, I previously wrote you concerning Mr. Payne on September 7, 2008. Subsequent to that letter, Mr. Payne was deposed by videotape on October 17, 2008. You sent me a transcript of that deposition and I have read it. I have also reviewed the depositions of Dr. William H. Bullock, taken in connection with a different case involving CSX, and the February 12, 2009, deposition of Mr. Chris Andel of the Tennessee Department of Environment and Conservation, Division of Remediation. I have also reviewed the June 5, 2009, expert report of Daniel S. Mantooth, CHP, and a one page memorandum (dated August 9, 1985) of a meeting between Tennessee Department of Health and Environment staff and Ms. Dorothy Hunley. Having reviewed these depositions, the opinions proffered by the Railroad's expert witnesses, and other documents, I now wish to offer additional comments.

Generally Applicable Principles of Industrial Hygiene

Industrial hygiene has historically been defined as the identification, evaluation, and control of toxic substances and harmful physical agents in the workplace. Asbestos and diesel exhaust fumes are examples of toxic substances. Radiation is an example of a harmful physical agent. There are a few generally acceptable principles in the field of industrial hygiene that everyone, including health professionals employed in the railroad industry, agree on. These principles predate the existence of modern governmental regulations. Some go back to the times of ancient Greece and Rome. A good way of illustrating these principles is by quoting them directly from the early reports prepared and distributed within the railroad industry.

The standard methods used to control worker exposure to dusts, such as asbestos, diesel exhaust, and many radioactive materials, include air monitoring to determine ambient and personal levels of exposure, training and education, respiratory protection and protective clothing, good hygienic work practices, medical surveillance, wet methods, and engineering controls such as enclosures,

exhaust ventilation, and local ventilation. The railroad industry's appreciation of the health risk posed by dust to its workers dates back to the 1930's and measures available to control those exposures also date to that period.

Railroads used their professional society meetings to impart knowledge to their medical staffs about dust hazards. The most significant demonstration of this knowledge comes from the Proceedings of the Medical & Surgical Section of the American Railway Association (ARA) and its successor organization, the Association of American Railroads (AAR).

During the 1933 meeting of the Medical & Surgical Section of the American Railway Association, the Report of the Committee on Occupational Diseases and Rehabilitation noted dust as an industrial hazard presenting a problem "which demands attention." The Committee noted

> dust pathology of the lungs may be prevented by plentiful use of water to wet down dust at the point of origin, or by forced ventilation to remove dust particles. In the event neither of these methods is practicable, respirators should be made available to employees who are required to work in the presence of the dust.

In the 1935 Proceedings of the Fifteenth Annual Meeting of the Association of American Railroads Medical and Surgical Section, Report of Committee on Disability Rehabilitation, the following recommendations were made with regard to "employees with a history of working in dust and having the classical symptoms (shortness of breath and positive chest x-rays)."

(1) To make a change in his occupation.

(2) To take an x-ray of his chest for lung tissue.

The Committee also recommended several specific measures to protect workers from diseases associated with dust exposure, methods recognized by industrial hygienists to this day. Quoting from the Committee report, one finds

By the way of prevention it becomes necessary to:

1) educate all concerned
2) get rid of dust
3) sprinkle the working area with water
4) have employees wear inhalers
5) have frequent analyses made of the dust content of air at different times during the working hours.

Similar recognition of the existence of dust hazards and of these previously listed standard industrial hygiene approaches to their prevention appeared in the Association of American Railroads Proceedings for 1937, 1939, 1941, and 1951.

The C & O, B & O, and New York Central Railroads, predecessors to CSX, were a part of the group or railroads that, in the 1930's, generated the Alton Railroad documents, discussed in my prior report on this matter. The railroads involved with the Alton group developed a document for distribution and use by their supervisors listing specific recommendations for protecting employees from dusts. The methods listed were

-use of individually assigned MSHA approved respirators,
-wetting the dusts,
-establishment of regulated areas,
-local exhaust ventilation,
-management supervision of these practices.

The railroads' physicians were not the only railroad staff interested in the application of industrial hygiene controls. Railroad claims agents and railroad defense attorneys were also mindful of these issues. I noted in my September 7, 2008, opinion in this case that Robert Straub, a general claims attorney for the Chesapeake and Ohio Railways Company, delivered a presentation entitled *Potential Dangers from Exposure to Diesel Locomotive Exhaust* to the General Claims Division of the Association of American Railroads, Sixty Sixth Annual Meeting, May 4, 5, 6, 1955; Washington D.C. Mr. Straub talked to these claims agents about the availability of "atmospheric testing" to determine the degree of the hazard to which workers are exposed. "Atmospheric testing" is the air monitoring that has been discussed above.

The above core industrial hygiene/safety principles and standards were followed by CSX's predecessor railroads, as stated, as early as the 1930's, and each core standard is also followed by CSX in its present status, according to CSX's corporate representative. Dr. William Bullock, a certified industrial hygienist, is the current chief of industrial hygiene/safety with CSX. He was deposed recently as CSX's corporate representative with regard to both asbestos and diesel fume industrial hygiene and safety issues that CSX follows (See Shelton v. CSX, Dep of W. Bullock, dated April 23, 2009, and Plummer v. CSX, Dep. of W. Bullock dated October 14, 2008). With respect to the application of industrial hygiene principles to both asbestos and diesel fume exposure, he agreed that CSX follows all the core principles I outline in this report, and agreed that "industrial dusts" includes airborne dusts such as diesel fume particulate. (As of the date of this report, CSX's corporate representative has not been deposed in this case. I reserve the right to supplement this report promptly after I review any such deposition, particularly as to the

application of industrial hygiene principles to radiation, which was not a topic in the Shelton or Plummer depositions). Dr. Bullock confirmed, among many other issues, that CSX also did not employ a full time industrial hygienist before CSX hired Mark Badders, CIH, in the early 1980's, and that CSX intended to follow all pertinent OSHA, NIOSH and other industrial regulations as specified in Mr. Badders own CSX job description, adopted in the early 1980's.

The point of this discussion is that a handful of common methods have long been used to control worker exposure to dusts. The railroad industry has known of them for decades and recommended and employed their use. These methods include:

air monitoring to determine ambient and personal levels of exposure
engineering controls:
- enclosures
- exhaust ventilation
- local ventilation

training and education
respiratory protection and protective clothing,
good work practices,
- wet methods

medical surveillance

Diesel Exhaust

A federal statute that has been in effect since 1911, almost a hundred years, the Locomotive Inspection Act, currently codified at 49 U.S.C. Sec. 20701, provides as follows:

A railroad carrier may use or allow to be used a locomotive or tender on its railroad line only when the locomotive or tender and its parts and appurtenances:

(1) are in proper condition and safe to operate without unnecessary danger of personal injury;

(2) have been inspected as required under this chapter and regulations prescribed by the Secretary of Transportation under this chapter; and

(3) can withstand every test prescribed by the Secretary under this chapter.

The statute contemplates a recurring pattern of inspection by the Railroad. The Railroad did not perform those inspections, in Mr. Payne's experience. And he had forty years of experience.

In his deposition[1], the following exchange occurred:

> Q (to Mr. Payne) Did any railroad company official ever come inside an engine that you ever worked on in your forty years and say, Mr. Payne, we're going to check the air level inside this cab for diesel fumes?
>
> A (by Mr. Payne) No, they did not.
>
> Q. During your entire career, did you ever while you worked out there learn from another coworker, hey, the railroad is testing our diesel fume level because they're, you know, checking the safety of the constituents of diesel fumes? Did you ever hear that during your forty years?
>
> A. Never heard of it.

Mr. Payne routinely worked on locomotives which were not in proper condition and which were not safe to operate. Moreover, he worked on locomotives which were not inspected and tested as required by the cited FRA regulation.

49 CFR § 229.43, exhaust and battery gases, provides at section a:

(a) Products of combustion shall be released entirely outside 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.

Mr. Payne testified that diesel exhaust entered into the cab of the locomotives in which he rode in two different ways. It was released from the exhaust stack of the locomotive and flowed directly back from the exhaust stack into the cab through open or cracked windows and doors. Diesel exhaust also entered the cab through cracks and openings in the walls surrounding the interior of the cab. Given the ubiquitous presence of diesel exhaust in the cab, the Railroad, in my opinion, did not inspect to ensure the absence of diesel exhaust and failed to comply with the regulatory mandate that "(e)xhaust stacks shall be of sufficient height or other means provided to prevent entry of products of combustion into the cab ... under usual operating conditions." As noted in my prior opinion in this matter, many engines were configured to run primarily in a long hood forward mode. Clearly, the railroad did not provide exhaust stacks of sufficient height to "prevent entry of products of combustion into the cab ... under usual operating conditions."

§ 229.119, cabs, floors, and passageways, provides at section d:

> (d) The cab shall be provided with proper ventilation and with a heating arrangement that maintains a temperature of at least 50 degrees Fahrenheit 6 inches above the center of each seat in the cab.

Mr. Payne was asked whether the only way diesel exhaust entered the cab of his locomotives was through windows. He stated "on the other side of the engine is the door that we came in and out of when we was going to the front of the engine."[1] He said fumes came through this door whether it was open (as it sometimes was during the summer) or closed[2]. The point is that the locomotives lacked a ventilation system that shielded Mr. Payne from exposure to diesel exhaust. Thus the railroad did not provide Mr. Payne with locomotives whose cabs had "proper ventilation", as required by the FRA regulations.

Patents for air conditioning of locomotive cabs were issued in the 1970's. Enginemen normally testify they became available at some time in the late 90's or just after 2000. Air conditioning provides "proper ventilation" for employees working in an air conditioned environment.

It is my opinion that the railroad's actions in failing to comply with the Locomotive Inspection Act and with the FRA regulations cited above fell beneath a reasonable standard of care. I hold these opinions to a reasonable degree of scientific and industrial hygiene certainty.

Radiation

Dr. Dooley, in his March 31, 2009, expert report, is mistaken when he states that OSHA standards are inapplicable to Mr. Payne's exposure. Dr. Dooley states that OSHA radiation protection standards draw a distinction between "restricted areas" and "unrestricted areas". He is correct on that point. He then states[3]:

> It is possibly a key issue whether the plaintiff ever entered a restricted area. Presumably he worked in unrestricted areas. The expectation placed on employers for actions in unrestricted areas under OSHA are essentially none.

It is simply not possible to determine whether an area constitutes a "restricted area" without performing monitoring. The railroad failed to monitor Mr. Payne's workplace to determine whether it was a "restricted area." even though it knew it was transporting radioactive waste from a facility that produced weapons grade radioactive material. The issue of radiation monitoring was discussed in my September 7, 2008, opinion. Moreover, that opinion discussed the confirmation by Mr. Badders, the Railroad's industrial hygienist, of the failure of the Railroad to perform initial radiation monitoring. Today, I will identify the specific regulation that mandates radiation monitoring.

The relevant OSHA standard is set forth below:

> 1910.1096(d) Precautionary procedures and personal monitoring.
>
> 1910.1096(d)(1) Every employer shall make such surveys as may be necessary for him to comply with the provisions in this section. Survey means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. (Emphasis added) When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.
>
> 1910.1096(d)(2) Every employer shall supply appropriate personnel monitoring equipment, such as film badges, pocket chambers, pocket dosimeters, or film rings, and shall require the use of such equipment by: [personnel listed based on results of initial monitoring performed per Section (d)(1) and other factors]

The point is straight forward. Where an OSHA standard triggers employer responsibilities based upon worker exposure above or below a number set forth in the standard, the employer has to monitor to determine whether his employees are exposed above that number. This, the Railroad did not do until long after Mr. Payne's exposures. Moreover, the documents I reviewed included citations from the Tennessee Department of Health issued to DWI for failure to perform radiation surveys. Thus CSX could not rely on DWI surveys to protect CSX employees.

And Mr. Payne rode in open gondola cars beside containers emblazoned with the standard radiation symbol! Dr. Dooley said (see above), "Presumably he worked in unrestricted areas." One could only ascertain whether that be true by monitoring. Mr. Payne's potential exposure to dangerous levels of radiation was manifestly foreseeable. The Railroad was required by 29 CFR 1910.1096(d)(1) to monitor his working conditions and it did not do so.

Note further that 1910.1096(d)(2) states that "(e)very employer shall supply appropriate personnel monitoring equipment, such as film badges ... ." Film badges are inexpensive personal monitoring devices that have been used widely for decades. In 1973, NIOSH noted

> Except where it can be assured that dose equivalent rates are consistently very low (<25% MPD), personnel monitoring devices must be used to measure the radiation incident on a worker's body ... . Film badges, available from commercial sources (citations omitted) have been used extensively ... .

A few comments about the applicability of OSHA standards may be appropriate. Tennessee is an OSHA state plan state. See Section 18 of the OSH Act, 29 USC 667. In state plan states, there is a time period during which only federal OSHA standards are in effect. Later, both federal and state OSHA standards are in effect (and are usually identical). Finally, when the United States Occupational Safety and Health Administration grants final approval of the state plan, concurrent federal jurisdiction ends and only state standards are in effect. For Tennessee, final federal approval was granted with an effective date of July 22, 1985. See 29 CFR 1952.224(a). From 1971 to 1985 federal standards applied

> In accordance with section 18(e) of the [Occupational Safety and Health] Act and procedures in 29 CFR Part 1902, and after determination that the State met the "fully effective" compliance staffing benchmarks as revised in 1984 in response to a Court Order in AFL-CIO v. Marshall (CA 74-406), and was satisfactorily providing reports to OSHA through participation in the Federal-State Unified Management Information System, the Assistant Secretary evaluated actual operations under the Tennessee State plan for a period of at least one year following certification of completion of developmental steps (43 FR 20980). Based on the 18(e) Evaluation Report for the period of October 1982 through March 1984, and after opportunity for public comment, the Assistant Secretary determined that in operation the State of Tennessee's occupational safety health program is at least as effective as the Federal program in providing safe and healthful employment and places of employment and meets the criteria for final State plan approval in section 18(e) of the Act and implementing regulations at 29 CFR Part 1902. Accordingly, the Tennessee plan was granted final approval and concurrent Federal enforcement authority was relinquished under section 18(e) of the Act effective July 22, 1985.

A brief history of federal OSHA ionizing radiation standards was published by OSHA in the Federal Register in 2005:

> OSHA's existing standard on ionizing radiation was adopted in 1971 pursuant to section 6(a) of the Act (29 U.S.C. 655). This section allowed OSHA, during the first two years after passage of the Act, to adopt as OSHA safety and health standards, existing Federal and national consensus standards. The Ionizing Radiation standard was adopted primarily from standards promulgated under the Walsh-Healey Public Contracts Act, as amended (41 U.S.C. 35 et seq.), which specified safety and health rules applicable to government contractors. The Walsh-Healey standards on ionizing radiation, in turn, were taken from standards issued by the Atomic Energy Commission (AEC), now the NRC (10 CFR part 20).

As noted earlier, the railroad industry has recognized the usefulness and importance of monitoring for decades. Railroad physicians discussed it in the 1935 AAR documents as a method for protecting workers. In 1955, claims agents and railroad lawyers were talking about it.

Plutonium

Dr. Dooley's analysis of Mr. Payne's exposure to plutonium in his March 31, 2009, report merits further discussion. Mr. Payne was exposed to plutonium, an extremely toxic and dangerous material. A supplemental agreement to Subcontract UCNC-749 provided for Witherspoon to accept radioactive scrap.[6] A document dated April 21, 1969, states that the material transferred to David Witherspoon, Inc, Under subcontract No. UCNC-749 is contaminated with plutonium.[7] A written, undated memorialization of an August 12, 1971, inspection of the Witherspoon site by Mr. Michael Mobley and another unidentified person notes numerous rail shipments of scrap entering the site during 1969. This undated two page document is appended hereto as Attachment 3[8]. Mr. Mantooth discusses plutonium exposures in his June 5, 2009, report and I concur in the views he has expressed in that report.

Asbestos

As noted above, the Locomotive Inspection Act states:

A railroad carrier may use or allow to be used a locomotive or tender on its railroad line only when the locomotive or tender and its parts and appurtenances:

> (1) are in proper condition and safe to operate without unnecessary danger of personal injury;
>
> (2) have been inspected as required under this chapter and regulations prescribed by the Secretary of Transportation under this chapter; ...,

The locomotive cabs upon which Mr. Payne rode had asbestos present in a manner that exposed him to asbestos. One cannot characterize the cab of such an asbestos contaminated locomotive as being "-in proper condition and safe to operate without unnecessary danger of personal injury". Nor can such an asbestos containing locomotive be characterized as having had an appropriate inspection. The asbestos insulation could have been removed decades before the Railroad actually abated it.

There have been many industrial hygiene, safety, and medical journal articles relevant to the topics of asbestos, diesel exhaust fumes, and radiation safety. I have attached a reference list that I reserve the right to rely upon in support of my opinions here and in my first report on this matter.

It is my opinion that the railroad's actions in failing to comply with the cited governmental and consensus standards fell beneath a reasonable standard of care. I hold these opinions to a reasonable degree of scientific and industrial hygiene certainty.

Sincerely yours,

R Leonard Vance

R. Leonard Vance, Ph.D., PE, CIH
Associate Professor

1. Transcript of Winston Payne video deposition, October 17, 2008, p. 98, lines 2-6.
2. Transcript of Winston Payne video deposition, October 17, 2008, p. 90, lines 10-25.
3. Report of Dr. David A. Dooley, dated 3/31/2009 @ p. 18 of 26.
4. *The Industrial Environment-Its Evaluation & Control*, NIOSH, 1973, @ p. 392.
5. 70 FR 22828, et seq., May 3, 2005; http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=FEDERAL_REGISTER&p_id=18341
6. Supplemental Agreement No.___, dated September 26, 1969, between Union Carbide and David Witherspoon, Inc. For the removal, smelting, and purchase of certain government owned uranium contaminated property (scrap), appended hereto as Attachment 1.
7. Memorandum dated April 21, 1969, produced during discovery in this matter, appended hereto as Attachment 2.
8. Undated two page memorialization of an August 12, 1971, licensing inspection of the Witherspoon site by Michael Mobley and the writer.

REPORT OF DR. RICHARD W. CLAPP, D.Sc., MPH

1. My name is Richard Clapp and I have been asked to provide a report in the matter of Payne v. CSX Transportation by attorney Richard Shapiro. In particular, I was asked to offer my opinion as to whether asbestos and ionizing radiation, including the type emitted by plutonium, are capable of causing or contributing to the development of lung cancer in exposed humans.

2. I am employed as a Professor in the Department of Environmental Health at the Boston University School of Public Health, at 715 Albany Street, Boston, MA. I am also Adjunct Professor at the University of Massachusetts – Lowell in the Department of Work Environment. I specialize in the study of cancer and other diseases caused by toxic chemicals and other exposures such as ionizing radiation. I received a BA degree from Dartmouth College in 1967 with a major in biology. I received an MPH degree from the Harvard School of Public Health in 1974 with a concentration in what was then called Health Services. In 1989, I received a Doctor of Science degree from Boston University School of Public Health; this degree was from the Department of Epidemiology and Biostatistics.

3. As Director of the Massachusetts Cancer Registry from 1980-1989, I was responsible for establishing a statewide cancer incidence reporting system in order to track the patterns of cancer in communities and among working populations. In addition, I participated in an epidemiologic feasibility study during which my colleagues and I visited nuclear weapons facilities in communities around the United States to examine community health impacts. In this work, and in a subsequent Federally-supported grant project, I examined off-site radioactive contamination at several Department of Energy sites.

4. I am a member of several professional societies, including the Society for Epidemiologic Research, the International Society for Environmental Epidemiology, the American College of Epidemiology, and the American Public Health Association. I am an Associate Editor of *Environmental Health Perspectives*, and is on the editorial board of *New Solutions*, a policy journal in environmental and occupational health; I have served as a reviewer for numerous scientific journals, including the *New England Journal of Medicine, American Journal of Epidemiology, Cancer Research, Cancer Causes and Control, Cancer, Indoor Air, Environmental Research, Statistics in Medicine, Environmental Science and Technology, Toxicology and Industrial Health, Environmental Health, Acta Oncologica* and *Public Health Reports*.

5. I have been a member of several scientific advisory panels, including the Science Advisory Board to the Toxics Use Reduction Institute at the University of Massachusetts, and the Harvard School of Public Health Occupational Health Program Advisory Board, and the Agency for Toxic Substances and Disease Registry Community and VanceAssistance Panel for their Camp Lejeune health studies. I have also testified before

two committees of the U.S. Congress and have made numerous presentations on scientific and epidemiologic topics. A current copy of my curriculum vitae is attached to this report.

6. I have reviewed the reports of defendants' experts Corn, Crapo, Dooley, Goans, Goldstein, and Weill. I have reviewed reports or letters by plaintiff's experts Frank, Mantooth and Vance. I have also reviewed documents provided by plaintiff's counsel listed in attachment 1 to this report. These include numerous documents relating to operations at Oak Ridge, TN involving radioactive and toxic materials, the extent of contamination of the Witherspoon site in South Knoxville, various CSX documents regarding asbestos in locomotives, documents describing diesel emissions from locomotives, transcripts of depositions by William H. Bullock, Christopher Andel and Winston Payne. I also talked with Mr. Payne by telephone on May 28, 2009 and inquired about his work history, job activities at the Witherspoon facility, cigarette smoking history and personal protection or monitoring of his radiation or asbestos exposure. Furthermore, I have reviewed my library of materials on radiation and cancer, including radiation exposure from enriched uranium and plutonium, and my library materials on asbestos and cancer.

7. The guidelines, perspectives and tools for epidemiologists to come to a general assessment of whether or not there exists a causal connection between workplace or environmental exposures and disease have been developed over the past forty years. The widely recognized and useful "Hill guidelines," which Professor Austin Bradford Hill offered in 1965, are set forth and explained below.

8. Epidemiologists concerned with the causes that contribute to human disease risk routinely use the Hill guidelines or "viewpoints" as a set of useful tools for drawing scientific inferences and deductions about causation from all the available relevant principles, data, information, and observations.[1] I present here a discussion of how epidemiologists inquire into the contributions of the environment, including the general environment near radioactive and asbestos waste sites, to causing disease.

9. Scientific practice is taken up with more than exploring questions of causation, but this is a central question in many tort cases. What does "A causes B" mean to a scientist? Apart from philosophical aspects of scientific causality, most scientists have adopted a pragmatic approach whose formal articulation goes back at least to John Stuart Mill's famous "Method of Difference."[2] Briefly, Mill's Method holds that A causes B if, all else being held constant, a change in A is accompanied by a subsequent change in B. The formal method to detect such an occurrence is the Experiment, whereby:

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1 The historical context of these guidelines is of interest: Sir Bradford Hill proposed his viewpoints in 1965, well before the International Agency for Research on Cancer (IARC) or U.S. agencies such as the EPA or OSHA had begun promulgating lists and categories or carcinogens. Further, Dr. Bradford Hill's own commentary on the use of his guidelines was most instructive: they are not meant to replace common sense and judgment but to aid them.

2

- all things are held constant except A and B,
- A is varied, and
- B observed.

10. Not all sciences can utilize a strictly experimental method, however. Some scientists must be content to make observations of the real world and deduce scientific fact by applying reasoning and principles from experimental sciences or logic and mathematics. Astronomy, geology, and epidemiology are such sciences but the first two generally reach conclusions by deducing from observations rather than conducting controlled experiments. The inability of geology or astronomy to conduct full-scale experiments does not connote an inability to do good science, or that the science involved is inherently more "error prone" or less reliable than a branch of science that can conduct full-scale experiments.

11. In the biological sciences, in general, and in the public health field, in particular, inferences for one group of humans are regularly drawn from epidemiological studies from another group of humans. Significantly, inferences about humans are also made on the basis of observations of, or test-tube experimentation, on animals. Indeed, the scientific reasonableness of drawing inferences from animals to humans provides the principal justification for the decision of National Institutes of Health to devote hundreds of millions of dollars funds to animal research. Any particular inference may be arguable, and certainly may be the basis of a dispute between the parties in a lawsuit, but the method and reasoning are not subject to debate.

12. In general there are three sources of information on the effects of toxic exposures in human beings: (a) case reports, (b) toxicological research (including both animal studies and chemical/structural research), and (c) epidemiological studies.

(a) Case reports regarding the effects of toxic exposures in human beings, i.e., reports in the medical or scientific literature of a single case or series of cases, are one of the most important sources of information scientists have on effects of toxic substances, and often the only source of information. Detailed reports of cases of accidental poisonings or suicides provide information, such as autopsy data, biopsies and detailed clinical data, not obtainable by any other route. Moreover they constitute important and obvious "natural experiments," experiments where the relationship between the exposure and effect is usually clear. The use of case reports in medicine is longstanding and important, as evidenced by the continued appearance of such reports in the literature3. Indeed the logic

3 The Lancet, for example, one of the world's leading medical journals, contains a Case Report every week.

of a case report is similar to that of a more formal case-control or cross-sectional study.

(b) The use of toxicological research reports to understand the effects of toxic exposures in human beings – Toxicological research (including both animal studies and chemical/structural correlations), along with epidemiology, is one of the two other sources of information provides much of the basis for scientific judgments relating toxic exposures to health effects.

(c) Epidemiological studies are observations of "natural experiments" that are occurring in the real world. The idea is to find situations which are almost like laboratory experiments, observe them, obtain as much information as possible from them, and then interpret the results. The essence of the natural experiment in epidemiology is almost always a comparison between groups, for example, a group exposed to a chemical and one not exposed. The ideal situation would be to have the groups in the real world the same in all relevant respects (i.e., comparable) except for the variable under study. Unfortunately such natural groupings are rarely comparable, and techniques must be used to account for known differences.

13. Toxicology is an experimental science, while epidemiology is an observational science. The advantages of being able to conduct an experiment are obvious. Because John Stuart Mill's famous Method of Difference depends upon observing the result on B of a change in A, other factors must be held constant. The essence of an Experiment is the control of all factors, except for A and B. This kind of control allows the scientist to ask quite precise questions about explicitly defined A's and B's, and get relatively unambiguous answers. [4]

14. Epidemiology studies rely on comparing groups of people who are similar in most important ways except that they have different levels of exposure to a potentially harmful agent. However, groups may not be completely comparable and not all sources of non-comparability are known. If not a necessary accompaniment of the variable being investigated, these residual factors fall by chance in the two groups being compared. The result is that there are usually differences solely attributable to the random way these factors are distributed between groups in the particular study. The "chance" fluctuations in apparently otherwise similar populations require an epidemiologist to use statistical tools to evaluate the role of "noise" that might be obscuring an underlying "signal."

15. Observing some unintended or "natural" experiment in the real world, which is the essence of observational sciences like epidemiology, has the enormous advantage that it involves human beings living under conditions similar to ones found by plaintiffs in a

4 Whether complete control is practically possible varies, of course, but the principle should be clear.

personal injury lawsuit. Nonetheless, questions inevitably arise about the biological/scientific comparability (and thus the legal relevance or "fit") of the people and exposures and diseases studied in one place and time and other people at other places and times. For example, questions such as whether the comparison of the cases and controls was truly comparing "like with like," which is precisely the kind of problem that can be and generally is avoided in a tightly controlled experimental study.

16. Thus, as my colleague Dr. David Ozonoff explained in detail in a 1994 peer reviewed article, toxicological experiments and epidemiological studies each have characteristic strengths and weaknesses. 5

17. Take as an example an epidemiological study comparing the health outcome of two distinct groups of human beings, one group comprised of those workers in a facility who were exposed to radiation or asbestos by some process at their place of work, and the other group consisting of all members of the general population, most (but perhaps not all) of whom were not exposed to the radiation. One needs to consider the ways in which the workers might be different from the general population in addition to their exposures at work and utilize tools to control for non-comparability.

18. The mathematical tools used for sorting out potential differences between groups so that an overall conclusion can be reached involve, among other things, statistical tests of the probability of an observed difference in disease risk in different populations. A series of conventions or "rules of thumb" have developed over the years in the field of epidemiology.

19. The main purpose for statistics in epidemiology, then, is to evaluate the role that random effects ("chance") might have played in the results. Statistical methods do not prove that chance is the source of a difference (or lack of difference). These methods only provide information on how likely it is that chance could have played a part if there were no bias and no true effect. The meaning of "statistical significance" is that the likelihood that chance could have produced the observed results if there were no bias and no real effect is less than some arbitrarily predetermined level, such as 5% ("$p<.05$").6

20. For the reasons stated above, it is absolutely false – and, indeed, a serious interpretive error – to assert that a result that is not "statistically significant" means the results must be due to chance and only to chance. And for these reasons, prominent epidemiologists eschew "statistical significance," believing that it is not a sine qua non

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5 Ozonoff, D "Conceptions and Misconceptions about human Health Impact Analysis" Environment Impact Assessment Review, 14, 499-516, 1994.

6 The original source of the 5% criterion is lost in time. It apparently came from the original applications of statistical methods to agricultural experiments and expressed a cost-benefit statement about the expense of redoing a large trial involving a whole growing season and plots of various seeds and fertilizers. Its use for public health purposes might thus be questioned. It is interesting to note that in other sciences, notably, physics, another common criterion for "statistical significance" is not 5% but 10%. In any event, virtually every elementary statistics text warns the student of the highly arbitrary nature of the figure.

of "good science" and maintaining that "it is neither necessary nor appropriate as a requirement for drawing inferences from epidemiologic data."

21. These views are hardly mine alone. Instead, they are representative of the views of both Sir Austin Bradford Hill, one of the 20th century's preeminent statisticians, and some of most highly regarded epidemiologists in this country, such as Dr. Kenneth Rothman (who is: (a) the co-author of the most widely used textbook on epidemiology; (b) the former Editor-in-Chief of the peer-reviewed journal, Epidemiology; and, not least, (c) my colleague at the Boston University School of Public Health, as well as other epidemiologists, such as Dr. Noel Weiss.

22. Thus, Hill chided those who relied on "significance tests" to prove or disprove causation:

> No formal tests of significance can answer those questions. ("Is there any other way of explaining the set of facts before us, is there any other answer equally, or more, likely than cause and effect?") Such tests can, and should, remind us of the effects that the play of chance can create, and they will instruct us in the likely magnitude of those effects. Beyond that they contribute nothing to the "proof" of our hypothesis." – "I wonder whether the pendulum has not swung too far – not only with the attentive pupils, but with the statisticians themselves. Fortunately I believe we have not yet gone so far as our friends in the USA where, I am told, some editors of journals will return an article because tests of significance have not been applied. . ." 7

23. Similarly, in an amicus brief to the US Supreme Court in the Daubert case, Professors Rothman and Weiss, and others including me, stated: "Significance testing, however, is neither necessary nor appropriate as a requirement for drawing inferences from epidemiologic data." 8

24. The amicus brief continued:

> The notion that only when data demonstrate "statistical significance" do epidemiologists draw inferences about observed associations between suspected risk factors and medical conditions is mistaken. Significance testing is nothing more than a statistical technique that attempts to evaluate what is called "chance" as a possible explanation for a set of observations, and classify the observations "significant" or "not significant" based on the likelihood of observing them if there were no relationship between the suspected cause and effect.

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7 Austin Bradford Hill, The Environment and Disease - Association or Causation? Proceedings of the Royal Society of Medicine (1965) 58: 296 at p. 299.

8 Rothman and Weiss, "Summary of Argument" section of their amicus brief in Daubert.

25. Testing for significance, however, is often mistaken for a sine qua non of scientific inference. Scientific inference is the practice of evaluating theories. As such, it is a thoughtful process, requiring thoughtful evaluations of possible explanations for what is being observed. Significance testing, on the other hand, is merely a statistical tool that is frequently, but inappropriately, utilized in the process of developing inferences.

26. Dr. Rothman has stated the issue as follows:

> With the focus on statistical significance, if chance seems to be a plausible explanation, then other theories are too readily discarded, regardless of how tenable they may be. As a result, effective new treatments have often been overlooked because their effects were judged to be "not significant," despite an indication of efficacy in the data. Conversely, if "significance" seekers find that the results of a study are calculated as improbable on the basis of chance, then chance is often rejected as an explanation when alternative explanations are even less tenable. 9

27. The outcomes of statistical tests are strongly influenced by the size of the study population. For small populations, very large observed differences, of substantial public health significance, may still not be statistically significant10. That is to say, a large effect that a scientist would take seriously from the public health point of view cannot be differentiated on its face from chance. Either chance or a real causal influence (or bias)

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9 Rothman et al., amicus brief in Daubert, citing K. Rothman, Significance Questing, 105 Annals of Internal Medicine 445, 445-46 (1986) (citations omitted). According to the Rothman-Weiss amicus brief:

> A better approach to evaluating the error in scientific measurement is the use of "confidence intervals." A confidence interval is a range of possible values for a parameter that is consistent with the observed data within specified limits. The process of calculating a confidence interval within the chosen limits is know as "interval estimation." See K. Rothman, Significance Testing at 119.
>
> An important advantage of interval estimation is that it: "do[es] not require irrelevant null hypothesis to be set up nor [does it] force a decision about 'significance' to be made -- the estimates can be presented and evaluated by statistical and other criteria, by the researcher or the reader. In addition the estimates of one investigation can be compared with others. While it is often the case that different measurements or methods of investigation or theoretical approaches lead to 'different' results, this is not a disadvantage; these differences reflect important theoretical differences about the meaning of the research and the conclusions to be drawn from it. And it is precisely those differences which are obscured by simply reporting the significance level of the results.
>
> Rothman, et al., amicus brief in Daubert, quoting L. Atkins and D. Jarrett, The Significance of "Significance Tests," in J. Irvine and I. Miles (eds.) Demystifying Social Statistics (1979).

10 A detailed example showing how results can be of public health significance but not statistical significance can be found in Ozonoff, David, "Conceptions and Misconceptions about Human Health Impact Analysis," Environmental Impact Assessment Review, 14:499-516, 1994.

could be responsible for the worrisome effect. Conversely, in large populations, very slight and substantively meaningless differences can be "statistically significant."11

28. Statistical methods are sometimes viewed as standard, agreed-upon, and mechanical procedures. Scientists even allow computers to do them, seemingly without human intervention. But as any statistician knows, there is a great deal of judgment in deciding which tests to use in which circumstances, which tests are valid in those circumstances, and what they do and do not mean. Less well recognized is that statistics itself is, like all active disciplines, a field in ferment and change. Thus not all statisticians will agree on the propriety of even commonly used tests12.

29. When used, statistical methods are meant to help scientists evaluate the possible role of chance13. Scientists must evaluate the possibility of a concurrent real effect separately. The most important reason for a difference between two groups, however, is an actual effect or influence from the variable being studied (exposure at work in my example), i.e., that "A does cause B." As discussed in greater detail below, scientists recognize that "causation" should not be regarded as an experimental or epidemiological result, but rather as a "judgment" made about the experimental or epidemiological data. See Federal Judicial Center Reference Manual on Scientific Evidence (1994) at p. 157 ("causation is a judgment issue for epidemiologists and others interpreting the epidemiological data."). See also the extended discussion of this point in K. Rothman & S. Greenland, Causation and Causal Inference," in: K. Rothman and S. Greenland, Modern Epidemiology (Second ed. 1997) at pp. 7-2814.

30. It is apparently not always appreciated that this is true. There is a tendency to believe that somehow "causation" is not a subjective judgment or interpretation but an

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11 For example, a difference of 1/8" in height between east coast children and west coast children will be statistically significant if very large numbers of children on both coasts are measured.

12 A good example is the Fisher Exact Test, commonly used for small tables frequently encountered in environmental epidemiology. Certain well known statistical programs even force the user to employ this test if several table cells contain expected values of less than five, even though it has been known for years that the test is inappropriate. Cf. D'Agostino R, Chase W, Belanger A, "The appropriateness of some common procedures for testing the equality of two independent binomial populations," Am Statistician 42:198-202, 1988, and references therein.

13. ... As expressed by the epidemiologist Kenneth Rothman in his Daubert amicus brief: "The result of using significance testing as a criterion for decision making is that the focus is changed from the information presented by the observations themselves to conjecture about the role chance could have played in bringing about those observations." [emphasis in original]. Quoted by Berger M, cited above (op. cit., note 3). Rothman is the author of a standard text, Modern Epidemiology (see next note), and former Editor in Chief of the journal Epidemiology.

14 As professors Rothman and Greenland explain, at p. 22 of their textbook:
Perhaps the most important common thread that emerges from the debated philosophies [of scientific causation] is Hume's legacy that proof is impossible in empiric science. This simple fact is especially important to epidemiologists, who often face the criticism that proof is impossible in epidemiology, with the implication that it is possible in other scientific disciplines. Such criticism may stem from a view that experiments are the definitive source of scientific knowledge. Such a view is mistaken. Even the most careful and detailed mechanistic dissection of individual events cannot provide more than associations.

actual, real, objective, discoverable, and measurable property of a relationship that can be demonstrated empirically, as if some associations had readable labels on them that said 'causal' and all that scientists need is the right instrument to read the label.15 In sum, although some scientists may be loathe to admit it, and although many lawyers and judges may not believe it, there is simply no magic formula or easy checklist for making scientific judgments16.

31. The relative risk (RR) or its equivalent (the odds ratio (OR) as an estimate of the relative risk) is itself an estimate from the data of an underlying reality, the "real" risk. RRs or ORs, like other statistics used to summarize data, have some margin of uncertainty associated with the fact that the data are in some sense just one realization of an idealized, very large set of possible realizations, just as the results of flipping a fair coin ten times varies from one realization (set of ten flips) to the next. Thus the RR or OR has a "confidence interval" around it that expresses how "stable" the estimate is in repeated trials.

32. A RR = 1.9 is a summary of the overall risk to a population that is usually heterogeneous with respect to important risk factors. Thus it might include smokers, alcoholics, people who are obese, the point has been made repeatedly in the literature, accompanied with graphic examples of how a study that produces a RR less than 2.0 could result from an exposure in which all of the cases, some of the cases, or none of the cases were the result of exposure.

33. There is often disagreement among experts, stemming from differing weights each places on the influence of bias, chance and real effect. Such differences in science are common, both in and out of court. The fact that two scientists have different

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15 Thus Judge Kozinski, in the Daubert remand, writes of the plaintiff's case that it does not "attempt to show causation directly; instead, they rely on experts who present circumstantial proof of causation." Of course there is no such thing as a "direct" proof of causation.

16 Professors Rothman and Greenland are not alone in their view that judgment – not a checklist – is a scientist's most useful tool in inferring causation. Indeed, that perspective is shared by a number of the nation's leading epidemiologists and other scientists, historians of science, and philosophers of science. Thus, an amicus brief rendered to the US. Supreme Court in the Daubert case by Harvard professors Stephen Jay Gould (Zoology, Geology, and History of Science), Gerald Holton (Physics and History of Science), Everett Mendelsohn (History of Science), and Kathleen Joy Propert (Biostatistics), Columbia University professor Ronald Bayer (Sociomedical Sciences), and NYU professor Dorothy Nelkin (Sociology and Law) explained that "'[c]onclusiveness in inferring causality -- in epidemiology as with the study of all free-living human beings – is a desire more often than an accomplishment.'" Amicus Brief of Bayer, Gould, etc., quoting Mervyn Susser, Rules for Inference in Epidemiology, 6 Regulatory Toxicology and Pharmacology 116, 127 (1986). These scholars went on to observe that "[a]s a consequence, those who seek in science the immutable truth they find lacking in the law are apt to be disappointed." (Ibid.) Furthermore, "One notable similarity [between law and epidemiology] is the dependence of both fields upon subjective judgments. In the end, a quality which lawyers should understand -- judiciousness -- matters more than any. Scientists use both deductive and inductive inference to sustain the momentum of a continuing process of research. The courts of law, and the courts of application, use inference to reach decisions about what action to take. Those decisions cannot rest on certitudes, most especially when population risks are converted into individual risks." (Ibid., quoting Susser, op. cit., at p. 128 (my italics)).

judgments about how much weight to give a study does not demonstrate that either has failed to use scientifically acceptable reasoning, but only that the ultimate opinion about the weight to accord a study is inherently part of the subjective judgment process of scientists.

34. How does a scientist legitimately assert that such a judgment is valid and reliable? In essence scientists put forth reasons why their generalization makes sense, for example, that the experimental results in animal studies are relevant to humans, followed by an examination of reasons that might limit the generalization, for example, that the high doses used may alter the process sufficiently that it no longer applies to human exposures.17 Defining and constraining generalizations is an active process for forming opinions about studies. Again, there is ample scope for shades of opinion among experts who devote their professional time, resources, and best efforts to these areas of inquiry.

35. Depending upon a scientist's judgment of the internal validity (or inherent quality) of a particular study, an individual "piece" may be clear and well defined, or fuzzy and indefinite. Depending upon a scientist's judgment of external validity of a particular study, he or she may decide that an individual piece forms a large and central part of the picture, or is just a small piece on the periphery of the picture, or not even part of the picture at all18. In addition, a scientist's experience, expertise and basic judgment are involved.

36. The objective for the scientist is to take the available picture pieces, judge their internal and external validity, and assemble a picture (a theory or working diagnosis), that uses the majority of the clear and definite (i.e., internally valid) and the most relevant (i.e., externally valid) pieces into a coherent, sensible, comprehensive, and "elegant" picture of "reality," i.e., a picture that represents his or her decision about "what is happening."19

37. In such a complex process and with practical matters of consequence at stake, it is not surprising that differences of opinion develop. It is also not surprising that such differences are highlighted and, indeed, magnified by the adversary process. But even when so magnified, such disagreements are not merely artifacts of the adversary process, but actually essential features of science as it is routinely practiced rather than evidence of flawed scientific reasoning or methodology.

38. In sum, scientists may (and often do) disagree about which pieces are internally valid (which ones can be used in putting together a picture), disagree about which pieces

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17 It should be noted here that high dose animal studies are generally accepted by scientists and regulators. Cf., for example, Huff, et al., "Carcinogenesis studies: Results of 398 experiments in 104 chemicals from the US National Toxicology Program", Ann NY Acad Sci 534:1-30, 1988. Cf. also, Reference Guide on Toxicology, pp. 190-191.

18 External and internal validity are thus analogous to the "reliability" and "fit" criteria of the Daubert Court.

19 See Kuhn, op cit.

are externally valid (relevant and suitable for fitting into the picture), and disagree about where each internally and externally valid piece should go, that is, just how to assemble the relevant pieces of the puzzle. What scientists do not disagree about, though, is that they routinely select pieces and assemble such pictures and call the end product of this process of selection and assembly an explanation.

39. In this matter, I have reviewed various depositions, State of Tennessee and Federal agency reports, consulting reports, and shipping records documenting the transport of radioactive scrap metal and parts by train to the Witherspoon site at 901 Maryville Pike Road, in Knoxville, Tennessee. I have read a Department of Energy memorandum dated December 17, 1991 which notes that material transported from the Y-12 and K-25 facilities at Oak Ridge is "potentially contaminated with plutonium." The primary contaminants of concern in these radioactive materials are enriched uranium and Pu-239 and their decay products, which are emitters of alpha and gamma radiation. These types of ionizing radiation are known to cause lung cancer in humans (see IARC, 2000, 2001; UNSCEAR, 2000). Plutonium 239 is classified by the International Agency for Research on Cancer (IARC) as a Group I (established) human carcinogen.

40. My colleagues David Richardson and Steve Wing, at the University of North Carolina School of Public Health, have studied the causes of death in a cohort of radiation workers at Oak Ridge facilities (Richardson and Wing, 1999; Richardson and Wing, 2006). In the analysis of radiation and deaths in Oak Ridge National Laboratory published in 1999, they noted that there was an increase in deaths due to cancer that was especially evident in those whose radiation dose was received after age 45. This was also true for those workers who died of lung cancer, and these results were statistically significant by the usual convention ($p<.05$). Although they did not have direct information on cigarette smoking in these workers, they used indirect methods to evaluate the potential for confounding by this factor and found that the effect was likely due to the radiation exposure.

41. In their study published in 2006, Richardson and Wing focused on lung cancer deaths in workers at the Y-12 plant. In their case-control analysis, they also found a positive association between both external radiation dose and lung cancer deaths and for the joint effect of both internal (where measured) and external radiation dose and lung cancer deaths in these workers. The association was strongest in the workers who had the highest external and internal doses (RR=2.23; 95% CI 0.74-6.73), but were only seven deaths in this category and the risk estimate was not statistically significant by the usual convention. In this study, the authors again reported an increased risk of lung cancer in workers whose exposure was accumulated primarily at ages 35-49 and 50+.

42. Defendant CSX expert David Dooley estimated Mr. Payne's radiation dose using a hypothetical breakdown of radionuclides that assumed negligible (0.01% of activity) exposure to plutonium-239. His analysis was not based on measured amounts of plutonium exposure or actual contemporaneous measurements of Mr. Payne's radiation exposure or measured environmental levels where he worked at the Witherspoon rail yard or scrap facility. As a result, his estimated dose to Mr. Payne is speculative.

Nevertheless, his calculation still resulted in an estimated probability of causation of 2.99%. This means that, even with the speculative assumptions he used in calculation the radiation dose Mr. Payne received while employed by CSX, the Dooley report concludes that this contributed to his risk of developing lung cancer.

44. According to the most recent National Academy of Sciences Committee on Biological Effects of Ionizing Radiation (BEIR VII) report, "A significant positive association with lung cancer was observed in the AWE [Atomic Weapons Establishment] and ORNL [Oak Ridge National Laboratory] studies (Beral and others 1988; Wing and others 1991), particularly among those exposed to radionuclides in the AWE and in nonmonthly workers at ORNL. Information on tobacco smoking was available systematically in these studies." (BEIR VII, p. 198) This report further notes that "Lung, liver, and bone are the organs that receive the largest doses from plutonium, and excess cancers in all three organs have been linked clearly to plutonium exposure among Mayak workers (Gilbert and others 2000; Koshurnikova and others 2000; Kreisheimer and others 2000)." (BEIR VII, p. 201)

45. The evidence regarding asbestos and lung cancer is voluminous and goes back decades (IARC, 1987). It is widely recognized in the scientific and medical community that asbestos is capable of causing lung cancer, and that its effect is multiplied when combined with cigarette smoke exposure (Selikoff, et al., 1979). In fact, the joint effect of cigarette smoke and asbestos in producing lung cancer is one of the classic examples of synergy (Rothman, 1974) in the field of epidemiology.

47. Defendants' experts Corn and Crapo assert that lung cancer cannot be attributed to asbestos exposure in the absence of evidence of asbestosis, a dust disease producing scarring of the lung tissue that is specific to asbestos. This is not supported by the relevant scientific literature (see Warnock and Isenberg, 1986; Wilkinson, et al., 1995; Finkelstein, 1997; Cullen, et al., 2005). In particular, Finkelstein carefully examined lung cancer in a cohort of Ontario asbestos-cement workers and found that there were 123 cases in person without asbestosis. In this group of asbestos-exposed workers, the standardized mortality ratio (SMR) was 5.53 (95% CI 2.86-9.66) in those who died more than twenty years since first exposure. This means that their risk of dying from lung cancer was statistically significantly elevated in the absence of evidence of asbestosis. Finkelstein concludes that "the statement 'radiographic asbestosis is a prerequisite for asbestos-attributable lung cancer' is logically untenable." (Finkelstein, 1997, p. 347) Drs. Corn and Crapo both make this logically untenable statement.

48. In response to a request by the Tennessee Department of Health and Department of Environment and Conservation, the Agency for Toxic Substances and Disease Registry conducted a Health Consultation on the Witherspoon site. This was summarized in a memorandum dated Dec. 7, 1993; the memorandum reviews the site history, the beginning of the clean-up in the 1980s, and the status of the contamination and continuing risk to the public as of 1993. Based on sampling of various sediments, soil and barrels in 1990, 1991 and 1993 conducted by the State of Tennessee and a CSX contractor (CRU, Ind.), the ATSDR estimated the risk from radiological contaminants

present. They noted that data were incomplete but that using standard assumptions for a site of this type, a 10-year old child might receive 25 mrem/year and an adult 40 mrem/year from inhaling suspended soils near the site. The ATSDR recommended further sampling of soil and sediment for radioactive materials, and continued restriction of access to the contaminated site by the public and continued precautions to protect workers on the site from exposure to radioactive materials and other contaminants.

49. There is no question that asbestos, alpha and gamma radiation such as emitted by enriched uranium-235, and plutonium-239 are established human carcinogens and have been so designated by the relevant international and national cancer and radiation protection organizations.

50. Based on the above, it is my opinion, to a reasonable degree of scientific certainty, that alpha radiation from enriched uranium and plutonium is capable of causing or contributing to the development of lung cancer in exposed humans. It is my opinion, to a reasonable degree of scientific certainty, that asbestos is also capable of causing or contributing to lung cancer in exposed humans.

I hold all of the opinions in this report to a reasonable degree of scientific certainty. I reserve the right to further supplement this report and respond to the reports submitted by the defense.

Signed at Boston, MA on June 9, 2009.

Richard W. Clapp

Richard W. Clapp, D.Sc., MPH

IN THE CIRCUIT COURT FOR KNOX COUNTY, TENNESSEE

ANNE PAYNE, widow of
WINSTON PAYNE, deceased

Plaintiff,

vs.

CSX TRANSPORTATION, INC.,

Defendant.

FILED
2012 NOV 13 AM 10 19
CATHERINE F. QUIST
CIRCUIT COURT CLERK

No.: 2-231-07

ORDER GRANTING DEFENDANT'S MOTION FOR SUMMARY JUDGMENT

Upon full consideration by the Court of CSX Transportation, Inc.'s ("CSXT") Motion for Summary Judgment, Memorandum in Support of Motion, Statement of Undisputed Material Facts, and Plaintiff's Opposition to Defendant's Motion for Summary Judgment, the Court makes the following findings and conclusions of law.

1. Plaintiff sues CSXT under the Federal Employers' Liability Act, 45 U.S.C.A. §§ 51, *et seq.* ("FELA")[1] claiming that CSXT negligently exposed her decedent, Mr. Winston Payne, to asbestos, diesel exhaust, and ionizing radiation during his employment with CSXT, and that such exposures caused or contributed to his development of cancer and eventual death.
2. This Court, pursuant to Rules 702 and 703 of the Tennessee Rules of Evidence, and the requirements of those rules as set forth in applicable Tennessee case law, has previously excluded the specific medical causation testimony of Plaintiff's experts, Dr. Arthur Frank and Dr. Ross Kerns.
3. Pursuant to Tennessee Rule of Civil Procedure 56, CSXT moves for summary judgment on the ground that Plaintiff cannot prove that Mr. Payne's alleged occupational exposure to

[1] As part of her FELA claim, Plaintiff also alleges that CSXT violated the Locomotive Boiler Inspection Act and certain related federal safety regulations, and that said violations constitute negligence per se under her FELA claim.

radiation, diesel exhaust, and asbestos caused or contributed to his injuries, which is a required element of Plaintiff's FELA claim.

4. Plaintiff filed a Response in Opposition in which she opposes CSXT's Motion for Summary Judgment. Plaintiff admits that this Court excluded the specific medical causation testimony of Drs. Frank and Kerns, and further admits that, as a result of those rulings, she has no other expert testimony of specific medical causation connecting Mr. Payne's injuries to alleged exposures to asbestos, diesel exhaust and/or radiation in his CSXT work environment. In her Response in Opposition, Plaintiff does not assert any other basis by which to satisfy the causation element of her claim.
5. Plaintiff has waived the thirty-day time period provided in Tennessee Rule of Civil Procedure Rule 56 within which to respond to CSXT's Motion for Summary Judgment. CSXT's Motion for Summary Judgment is therefore ripe for consideration by this Court.

WHEREFORE this Court finds and concludes that, in the absence of competent proof that exposures to asbestos, diesel exhaust, and/or ionizing radiation caused or contributed to the injuries suffered by Plaintiff's decedent, Plaintiff cannot prove an essential element of her FELA claim. There being no genuine issue of material fact as to specific medical causation, the Court GRANTS summary judgment to CSXT.

Accordingly, it is ORDERED, ADJUDGED and DECREED that the Plaintiff's Complaint be, and the same hereby is dismissed with full prejudice with the Court's Statement of Costs to be taxed against the Plaintiff for the collection of which execution may issue, if necessary.

IT IS SO ORDERED, this 2 day of November, 2012. at 10:18 am

The Honorable Dale Workman
Circuit Court Judge

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ANNE **PAYNE v. CSX** TRANSPORTATION, INC.

No. E2012-02392-COA-R3-CV

COURT OF APPEALS OF TENNESSEE, AT KNOXVILLE

2013 Tenn. App. LEXIS 836

September 16, 2013, Session
December 27, 2013, Filed

SUBSEQUENT HISTORY: As Corrected January 18, 2014.

PRIOR HISTORY: [*1]
Tenn. R. App. P. 3 Appeal as of Right; Judgment of the Circuit Court Reversed; Case Remanded with Instructions. Appeal from the Circuit Court for Knox County. No. 2-231-07. Harold Wimberly, Judge.
Payne v. CSX Transp., Inc., 2012 Tenn. LEXIS 15 (Tenn., Jan. 13, 2012)

DISPOSITION: Judgment of the Circuit Court Reversed; Case Remanded with Instructions.

CASE SUMMARY

OVERVIEW: HOLDINGS: [1]-In an FELA case, instructing a jury sua sponte that its finding of negligence per se barred apportioning fault to plaintiff employee based on contributory negligence erred because this was a purely legal issue, and the jury had returned a complete, consistent, verdict based on its instructions; [2]-A lack of a proximate cause instruction did not warrant a new trial because the instruction given tracked FELA's causation language; [3]-A contributory negligence instruction did not err because it quoted FELA's contributory negligence provision; [4]-It was no error to charge the jury on pre-1976 and post-1976 versions of 49 C.F.R. § 174.700, on shipping radioactive material, because it could have reasonably found the employee was exposed to radioactivity after 1976; [5]-References to improper evidence did not require a new trial because adequate curative instructions were given.

OUTCOME: Judgment reversed.

CORE TERMS: new trial, railroad, contributory negligence, causation, jury instructions, jury foreman, exposure, cancer, thyroid, carrier's, jury verdict, asbestos, illness, negligence per se, radioactive materials, diesel, Locomotive Inspection Act, harm suffered, general verdict, evidentiary, radiation, cesium, foreseeability, contributed, workplace, juror, failure to act, federal standard, curative instruction, transportation

LEXISNEXIS® HEADNOTES Hide

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN1 The Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., provides a cause of

action for employees of railroads engaged in interstate commerce who are injured on the job. More Like This Headnote

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN2 See 45 U.S.C.S. § 51.

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN3 The Federal Employers' Liability Act (FELA), 45 U.S.C.S. § 51 et seq., is broad and remedial, and it is to be liberally construed in order to accomplish its purposes. Unlike a typical workers' compensation scheme, which provides relief without regard to fault, 45 U.S.C.S. § 51 et seq., provides a statutory cause of action sounding in negligence. Under FELA, a railroad-employer's liability is premised upon its negligence. In order to recover, an employee must show: (1) that an injury occurred while the employee was working within the scope of his or her employment; (2) that the employment was in the furtherance of the railroad's interstate transportation business; (3) that the employer railroad was negligent; and (4) that the employer's negligence played some part in causing the injury. FELA does not define negligence. When considering whether an employer was negligent under FELA, courts are to analyze the elements necessary to establish a common law negligence claim. The issue of negligence is to be determined by the common law principles as established and applied in federal courts. Thus, the plaintiff must prove the traditional elements of negligence: duty, breach, foreseeability, and causation. More Like This Headnote

Torts > Negligence > Defenses > Assumption of Risk > General Overview

Torts > Negligence > Defenses > Comparative Negligence > General Overview

Torts > Negligence > Defenses > Contributory Negligence > General Overview

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN4 The Federal Employers' Liability Act (FELA), 45 U.S.C.S. § 51 et seq., deviates from the common law by abolishing a railroad's common law defenses of assumption of the risk, 45 U.S.C.S. § 54, and it rejects contributory negligence in favor of comparative negligence, 45 U.S.C.S. § 53. In FELA cases, an employee's negligence does not bar relief, but the employee's recovery is diminished in proportion to his or her fault. More Like This Headnote

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN5 Under the Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., an employer railroad has a duty to provide a reasonably safe workplace. This does not mean that the railroad has the duty to eliminate all workplace dangers, but it does have the duty

of exercising reasonable care to that end. A railroad breaches its duty to its employees when it fails to use ordinary care under the circumstances or fails to do what a reasonably prudent person would have done under the circumstances to make the working environment safe. In other words, a railroad breaches its duty when it knew, or by the exercise of due care should have known, that prevalent standards of conduct were inadequate to protect a plaintiff and similarly situated employees. More Like This Headnote

Torts > Negligence > Defenses > Comparative Negligence > General Overview

Torts > Negligence > Defenses > Contributory Negligence > Limits on Application > General Overview

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN6 See 45 U.S.C.S. § 53.

Torts > Negligence > Defenses > Contributory Negligence > Limits on Application > General Overview

Torts > Negligence > Proof > Violations of Law > Safety Codes

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN7 Under the Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., contributory negligence on the part of an employee does not operate even to diminish a recovery where an injury has been occasioned in part by the failure of a carrier to comply with the exactions of an act of Congress enacted to promote the safety of employees. In that contingency the statute abolishes the defense of contributory negligence, not only as a bar to recovery, but for all purposes. The federal courts have referred to a violation of a statute or regulation enacted for the safety of employees as "negligence per se." More Like This Headnote

Transportation Law > Rail Transportation > Locomotive Inspection Act

HN8 See 49 U.S.C.S. § 20701.

Torts > Negligence > Proof > Violations of Law > Safety Codes

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN9 See 45 U.S.C.S. § 54a.

Civil Procedure > Trials > Jury Trials > Province of Court & Jury

HN10 It is for a jury to determine the facts and a trial judge to apply the appropriate principles of law to those facts. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Province of Court & Jury

Torts > Negligence > Defenses > Contributory Negligence > Limits on Application > General Overview

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN11 45 U.S.C.S. § 53, eliminating contributory negligence when a defendant is guilty of negligence per se, provides a principle of law to be applied by a trial court after a jury has determined the facts. The responsibility of resolving questions of disputed fact, including the assessment of damages, is entrusted to the jury. Tenn. Const. art. I, § 6. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Verdicts > General Overview

HN12 A jury's verdict is the foundation of the judgment in civil cases where the parties have invoked their constitutional or statutory right to a jury trial. It represents the jury's final statement with regard to the issues presented to them. The verdict, whether general or special, is binding on a trial court and the parties unless it is set aside through some recognized legal procedure. Accordingly, neither the trial court nor the parties are free to disregard a jury's verdict once it has been properly returned. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Verdicts > General Overview

Civil Procedure > Judgments > Entry of Judgments > General Overview

Civil Procedure > Judgments > Relief From Judgment > Motions for New Trials

HN13 It is a trial court's duty to enter a judgment that is consistent with a jury verdict. This duty is, of course, concomitant with the trial court's duty to decide whether to approve the verdict as thirteenth juror in ruling on a motion for new trial. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Verdicts > General Overview

Civil Procedure > Judgments > Entry of Judgments > General Overview

HN14 There are some narrow exceptions to the general principle that it is a trial court's duty to enter a judgment that is consistent with a jury verdict, including one that is found at Tenn. R. Civ. P. 49.02, which gives the trial court some leeway when there are inconsistencies between a general verdict and a special verdict. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Verdicts > General Overview

Civil Procedure > Judgments > Entry of Judgments > General Overview

HN15 See Tenn. R. Civ. P. 49.02.

Civil Procedure > Trials > Jury Trials > Verdicts > General Overview

HN16 It is true, as a general principle, that a jury may amend or change their verdict at any time before they have been discharged, or, if they bring in an informal or insufficient verdict, a court may send them back to the jury room, with directions to amend it, and put it in proper form. But in cases citing and applying this general rule, the jury's initial verdict was defective in some manner. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Verdicts > General Overview

Civil Procedure > Judgments > Entry of Judgments > General Overview

HN17 Tenn. R. Civ. P. 49.02 mandates that when a general verdict and answers to interrogatories are harmonious, a court shall direct the entry of the appropriate judgment upon the verdict and answers. More Like This Headnote

Civil Procedure > Judgments > Relief From Judgment > Motions for New Trials

Civil Procedure > Appeals > Standards of Review > Abuse of Discretion

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN18 In reviewing a trial court's disposition of a motion for new trial in a Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., case, the federal standard is applied. Under the federal standard, a trial court has the power and duty to order a new trial whenever, in its judgment, this action is required to prevent an injustice. Common grounds for granting a new trial include the verdict is against the clear weight of the evidence, a prejudicial error of law, or misconduct affecting the jury. A trial court's decisions on motions for new trial are reviewed on an abuse of discretion standard. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Jury Instructions > General Overview

Civil Procedure > Trials > Jury Trials > Jury Instructions > Requests for Instructions

HN19 Jury instructions must be correct and fair as a whole, although they do not have to be perfect in every detail. Jury instructions must be plain and understandable, and inform the jury of each applicable legal principle. On appeal, jury instructions are reviewed in their entirety and in context of the entire charge. An appellate court will not invalidate a jury charge if, when read as a whole, it fairly defines the legal issues in the case and does not mislead the jury. A trial court should give requested special jury instructions when they are a correct statement of the law, embody a party's legal theory, and are supported by the proof. However, the trial court may decline to give a special instruction when the substance of the instruction is covered in the general charge. An appellate court will not reverse the denial of a special request for an additional jury instruction where the trial court fully and fairly charged the jury on the applicable law. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Jury Instructions > General Overview

Torts > Negligence > Causation > Proximate Cause > General Overview

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN20 The Federal Employers' Liability Act (FELA), 45 U.S.C.S. § 51 et seq., does not incorporate "proximate cause" standards developed in nonstatutory common-law tort actions. The charge proper in FELA cases simply tracks the language Congress employed, informing juries that a defendant railroad caused or contributed to a plaintiff employee's injury if the railroad's negligence played any part in bringing about the injury. FELA's language on causation is as broad as could be framed. Given the breadth of the phrase "resulting in whole or in part from the railroad's negligence," and Congress's "humanitarian" and "remedial goals," it is recognized that, in comparison to tort litigation at common law, a relaxed standard of causation applies under FELA. Under FELA, the test of a jury case is simply whether the proofs justify with reason the conclusion that employer negligence played any part, even the slightest, in producing the injury or death for which damages are sought. This is a general standard for causation in FELA cases, not one addressed exclusively to injuries involving multiple potentially cognizable causes, and it conclusively determined that a proximate cause instruction is not required in FELA cases. More Like This Headnote

Torts > Negligence > Causation > General Overview

Torts > Negligence > Defenses > Contributory Negligence > General Overview

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN21 In a Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., case, the same standard of causation applies in assessing both the negligence of a defendant railroad and the contributory negligence of a plaintiff employee. More Like This Headnote

Torts > Negligence > Causation > Proximate Cause > Foreseeability

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN22 Reasonable foreseeability of harm is an essential ingredient of Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., negligence. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Jury Instructions > General Overview

Torts > Negligence > Causation > Proximate Cause > Foreseeability

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN23 In a Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., case, a jury is correctly instructed on foreseeability when it is instructed that negligence is the failure to observe that degree of care which people of ordinary prudence and sagacity would use under the same or similar circumstances, and that a defendant's duty is measured by what a reasonably prudent person would anticipate as resulting from a particular condition — defendant's duties are measured by what is reasonably foreseeable under like circumstances — by what in the light of the facts then known, should or could reasonably have been anticipated. More Like This Headnote

Torts > Negligence > Causation > Proximate Cause > Foreseeability

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN24 With regard to foreseeability and notice in Federal Employers' Liability Act (FELA), 45 U.S.C.S. § 51 et seq., cases, the law is clear that notice under the FELA may be shown from facts permitting a jury to infer that a defect could have been discovered by the exercise of reasonable care or inspection: Under familiar law, a defendant may not be convicted of negligence, absent proof that such defect was known, or should or could have been known, by defendant, with opportunity to correct it. This rule is applicable to FELA actions where negligence is essential to recovery. The establishment of such an element, however, may come from proof of facts permitting a jury inference that the defect was discovered, or should have been discovered, by the exercise of reasonable care or inspection. More Like This Headnote

Torts > Negligence > Causation > Proximate Cause > Foreseeability

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN25 To prove a breach of duty under the Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., an employee must show that a railroad knew, or by the exercise of due care should have known, that prevalent standards of conduct were inadequate to protect the employee and similarly situated employees. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Jury Instructions > Requests for Instructions

HN26 In instructing a jury, a trial court may decline to give a special instruction when the substance of the instruction is covered in the general charge. The fact that a special request for jury instruction asserts a correct rule of law does not make it proper jury charge material. More Like This Headnote

Civil Procedure > Trials > Jury Trials > Jury Instructions > General Overview

Evidence > Inferences & Presumptions > Presumptions > General Overview

HN27 A jury is presumed to have followed a trial court's instructions. More Like This Headnote

Civil Procedure > Judgments > Relief From Judgment > Motions for New Trials

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN28 A motion for a new trial made after a jury verdict triggers a trial court's duty to independently assess the evidence and either approve or disapprove the verdict. Because the trial court is reviewing and weighing the evidence as did the jury, this is generally known as the "thirteenth juror" rule. There are significant differences between the Tennessee standard for reviewing the evidence as thirteenth juror and the federal standard, and the federal standard applies in Federal Employers' Liability Act, 45 U.S.C.S. § 51, cases. The standard federal courts employ in deciding whether to grant a new trial is whether the verdict is against the "clear weight" of the evidence. When ruling on motions for new trials based upon sufficiency of the evidence, a court may set aside a verdict and grant a new trial when it is of the opinion that the verdict is against the clear weight of the evidence; however, new trials are not to be granted on the grounds that the verdict was against the weight of the evidence unless that verdict was unreasonable. Thus, if a reasonable juror could reach the challenged verdict, a new trial is improper. More Like This Headnote

Civil Procedure > Judgments > Relief From Judgment > Motions for New Trials

HN29 A trial court may not set aside a verdict to grant a new trial if the judge would have reached a different verdict. The trial judge, exercising a mature judicial discretion,

should view the verdict in the overall setting of the trial; consider the character of the evidence and the complexity or simplicity of the legal principles which the jury was bound to apply to the facts; and abstain from interfering with the verdict unless it is quite clear that the jury has reached a seriously erroneous result. The judge's duty is essentially to see that there is no miscarriage of justice. In Tennessee, the law is clear that if a motion for a new trial is filed, then the trial court is under a duty to independently weigh the evidence and determine whether the evidence "preponderates" in favor of or against the verdict. At a very basic level, the standards are quite different since the Tennessee standard uses "preponderance" of the evidence, while the federal standard requires that the verdict be outweighed by the "clear" weight of the evidence. Under state law if a judge is "dissatisfied" with a jury verdict then the trial court is at liberty to order a new trial. Under the federal standard, the verdict must be unreasonable. Under state law a court must make an independent decision, while under federal law if a reasonable juror could have reached the verdict, the trial court is to defer. More Like This Headnote

Civil Procedure > Judgments > Relief From Judgment > Motions for New Trials

Torts > Transportation Torts > Rail Transportation > Federal Employers' Liability Act

HN30 Federal law provides the standard to determine whether to grant a new trial in a Federal Employers' Liability Act, 45 U.S.C.S. § 51 et seq., case tried in state court. More Like This Headnote

COUNSEL: Richard N. Shapiro, Virginia Beach, Virginia; Sidney W. Gilreath and Cary L. Bauer, Knoxville, Tennessee, for the appellant, Anne Payne.

Randall A. Jordan, Karen Jenkins Young, and Christopher R. Jordan, St. Simons Island, Georgia; Evan M. Tager and Carl J. Summers, Washington, D.C.; John W. Baker, Jr. and Emily L. Herman-Thompson, Knoxville, Tennessee, for the appellee, CSX Transportation, Inc.

JUDGES: CHARLES D. SUSANO, JR., P.J., delivered the opinion of the Court, in which THOMAS R. FRIERSON, II, J., and D. KELLY THOMAS, SP.J, joined.

OPINION BY: CHARLES D. SUSANO, JR.

OPINION

Winston Payne brought this action against his former employer, CSX Transportation, Inc., under the Federal Employers' Liability Act ("FELA"), alleging that CSX negligently exposed him to asbestos, diesel fumes, and radioactive materials in the workplace causing his injuries.[1] The jury returned a verdict finding (1) that CSX negligently caused Payne's injuries; (2) that CSX **[*2]** violated the Locomotive Inspection Act or safety regulations regarding exposure to asbestos, diesel fumes, and radioactive materials; and (3) that Payne's contributory negligence caused 62% of the harm he suffered. The jury found that "adequate compensation" for Payne's injuries was $8.6 million. After the jury returned its verdict, the trial court, *sua sponte*, instructed the jury, for the first time, that, under FELA, its finding that CSX violated a statute or regulation enacted for the safety of its employees meant that plaintiff would recover 100% of the damages found by the jury. The court sent the jury back for further deliberations. It shortly returned with an amended verdict of "$3.2 million @ 100%." Six months after the court entered

judgment on the $3.2 million verdict, it granted CSX's motion for a new trial, citing "instructional and evidentiary errors." The case was then assigned to another trial judge, who thereafter granted CSX's motion for summary judgment as to the entirety of the plaintiff's complaint. The second judge ruled that the causation testimony of all of plaintiff's expert witnesses was inadmissible. We hold that the trial court erred in instructing the jury, **[*3]** *sua sponte*, on a purely legal issue, *i.e.*, that the jury's finding of negligence per se under FELA precluded apportionment of any fault to the plaintiff based upon contributory negligence, an instruction given after the jury had returned a verdict that was complete, consistent, and based on the instructions earlier provided to it by the trial court. We further hold that, contrary to the trial court's statements, the court did not make any prejudicial evidentiary rulings in conducting the trial, and that its jury instructions, read as a whole, were clear, correct, and complete. Consequently, the trial court erred in granting a new trial. We remand to the trial court. We direct the first trial judge to review the evidence as thirteenth juror and determine whether the jury verdict in the amount of $8.6 million is against the clear weight of the evidence. If it is not, the trial judge is directed to enter judgment on that verdict. If, on the other hand, the trial judge finds that the larger verdict is against the clear weight of the evidence, the court is directed to enter a final judgment on the jury's verdict of $3.2 million. The trial court's grant of summary judgment is rendered moot **[*4]** by our judgment. However, in the event the Supreme Court determines that our judgment is in error, we hold that the grant of summary judgment was not appropriate.

FOOTNOTES

1 The primary illness was lung cancer from which the original plaintiff died. We refer in this opinion to his health issues as "injuries" or "injury."

OPINION

I.

Payne worked for CSX as a trainman and a switchman from 1962 until his retirement in 2002. In 2005, he was diagnosed with lung cancer. He underwent extensive medical treatment, including 43 rounds of chemotherapy and 44 radiation treatments. He filed this FELA action in 2007, alleging that CSX was negligent in exposing him to asbestos, diesel fumes, and radioactive material in the course of his employment, resulting in his injuries, particularly his lung cancer. He also alleged that CSX was guilty of negligence per se when it violated several statutes or regulations enacted for the safety of its employees. CSX denied liability and alleged that Payne's contributory negligence, specifically his cigarette smoking, caused his injuries. Payne started smoking in 1962, smoked a pack a day on average for approximately 26 years, and quit in 1988. After Payne died on February 24, **[*5]** 2010, his widow, Anne Payne, was substituted as plaintiff.

A ten-day jury trial took place over the course of two weeks in November 2010. After the close of proof, the trial court instructed the jury and provided it with a verdict form including special interrogatories. To aid the reader, the jury verdict form is hereinafter set forth in its entirety, with the jury's handwritten answers in italics:
1. Was the defendant negligent as defined in these instruction[s]? **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 **[*6]** 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**

When the jury returned to the courtroom following its deliberations, the following colloquy took place between the trial court and the jury foreman:
THE COURT: 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 **[*7]** 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 violat[e] **[*8]** 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 [of] the negligence, that would fairly represent adequate compensation in this case?*

JURY FOREMAN: 8.6 million.

(Emphasis added.)

Immediately after the jury foreman confirmed the jury's written responses establishing the plaintiff's total damages at $8.6 million, the following took place:
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 **[*9]** 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 . . . 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.

* * *

THE COURT (to the jury): What is your feeling now?

JURY FOREMAN: Could we have a moment to discuss that?

THE COURT: All right.
(Jury dismissed from courtroom at 4:05 p.m.)
(Jury returned to courtroom at 4:13 p.m.)

THE COURT: Based on a previous discussion, [jury foreman] Mr. Alexander, it is the intention of the jury that the plaintiff recover a total amount of what?

JURY FOREMAN: $3.2 million.

THE COURT: If everyone agrees with that, raise your right hand. The jury has raised their right hand indicating that's their feeling in this particular case.

The amended verdict form returned by the jury after the jury's eight-minute further deliberation had a handwritten line through the "8.6 **[*10]** million" amount and a handwritten notation of "3.2 million @ 100%."

On March 7, 2011, the trial court entered judgment against CSX in the amount of $3.2 million in compensatory damages. CSX moved under Tenn. R. Civ. P. 50.02 for judgment notwithstanding the verdict, or, in the alternative, for a new trial. The trial court conducted a hearing on CSX's motion on August 19, 2011. At the end of the hearing, the court stated as follows:
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 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 **[*11]** 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.

The trial court entered an order on September 6, 2011, granting CSX a new trial and stating that

"[t]he Court makes this decision based upon specific prejudicial errors including, but not limited to, instructional and evidentiary errors that resulted in an injustice to Defendant and,*independent of considerations regarding sufficiency of the evidence*, warrant a new trial." (Emphasis added.) The case was subsequently transferred to another Knox County circuit court judge, the Honorable Dale C. Workman. Judge Workman granted CSX's motion to exclude the causation testimony of Dr. Arthur Frank and Dr. Ross Kerns, both of whom had testified as causation experts before the jury. When the plaintiff acknowledged that Drs. Frank and Kerns were her only witnesses on the issue of causation, **[*12]** Judge Workman granted CSX's motion for summary judgment on the ground that there was no expert testimony establishing causation, and dismissed the case. Plaintiff timely filed a notice of appeal.

II.

Plaintiff raises the issues of whether the trial court erred in: (1) further instructing the jury and permitting it to further deliberate after it had returned a proper verdict; (2) granting CSX a new trial; and (3) granting CSX summary judgment and dismissing the complaint. CSX does not raise any separate issues. The sufficiency of the evidence to support the jury's verdict(s) is not before us.

III.

We first address the trial court's jury instructions. The trial court instructed the jury in accordance with HN1 FELA, the federal statute that provides a cause of action for employees of railroads engaged in interstate commerce who are injured on the job. *See* 45 U.S.C.A. § 51; *see also* ***Spencer v. Norfolk S. Rwy. Co.***, No. E2012-01204-COA-R3-CV, 2013 Tenn. App. LEXIS 477, 2013 WL 3946118 at *1, n.1 (Tenn. Ct. App. E.S., filed July 29, 2013). In **Spencer**, this Court recently reiterated the following background and principles governing a FELA claim: "The impetus for the [Federal **[*13]** Employers' Liability Act ("FELA"), 45 U.S.C.A. §§ 51-60] was that throughout the 1870's, 80's, and 90's, thousands of railroad workers were being killed and tens of thousands were being maimed annually in what came to be increasingly seen as a national tragedy, if not a national scandal." **CSX Transp., Inc. v. Miller**, 159 Md. App. 123, 858 A.2d 1025, 1029 (Md. Ct. Spec. App. 2004). "In response to mounting concern about the number and severity of railroad employees' injuries, Congress in 1908 enacted FELA to provide a compensation scheme for railroad workplace injuries, pre-empting state tort remedies." **Norfolk S. Ry. Co. v. Sorrell**, 549 U.S. 158, 165, 127 S.Ct. 799, 166 L.Ed.2d 638 (2007) (citing **Second Employers' Liability Cases**, 223 U.S. 1, 53-55, 32 S.Ct. 169, 56 L.Ed. 327 (1912)). FELA was passed to extend statutory protection to railroad workers because of the high rate of injury to workers in that industry. **Blackburn v. CSX Transp.**, Inc., No. M2006-01352-COA-R10-CV, 2008 Tenn. App. LEXIS 336, 2008 WL 2278497, at *8 (Tenn. Ct. App. May 30, 2008); **Reed v. CSX Transp., Inc.**, No. M2004-02172-COAR3-CV, 2006 Tenn. App. LEXIS 620, 2006 WL 2771029, at *2 (Tenn. Ct. App. Sept. 26, 2006). **[*14]** "In adopting FELA, Congress created a remedy that 'shifted part of the human overhead of doing business from employees to their employers.'" **Pomeroy v. Ill. Cent. R.R. Co.**, No. W2004-01238-COA-R3-CV, 2005 Tenn. App. LEXIS 294, 2005 WL 1217590, at *9 (Tenn. Ct. App. May 19, 2005) (quoting **Consol. Rail Corp. v. Gottshall**, 512 U.S. 532, 542, 114 S. Ct. 2396, 129 L. Ed. 2d 427 (1994)). Congress recognized that the railroad industry was better able to shoulder the cost of industrial injuries and deaths than were injured workers or their families. **Miller**, 159 Md. App. at 131, 858 A.2d 1025 (citing**Kernan v. Am. Dredging Co.**, 355 U.S. 426, 431-32, 78 S.Ct. 394, 2 L.Ed. 2d 382 (1958)). "[FELA] was designed to put on the railroad industry some of the cost for the legs, eyes, arms, and lives which it consumed in its operations." **Pomeroy**, 2005 Tenn. App. LEXIS 294, 2005 WL 1217590, at * 17 (quoting **Wilkerson v. McCarthy**, 336 U.S. 53, 68, 69 S.Ct. 413, 93 L.Ed. 497 (1949) (Douglas, J., concurring)). The Federal Employers' Liability Act provides, in relevant part:

HN2 Every common carrier by railroad while engaging in commerce . . . shall be liable in damages to any person suffering injury while he is **[*15]** employed by such carrier in such commerce . . . for such injury or death resulting in whole or in part from the negligence of any of

3 FELA provides that certain safety regulations are deemed to be statutory authority for FELA purposes:

HN9 A regulation, standard, or requirement in force, or prescribed by the Secretary of Transportation under chapter 201 of Title 49, or by a State agency that is participating **[*21]** in investigative and surveillance activities under section 20105 of Title 49 is deemed to be a statute under sections 53 and 54 of this title.

45 U.S.C.A. § 54a.

In this case, the trial court instructed the jury with respect to the issue of contributory negligence prior to its initial deliberations; but the court did not inform the jury of the legal effect of a finding that CSX was guilty of negligence per se. Neither side requested a jury instruction on negligence per se, and neither side objected at any time to the lack of such an instruction. On appeal, neither side has provided any legal authority suggesting that a jury instruction is required on the FELA's provision regarding negligence per se, *i.e.*, that, as a matter of law, "no such employee who may be injured or killed shall be held to have been guilty of contributory negligence in any case where the violation by such common carrier of any statute enacted for the safety of employees contributed to the injury or death of such employee." 45 U.S.C.A. § 53. Plaintiff, noting that the jury's second damage award of "$3.2 @ 100%" is reduced by roughly 62% of its initial damage award of $8.6 million, argues that the trial court, by its **[*22]** instruction after the jury returned its verdict, essentially invited the jury to nullify FELA's 45 U.S.C.A. § 53 provision ("Section 53"). Plaintiff cites **Shepard v. Grand Trunk W. R.R.**, 2010 Ohio 1853, 2010 WL 1712316 (Ohio Ct. App., filed 2010), a FELA case involving a fact pattern similar in many respects to the case at bar,[4] in which the Ohio Court of Appeals stated the following:

Here, the jury was specifically instructed that Shepard alleged that two statutory violations were at issue: (1) the FELA, which requires negligence and provides for comparative negligence and (2) the [Locomotive Inspection Act], which imposes absolute liability. Under FELA, the jury found Grand Trunk negligent and also found Shepard comparatively negligent. But because the jury further found that the railroad had violated the LIA, under well-settled law, it was not entitled to apportionment of damages under a comparative negligence defense.

* * *

Grand Trunk's contention that the *post-verdict discussions with the jury demonstrated that they believed the award was going to be reduced* is not persuasive — a party may not challenge the validity of the verdict using post-verdict discussions with jurors. **[*23]** The jury was properly instructed and is presumed to have followed those instructions.

2010 Ohio 1853, **Id.**, 2010 WL 1712316 at *13-14 (emphasis added; internal citations omitted). The implication of the italicized language is clear — the jury in **Shepard** was not instructed on the legal effect of its finding of negligence per se, and the court there found no error in the trial court's failure to advise the jury of this legal effect.

FOOTNOTES

4 The plaintiff in **Shepard** alleged injuries resulting from negligent exposure to diesel fumes and asbestos. The plaintiff in that case "admitted to a long history of heavy cigarette

smoking." 2010 Ohio 1853, 2010 WL 1712316 at *2.

We do not find any reason for the jury to be instructed regarding the legal consequences of a finding that an employer railroad violated a safety statute or regulation. As the Tennessee Supreme Court has stated, HN10 "[i]t is for the jury to determine the facts and the trial judge to apply the appropriate principles of law to those facts." **Smith Cty. Educ. Ass'n v. Anderson**, 676 S.W.2d 328, 338 (Tenn. 1984) (holding that "it was improper and unnecessary to submit questions which required the jury to determine whether or not the Board negotiated in good faith" because "[w]hether **[*24]** the Board committed acts that amount to a failure to negotiate in good faith was a question for the trial judge and not the jury."). HN11 Section 53 of the FELA eliminating contributory negligence when a defendant is guilty of negligence per se provides a principle of law to be applied by the trial court after the jury has determined the facts. "We entrust the responsibility of resolving questions of disputed fact, including the assessment of damages, to the jury." **Meals ex rel. Meals v. Ford Motor Co.**, No. W2010-01493-SC-R11-CV, 2013 Tenn. LEXIS 702, 2013 WL 4673609 at *3 (Tenn., filed Aug. 30, 2013) (citing Tenn. Const. art. I, § 6; **Spence v. Allstate Ins. Co.**, 883 S.W.2d 586, 594 (Tenn. 1994)). Regarding the jury's resolution of factual questions and its verdict, we have observed that HN12 [t]he jury's verdict is the foundation of the judgment in civil cases where the parties have invoked their constitutional or statutory right to a jury trial. It represents the jury's final statement with regard to the issues presented to them. The verdict, whether general or special, is binding on the trial court and the parties unless it is set aside through some recognized legal procedure. Accordingly, neither the trial court **[*25]** nor the parties are free to disregard a jury's verdict once it has been properly returned.

Ladd ex rel. Ladd v. Honda Motor Co., 939 S.W.2d 83, 94 (Tenn. Ct. App. 1996); *see also* ***Jordan***, 2009 Tenn. App. LEXIS 8, 2009 WL 112561 at *17 (stating that "[t]he United States Supreme Court has repeatedly emphasized the preeminence of jury decisions in FELA matters.") (internal quotation marks omitted).

In this case, the jury was instructed on all of the pertinent questions upon which it was properly called to decide — whether the defendant was negligent; whether the defendant's negligence caused plaintiff's injury; whether the plaintiff was negligent and caused his own injury; the percentage of fault attributed to plaintiff by his own negligence; whether the defendant violated the Locomotive Inspection Act or regulations enacted for the safety of employees; whether any such violation caused plaintiff's injury; and the amount of damages. The jury answered these questions in a verdict form that has been reproduced in its entirety earlier in this opinion. The jury resolved all of the issues in a clear, complete, and consistent manner. There is nothing contradictory in the verdict. Under these circumstances, in keeping **[*26]** with the litigants' "constitutionally protected right to have the disputed factual issues in their case decided by a jury," **Duran v. Hyundai Motor Am., Inc.**, 271 S.W.3d 178, 209 (Tenn. Ct. App. 2008), we have recognized "the well-known principle that HN13 it is the trial court's duty to enter a judgment that is consistent with the jury verdict."[5] **Leverette v. Tenn. Farmers Mut. Ins. Co.**, No. M2011-00264-COA-R3-CV, 2013 Tenn. App. LEXIS 161, 2013 WL 817230 at *29 (Tenn. Ct. App. M.S., filed Mar. 4, 2013).

FOOTNOTES

[5] This duty is, of course, concomitant with the trial court's duty to decide whether to approve the verdict as thirteenth juror in ruling on a motion for new trial, as further discussed later in this opinion.

In **Leverette** we noted HN14 some "narrow exceptions" to this general principle, including one that "is found at Tenn. R. Civ. P. 49.02, which gives the trial court some leeway *when there are inconsistencies between a general verdict and a special verdict*." **Id.** (Emphasis added.) Rule 49.02provides as follows:

HN15 The court may submit to the jury, together with appropriate forms for a general verdict, written interrogatories upon one or more issues of fact the decision of which is necessary to a verdict. The court shall give **[*27]** such explanation and instruction as may be necessary to enable the jury to make answers to the interrogatories and to render a general verdict, and the court shall direct the jury both to make written answers and to render a general verdict. *When the general verdict and the answers are harmonious, the court shall direct the entry of the appropriate judgment upon the verdict and answers.* When the answers are consistent with each other but one or more is inconsistent with the general verdict, the court may direct the entry of judgment in accordance with the answers, notwithstanding the general verdict, or may return the jury for further consideration of its answers and verdict, or may order a new trial. When the answers are inconsistent with each other and one or more is likewise inconsistent with the general verdict, the court shall not direct the entry of judgment but shall return the jury for further consideration of its answers and verdict or shall order a new trial.

(Emphasis added); *see also* ***Concrete Spaces, Inc. v. Sender***, 2 S.W.3d 901, 911 (Tenn. 1999) (observing that, although "[w]here a judgment is based upon inconsistent findings by a jury it is the duty of the appellate court **[*28]** to reverse and remand the case for a new trial, . . . [w]ell-settled law requires courts to construe the terms of a verdict in a manner that upholds the jury's findings, if it is able to do so.").

In the present case, the trial court, presented with a consistent and complete jury verdict, nevertheless and *sua sponte*, instructed the jury that the legal effect of its finding of negligence per se was that "the concept of contributory negligence may not apply in this case." The trial court then asked the jury "what is your feeling now?" We agree with plaintiff's argument that the trial court's new and unnecessary further instruction and invitation to reconsider its verdict was a prejudicial abuse of discretion.[6] HN16 It is true, as a general principle, that "a jury may amend or change their verdict at any time before they have been discharged, or, if they bring in an informal or insufficient verdict, the court may send them back to the jury room, with directions to amend it, and put it in proper form." **George v. Belk**, 101 Tenn. 625, 49 S.W. 748, 749 (Tenn. 1899); *see also* ***State v. Williams***, 490 S.W.2d 519, 520 (Tenn. 1973); **Riley v. State**, 189 Tenn. 697, 227 S.W.2d 32, 34-35 (Tenn. 1950); **Oliver v. Smith**, 62 Tenn. App. 705, 467 S.W.2d 799, 804 (Tenn. Ct. App. 1971). **[*29]** But in these cases citing and applying this general rule, the jury's initial verdict was defective in some manner. There is no defect in the jury's first verdict in this case. HN17 Tenn. R. Civ. P. 49.02 mandates that "[w]hen the general verdict and the answers are harmonious, the court shall direct the entry of the appropriate judgment upon the verdict and answers." Under these circumstances, where the jury was properly and completely instructed and returned a consistent and complete verdict in accordance with the court's instructions, we hold it was error for the trial court to *sua sponte* further instruct the jury upon an unnecessary matter and invite the jury to reconsider the amount of damages it initially awarded.

FOOTNOTES

6 This is not to say, however, that a trial court's initial instruction to a jury that informs the jury of the effect of its negligence per se finding under FELA would be erroneous, and our opinion should not be construed as so holding. We merely hold that such an instruction is not required, and that the trial court's further instruction in this case after the jury deliberated and

returned a verdict was unwarranted and resulted in error.

IV.

The trial court, in its memorandum **[*30]** opinion granting a new trial, stated that "in particular the jury instructions I feel were incomplete, therefore insufficient and inadequate and incorrect." Our review of the record and transcript leads us to the conclusion that the "incompleteness" the trial court mentions is a reference only to the initial absence of an instruction regarding the legal effect of a finding of negligence per se. This conclusion is supported by the trial court's further comment that the "incompleteness" of the jury instructions "was illustrated graphically by their response and what we had to do to try to understand what they meant." Our conclusion is further bolstered by the fact, as we are about to demonstrate, that the instructions given to the jury before they retired initially to consider their verdict were correct and complete. The trial court did not specify any other error in its jury instructions in either its order granting a new trial or its incorporated memorandum opinion. We do not believe the trial court ruled that there were any other reversible errors in its instructions. Despite this belief, we have reviewed all of CSX's objections to the jury instructions, both those raised by CSX orally **[*31]** after the jury was instructed as well as those in the later motion for a new trial.[7]

FOOTNOTES

7 None of CSX's numerous objections to the jury instructions included an argument that the trial court should have instructed the jury on the legal effect of its finding that CSX was negligent per se. As already noted, neither party requested such an instruction, and neither party objected to the absence of such an instruction in the given instructions.

HN18 In reviewing the trial court's disposition of a motion for new trial in a FELA case, we apply the federal standard. **Melton v. BNSF Rwy. Co.**, 322 S.W.3d 174, 181 (Tenn. Ct. App. 2010). In **Melton**, we observed that

[u]nder the federal standard, the trial court has the power and duty to order a new trial whenever, in its judgment, this action is required to prevent an injustice. Common grounds for granting a new trial include the verdict is against the clear weight of the evidence, a prejudicial error of law, or misconduct affecting the jury. We review the trial court's decisions on motions for new trial on an abuse of discretion standard.

Id. (internal citations and quotation marks omitted). In this case, the trial court gave no indication that it was granting **[*32]** a new trial based on either misconduct affecting the jury or insufficiency of the evidence. The trial court's ruling was grounded in its perceived errors of law.

The following principles apply to our review of the trial court's jury instructions:

HN19 "Jury instructions must be correct and fair as a whole, although they do not have to be perfect in every detail." **Pomeroy** [**v. Illinois Central R.R. Co.**, No. W2004-01238-COA-R3-CV], 2005 Tenn. App. LEXIS 294, 2005 WL 1217590, at *3 [(Tenn. Ct. App. May 19, 2005)] (citing **Wielgus v. Dover Indus.**, 39 S.W.3d 124, 131 (Tenn. Ct. App.2001)). Jury instructions must be plain and understandable, and inform the jury of each applicable legal principle. **Id.** On appeal, we review jury instructions in their entirety and in context of the entire charge. **Id.** We will not invalidate a jury charge if, when read as a whole, it fairly defines the legal issues in the case and does not mislead the jury. **Hensley v. CSX Transp., Inc.**, 278 S.W.3d 282, 2008

Tenn. App. LEXIS 147, 2008 WL 683755, at *2 (Tenn. Ct. App. 2008) *perm. app. denied*, 2008 Tenn. LEXIS 867 (Tenn. Nov. 17, 2008). "The trial court should give requested special jury **[*33]** instructions when they are a correct statement of the law, embody the party's legal theory, and are supported by the proof."**Pomeroy**, 2005 Tenn. App. LEXIS 294, 2005 WL 1217590, at *3 (citing **Otis v. Cambridge Mut. Fire Ins. Co.**, 850 S.W.2d 439, 445 (Tenn.1992)). "However, the trial court may decline to give a special instruction when the substance of the instruction is covered in the general charge." **Id.** We will not reverse the denial of a special request for an additional jury instruction where the trial court fully and fairly charged the jury on the applicable law. **Id.**

Spencer, 2013 Tenn. App. LEXIS 477, 2013 WL 3946118 at *3 (quoting **Jordan**, 2009 Tenn. App. LEXIS 8, 2009 WL 112561 at *11).

In its motion for new trial, CSX argued that the trial court's instruction on causation was erroneous, asserting that the court "erroneously failed to charge the jury on proximate causation." The trial court instructed the jury on causation as follows:
The mere fact that a person suffered harm, injury, illness or death standing alone without more does not permit an inference that the harm, injury, or death was caused by anyone's negligence.

You have heard reference to the Federal Employers' Liability Act or FELA. That law provides in part that every **[*34]** common carrier by railroad engaging in commerce between any of several states shall be liable for 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, and such injury would include illness or death.

* * *

So, again, the burden of proof in any case such as this is upon the plaintiff to establish by a preponderance of the evidence, first, that the defendant was negligent in one or more of the particulars alleged by plaintiff and, second, that the defendant's negligence caused or contributed in whole or in part to the harm, illness or death of the plaintiff.

The purpose of this action, illness, harm or death is said to be caused or contributed to by an act or failure to act when it appears from a preponderance of the evidence the act or failure to act played any part, in whole or in part, in bringing about or actually causing illness or death.

So if you should find from the evidence in the case that any negligence of the defendant contributed in any way toward illness or death suffered by the plaintiff you may find that plaintiff's **[*35]** illness or death was caused by the defendant's act or failure to act.

Stated another way, an act or failure to act is a cause of illness or death if the illness or death would not have occurred except for the act or failure to act even though the act or failure to act combined with other causes. So this does not mean that the law recognizes only one cause of illness or death consisting of only one factor, or one thing or the conduct of only one person. On the contrary, many factors or things where the conduct of two or more persons may operate at the same time either independently or together to cause illness, harm or death, and in such a case each may be a cause for the purposes of determining liability in a case such as this.

As can be seen, CSX correctly argued that the trial court's instruction does not include the proximate cause standard. The United States Supreme Court addressed the appropriate FELA standard of causation in **CSX Transp. v. McBride**, 131 S. Ct. 2630, 180 L. Ed. 2d 637 (2011), stating as follows:
We conclude that HN20 the Act [FELA] does not incorporate "proximate cause" standards developed in nonstatutory common-law tort actions. The charge proper in FELA cases, we hold, simply tracks the **[*36]** language Congress employed, informing juries that a defendant railroad caused or contributed to a plaintiff employee's injury if the railroad's negligence played

any part in bringing about the injury.

* * *

FELA's language on causation . . . "is as broad as could be framed." **Urie v. Thompson**, 337 U.S. 163, 181, 69 S.Ct. 1018, 93 L.Ed. 1282 (1949). Given the breadth of the phrase "resulting in whole or in part from the [railroad's] negligence," and Congress' "humanitarian" and "remedial goal[s]," we have recognized that, in comparison to tort litigation at common law, "a relaxed standard of causation applies under FELA." **Gottshall**, 512 U.S., at 542-543, 114 S.Ct. 2396. In our 1957 decision in **Rogers** [**v. Mo. Pac. R.R.**, 352 U.S. 500, 77 S. Ct. 443, 1 L. Ed. 2d 493], we described that relaxed standard as follows:
"Under [FELA] the test of a jury case is simply whether the proofs justify with reason the conclusion that employer negligence played any part, even the slightest, in producing the injury or death for which damages are sought." 352 U.S., at 506, 77 S.Ct. 443.

McBride, 131 S. Ct. at 2634, 2636. The **McBride** Court clarified that "**Rogers** announced a general standard for causation in FELA cases, not one addressed exclusively **[*37]** to injuries involving multiple potentially cognizable causes," **id.** at 2639, and conclusively determined that a proximate cause instruction is not required in FELA cases. In the present case, the trial court's causation instruction closely tracks, and in one instance directly quotes, FELA's causation language. We find no error in the trial court's causation instruction.

CSX also argued in its motion for new trial that the trial court erred in giving an instruction on contributory negligence that provided a different causation standard from the one applicable to the defendant. The United States Supreme Court has ruled that HN21 in a FELA case the same standard of causation applies in assessing both the negligence of a defendant railroad and the contributory negligence of a plaintiff employee.**Norfolk S. Rwy. Co. v. Sorrell**, 549 U.S. 158, 160, 127 S. Ct. 799, 166 L. Ed. 2d 638 (2007). In this case the trial court instructed the jury on contributory negligence as follows:
[I]n addition to denying any negligence on the part of the defendant caused harm to the plaintiff, a defendant may also allege as a further defense that some negligence on the part of the plaintiff himself was a cause of any harm that plaintiff suffered or was **[*38]** the sole and only cause of any harm that the plaintiff suffered. We refer to that defense as contributory negligence.

Contributory negligence then is fault on the part of a plaintiff which corroborates in some degree with the negligence of another and so helps to bring about harm to the plaintiff or is itself the sole cause of harm to the plaintiff.

By the defense of contributory negligence, the defendant is in effect alleging that even though the defendant may have been guilty of some negligent act or failure to act which was one of the causes of harm suffered by the plaintiff, the plaintiff himself by his own failure to use ordinary and reasonable care for his own safety also contributed to one of the causes of harm suffered by the plaintiff.

With respect to the defense of contributory negligence, the burden is on the defendant claiming the defense to establish by a preponderance of the evidence the claim that the plaintiff was at fault, the negligence on the part of the plaintiff contributed to one of the causes of harm suffered by the plaintiff.

As to contributory negligence, the FELA, the law in question provides in part, "In all actions brought against any railroad to recover damages **[*39]** for personal injury to an employee, the fact that the employee may have been guilty of contributory negligence shall not bar a recovery, but the damages shall be diminished by the jury in proportion to the negligence attributable to the employee.["] So if you should find from a preponderance of the evidence that the defendant was guilty of negligence but the plaintiff was also guilty of negligence and such negligence on the part of the plaintiff caused any harm to the plaintiff, then the total award of damages to the

plaintiff must be reduced by an amount equal to the percentage of fault or contributory negligence chargeable to the plaintiff.

If you should find that the defendant was not guilty of negligence or the defendant was negligent but such negligence was not a cause in whole or in part of harm suffered by the plaintiff, then your verdict would be for the defendant.

This contributory negligence instruction given by the trial court does not suggest a different causation standard than the one applicable to the defendant's negligence. It does not define "causation" differently from the court's earlier instruction. It directly quotes the FELA's provision regarding contributory negligence. **[*40]** We find no error in the trial court's contributory negligence instruction.

CSX also asserted error in the trial court's foreseeability instruction, arguing that it was insufficient as a matter of law. We recently addressed a similar challenge in **Spencer**. There we stated as follows:

HN22 "[R]easonable foreseeability of harm is an essential ingredient of Federal Employers' Liability Act negligence." **Gallick v. Baltimore & Ohio R.R. Co.**, 372 U.S. 108, 83 S.Ct. 659, 665, 9 L.Ed.2d 618 (1963). In **Gallick,** the United States Supreme Court noted that the jury in that case correctly had been charged with regard to reasonable foreseeability of harm, and stated:

HN23 The jury had been instructed that negligence is the failure to observe that degree of care which people of ordinary prudence and sagacity would use under the same or similar circumstances; and that defendant's duty was measured by what a reasonably prudent person would anticipate as resulting from a particular condition — "defendant's duties are measured by what is reasonably foreseeable under like circumstances" — by what "in the light of the facts then known, should or could reasonably have been anticipated."

Gallick v. Baltimore & Ohio R.R. Co., 372 U.S. 108, 83 S.Ct. 659, 665-66, 9 L.Ed.2d 618 (1963) **[*41]** (footnotes omitted).

HN24 With regard to foreseeability and notice in FELA cases, the Sixth Circuit has explained: The law is clear that notice under the FELA may be shown from facts permitting a jury to infer that the defect could have been discovered by the exercise of reasonable care or inspection:

Under familiar law, defendant could not be convicted of negligence, absent proof that such defect was known, or should or could have been known, by defendant, with opportunity to correct it. This rule is applicable to FELA actions where negligence is essential to recovery. The establishment of such an element, however, may come from proof of facts permitting a jury inference that the defect was discovered, or should have been discovered, by the exercise of reasonable care or inspection.

Szekeres v. CSX Transportation, Inc., 617 F.3d 424, 430-31 (6th Cir. 2010) (quoting **Miller v. Cincinnati, New Orleans & Tex. Pac. Ry. Co.**, 317 F.2d 693, 695 (6th Cir. 1963)).

Similarly, our own Supreme Court has stated:

HN25 To prove a breach of duty under the FELA, an employee must show that the railroad "'knew, or by the exercise of due care should have known' that prevalent standards of conduct were inadequate to protect **[*42]** [the employee] and similarly situated employees."

Mills v. CSX Transportation, Inc., 300 S.W.3d 627, 633 (Tenn. 2009) (quoting **Van Gorder v. Grand Trunk W. R.R.**, 509 F.3d 265, 269-70 (6th Cir. 2007)).

Spencer, 2013 Tenn. App. LEXIS 477, 2013 WL 3946118 at *3-4 (footnote omitted; some internal citations omitted). The trial court in this case instructed the jury on foreseeability as follows:

[D]eciding whether ordinary care was exercised in the given case, the conduct in question must be viewed in the light of all surrounding circumstances as shown by the evidence in the case at the time.

Because the amount of care exercised by reasonably prudent and careful persons varies in proportion to the dangers 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 the surrounding circumstances shown by the proof in the case.

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

We find this instruction to be substantially similar to the one approved by the Supreme Court in **Gallick**. We find no error in the court's foreseeability **[*43]** instruction.

CSX also argued that the trial court erred in failing to charge the jury with its special request that CSX was only required to provide a reasonably safe workplace, not a perfect work environment. CSX submitted the following jury instruction:
Although the Railroad is duty-bound to provide a reasonably safe place to work, this does not mean that the Railroad must provide a perfect work environment. The Railroad Defendant is not bound to anticipate every possible incident or accident which might occur, because a railroad is necessarily attended by some danger and it is impossible to eliminate all danger. The law does not make the Defendant an insurer of the safety of its employees, nor of the safety of the places in which they work. The railroad is not held to an absolute responsibility for the reasonably safe condition of the places where the Plaintiff might work, but only to the duty of exercising reasonable care to that end, the degree of care being commensurate with the danger reasonably to be anticipated.

To the extent that this instruction incorporates a correct statement of the law, the essence of the instruction was provided to the jury in our earlier-referenced instructions **[*44]** on duty of care, its definitions of negligence, causation, and foreseeability, and the following additional instruction of the trial court:
[t]he employer is required to use ordinary and reasonable care under the circumstances to maintain and keep places of work in a reasonably safe condition for the employee.

This does not mean the employer is a guarantor or insurer of the safety of the place of work. The extent of the employer's duty is to exercise ordinary care under the circumstances then existing[.]

CSX contends that the trial court erroneously charged the jury on both a pre-1976 and post-1976 version of 49 C.F.R. § 174.700, a federal regulation governing the shipping of radioactive material. Part of plaintiff's theory presented at trial was that CSX negligently caused Payne's exposure to radioactive materials shipped in and out of a metal scrap yard in Knoxville called David Witherspoon Industries, Inc. ("DWI"). DWI was licensed to receive and recycle scrap metal contaminated with low levels of radioactivity. CSX presented testimony of a former DWI employee that DWI received contaminated metal from 1964 until 1972. The trial court instructed the jury on the pre-1976 and post-1976 **[*45]** versions of 49 C.F.R. § 174.700as follows:
A 1961 regulation provided that no person should 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] section from 1976 provides a person may not remain unnecessarily in a railcar containing radioactive materials.

CSX argues that the court erred by instructing the post-1976 regulation because DWI "stopped receiving contaminated scrap altogether in 1972." Plaintiff responds by arguing that it was not

conclusively established that no radioactive shipments went either in *or out* of DWI after 1972. We agree with plaintiff. Plaintiff presented the videotaped deposition of a corporate representative of CSX, William Bullock, who, when asked whether CSX or its corporate predecessors "did any monitoring of train cars that may have been calling in or out of" DWI prior to 1985, responded, "we didn't, but at the same time we didn't think there was a concern" that "we needed to be looking into radiation exposure of our workers." In short, there was evidence from which the jury could have reasonably concluded **[*46]** that plaintiff was exposed to radioactivity from railcar shipments out of DWI after 1976, and consequently the trial court did not err in its instruction regarding the post-1976 federal regulation regarding the shipping of radioactive materials.

CSX raised several other objections to the jury instructions in its motion for new trial, including the court's refusal to specifically instruct the jury according to CSX's special requests (1) regarding actual or constructive notice of an alleged defective condition and notice as to "known dangers" in the workplace; (2) to charge the jury that the "mere presence of potentially harmful substances" in the workplace is insufficient by itself to establish negligence; (3) to charge the jury that "there should be no bias against a corporate defendant"; (4) regarding the proper scope of damages, specifically that no punitive damages or loss of consortium damages for Payne's widow should be awarded; and (5) to charge the jury that it must not speculate or guess as to whether CSX's negligence caused plaintiff's damages. We have reviewed all of these objections and arguments, comparing CSX's 40 written special requests for jury instructions with the **[*47]** trial court's instructions. We find that, to the extent the requested instructions are relevant and correctly state the law, they were adequately covered and presented to the jury in the court's instructions. HN26 In instructing a jury, "the trial court may decline to give a special instruction when the substance of the instruction is covered in the general charge."**Pomeroy**, 2005 Tenn. App. LEXIS 294, 2005 WL 1217590, at *3; *see also* ***Otis***, 850 S.W.2d at 439. "The fact that a special request for jury instruction asserts a correct rule of law does not make it proper jury charge material." **Godbee v. Dimick**, 213 S.W.3d 865, 881 (Tenn. Ct. App. 2006).

The jury instructions presented by the trial court in this case, viewed as a whole, are correct, fair and complete. The court's jury charge fairly defined the legal issues in the case. The instructions were not misleading to the jury. The jury returned a verdict in accordance with the court's clear instructions; the only indication of potential confusion came after the court's further unnecessary and erroneous instruction after the verdict. We therefore hold that none of the trial court's jury instructions provide grounds for a new trial.

V.

In its order granting a new trial, **[*48]** the trial court based its ruling on "specific prejudicial errors including, but not limited to, instructional and evidentiary errors." The court did not specify what evidentiary rulings it considered to be erroneous. The trial court stated the following in its oral memorandum opinion:

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 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 trial court did not make any other specific references regarding other evidentiary decisions at trial. The evidence regarding thyroid cancer was briefly presented during plaintiff's cross-examination of one of CSX's medical experts who apparently misdiagnosed Payne with thyroid cancer at some point during his treatment.

The trial in this case was lengthy.[8] The jury heard the case over a two-week period. The testimony of 26 witnesses was presented. The trial transcript is over 2,500 pages long, and the exhibits are sequentially marked up to number 574. Against this backdrop, the following is the entirety of the objected-to **[*49]** evidence of thyroid cancer, which came into proof by way of the cross-examination of Dr. John Craighead, a medical expert called by CSX.

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.

CSX objected and moved for a mistrial or a curative instruction from the trial court. The trial court provided the following curative instruction to the jury:
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.

CSX argues that a new trial was warranted because the curative instruction was insufficient in that the "court never unambiguously told the jury that Payne did not have thyroid cancer." We hold, however, that there is very little substantive difference between the statement that "the plaintiff did not suffer from thyroid cancer" and "there's no claim in this case that **[*50]** the plaintiff suffered from thyroid cancer." The clear import of the trial court's curative instruction was that thyroid cancer was not a part of the case and that the jury should disregard the brief evidence of Dr. Craighead's misdiagnosis of thyroid cancer. HN27 "The jury is presumed to have followed the trial court's instructions." **Johnson v. Tenn. Farmers Mut. Ins. Co.**, 205 S.W.3d 365, 375 (Tenn. 2006); *see also* ***Johnson v. Lawrence***, 720 S.W.2d 50, 60 (Tenn. Ct. App. 1986) ("We must assume th[at] the jury followed the trial court's [curative] instruction unless there is proof to the contrary. If error was committed . . . in asking the question, it was cured by the trial court's instruction."). We hold that the trial court's curative instruction effectively cured any error in the presentation of the testimony regarding thyroid cancer. Given the court's timely and accurate curative instruction, any prejudice to CSX resulting from the improper evidence was remedied.

FOOTNOTES

8 Indeed, in its final remark to the jury, the trial court thanked the jury for serving "on the longest case that the court has had in more than 20 years" and stated, "I actually don't know of a longer case in this court, so that's **[*51]** something."

CSX also argues that a new trial was warranted due to the plaintiff's presentation of a powerpoint slide regarding cesium contamination of an area in Oak Ridge where Payne worked. During the 1960s, an area of railroad track near the Y-12 facility in Oak Ridge became contaminated with low levels of cesium, a radioactive element. Payne worked in that area occasionally for about a year of his career. In the 1980s, the U.S. Department of Energy undertook a remedial cleanup of the contaminated area, removing a section of track and the ballast rock from the roadbed. In this case, CSX moved in limine before trial to exclude any evidence of cesium contamination. The trial court declined to grant the motion, taking it under consideration to see how the proof developed at trial, with the intention of ruling on objections as they came up. During trial, plaintiff's counsel agreed not to present cesium evidence in his case-in-chief. During cross-examination of one of CSX's witnesses, plaintiff's counsel put up a powerpoint slide saying "Oak Ridge Y-12 spur cleanup; tracks closed down; cesium radiation contamination; tracks, ballast rock cleaned; remediated by DOE." CSX objected, and **[*52]** the trial court said, "sustain the objection. The jury will disregard that slide." Plaintiff did not present

any other evidence of cesium exposure. CSX later presented expert testimony that there was no risk to the public or railroad employees from cesium radiation at Oak Ridge.

After the trial court sustained the objection and instructed the jury to disregard the slide, CSX moved for a mistrial. The trial court denied the motion. After the trial, CSX renewed its motion, "based upon [its] contention that it was entitled to a mistrial on the issues relating to thyroid cancer and cesium contamination at Oak Ridge." The trial court again denied the motion for mistrial.

CSX argues that the cesium evidence was so prejudicial that a new trial was warranted. We disagree. The trial court sustained CSX's objection and excluded the evidence. The court then instructed the jury to disregard the slide, and there is no reason to presume the jury did not follow the court's instruction. There was no error in the trial court's resolution of this issue.

CSX points to several other evidentiary decisions made by the trial court that it says were erroneous, and argues that the trial court *may* have agreed **[*53]** that it erred in ruling on some of them, and that the trial court *may* have relied upon these supposed errors in granting a new trial. These arguments include assertions that the trial court erred in allowing several lay witnesses, including Payne himself, to testify about the presence of asbestos in his workplaces and his exposure to asbestos, and that the court erred in allowing testimony that the DWI site where Payne worked was contaminated with radioactivity from plutonium and that it was eventually designated as a Superfund site. We have reviewed these issues, and find that they address matters of admissibility upon which the trial court has broad discretion. We have discerned no error in the trial court's rulings on these evidentiary matters, and certainly nothing that would warrant a new trial under the circumstances. We hold that the trial court erred in granting CSX a new trial.

VI.

HN28 A motion for a new trial made after a jury verdict triggers the trial court's duty to independently assess the evidence and either approve or disapprove the verdict. Because the trial court is reviewing and weighing the evidence as did the jury, this is generally known as the "thirteenth juror" rule. **[*54]** *See* ***Huskey v. Crisp***, 865 S.W.2d 451, 454 (Tenn. 1993) (observing that the thirteenth juror rule "applies only in the context of a motion for a new trial, for it is only there that the trial court has the duty to decide if the jury verdict is contrary to the weight of the evidence."). In**Blackburn v. CSX Transp.**, No. M2006-01352-COAR10-CV, 2008 Tenn. App. LEXIS 336, 2008 WL 2278497 (Tenn. Ct. App. M.S., filed May 30, 2008), this Court determined that there are significant differences between the Tennessee standard for reviewing the evidence as thirteenth juror and the federal standard, and held that the federal standard applies in FELA cases, stating as follows:

The standard federal courts employ in deciding whether to grant a new trial is whether the verdict is against the "clear weight" of the evidence. When ruling on motions for new trials based upon sufficiency of the evidence, the Sixth Circuit Court of Appeals has stated the standard thusly:

A court may set aside a verdict and grant a new trial when it is of the opinion that the verdict is against the clear weight of the evidence; however, new trials are not to be granted on the grounds that the verdict was against the weight of the evidence unless that verdict **[*55]** was unreasonable. Thus, if a reasonable juror could reach the challenged verdict, a new trial is improper.

HN29 The trial court may not set aside the verdict to grant a new trial if the judge would have reached a different verdict. 6A MOORE'S FEDERAL PRACTICE § 59.08[5] (1996).

The trial judge, exercising a mature judicial discretion, should view the verdict in the overall

setting of the trial; consider the character of the evidence and the complexity or simplicity of the legal principles which the jury was bound to apply to the facts; and abstain from interfering with the verdict unless it is *quite clear* that the jury has reached a seriously erroneous result. The judge's duty is essentially to see that there is no miscarriage of justice.

Id. In Tennessee, the law is clear that if a motion for a new trial is filed, then the trial court is under a duty to independently weigh the evidence and determine whether the evidence "preponderates" in favor of or against the verdict.

* * *

[A]t a very basic level, the standards are quite different since the Tennessee standard uses "preponderance" of the evidence, while the federal standard requires that the verdict be outweighed by the "clear" weight of **[*56]** the evidence. Under state law if a judge is "dissatisfied" with a jury verdict then the trial court is at liberty to order a new trial. Under the federal standard, the verdict must be unreasonable. Under state law a court must make an independent decision, while under federal law if a reasonable juror could have reached the verdict, the trial court is to defer. We believe that the differences between the standards are both apparent and significant.

Id., 2008 Tenn. App. LEXIS 336, 2008 WL 2278497 at *5-7 (internal citation, footnote and section headings omitted); *accord* ***Jordan***, 2009 Tenn. App. LEXIS 8, 2009 WL 112561 at *17 n.12. The **Blackburn** Court concluded "that HN30 federal law provides the standard to determine whether to grant a new trial in a FELA case tried in state court." 2009 Tenn. App. LEXIS 8, [WL] at *11.

In this case, the trial court did not have an opportunity to approve or disapprove the jury verdict awarding damages in the amount of $8.6 million. We find it appropriate to remand the case for the first trial judge to conduct a review of the evidence under the above-described federal standard and determine whether the $8.6 million verdict is against the clear weight of the evidence. *See* ***Blackburn***, 2008 Tenn. App. LEXIS 336, 2008 WL 2278497 at *17 (noting that "[a]n appellate court **[*57]** cannot fulfill this role" of determining "whether the verdict was against the clear weight of the evidence"). If the trial court concludes that the jury's $8.6 million verdict is not against the clear weight of the evidence, then the court is directed to enter judgment in that amount. If the trial court concludes to the contrary, then the court is directed to enter judgment in plaintiff's favor in the amount of $3.2 million, because the verdict assessing damages in that amount has already been duly approved by the trial court when it entered its judgment. We note in this regard that the trial court, in its order granting a new trial, stated that it "applie[d] the appropriate Federal standard for considering motions for new trial in FELA cases" and that it was basing its ruling granting a new trial on "instructional and evidentiary errors" — matters involving questions of law — "independent of considerations regarding sufficiency of the evidence." All of this tells us that the trial court was satisfied that the $3.2 million verdict was not against the clear weight of the evidence.

VII.

Our holding and remand to the trial court with directions to enter judgment in plaintiff's favor in **[*58]** the amount of either $8.6 million or $3.2 million renders moot the question of whether the second trial judge erred in excluding the causation testimony of Drs. Frank and Kerns and granting CSX summary judgment. Nevertheless, we have reviewed the issue and hold that the trial court erred in excluding the causation testimony of these two witnesses, both of whom had testified, over the objection of CSX, to causation at trial.

VIII.

The judgment of the trial court ordering a new trial is reversed. The judgment of the trial court granting CSX summary judgment is reversed as moot. This case is remanded to the trial court with instructions to the first trial judge to review the evidence at trial and enter judgment in accordance with our directions. Costs on appeal are assessed to the appellee, CSX Transportation, Inc.

CHARLES D. SUSANO, JR., PRESIDING JUDGE

IN THE COURT OF APPEALS OF TENNESSEE
AT KNOXVILLE

ANNE PAYNE v. CSX TRANSPORTATION, INC.

Circuit Court for Knox County
No. 2-231-07

No. E2012-02392-COA-R3-CV

ORDER

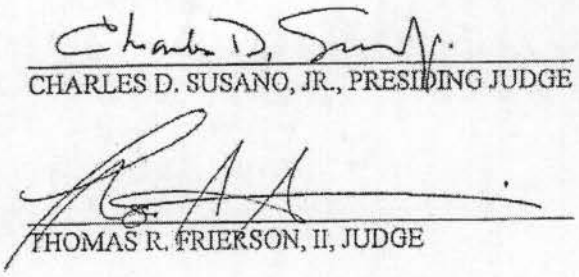
The appellee CSX Transportation, Inc., has filed a petition for rehearing pursuant to the provisions of Tenn. R. App. P. 39, arguing that our Opinion "overlooks or misapprehends that several post-trial issues related to the first trial remain unresolved." CSX characterizes these issues as "never-before-resolved." CSX asks us to "grant rehearing for the limited purpose of modifying [our] instructions to the trial court relating to the scope of the remand" to allow the trial court to address these issues.

Our Opinion did not overlook or misapprehend these issues. They are not "unresolved" because, in our view, the trial court considered and implicitly resolved these issues against CSX when it considered CSX's post-trial motion. We adhere to the holding in our Opinion released and filed on December 27, 2013, that "the trial court was satisfied that the $3.2 million verdict was not against the clear weight of the evidence" – a holding CSX has not challenged in its petition for rehearing.

In the Opinion filed in December 2013, we directed the trial court "to conduct a review of the evidence under the . . . federal standard and determine whether the $8.6 million verdict is against the clear weight of the evidence." This remains our directive. *See Blackburn v. CSX Transportation, Inc.*, No. M2006-01352-COA-R10-CV, 2008 WL 2278497 (Tenn. Ct. App. M.S., filed May 30, 2008).

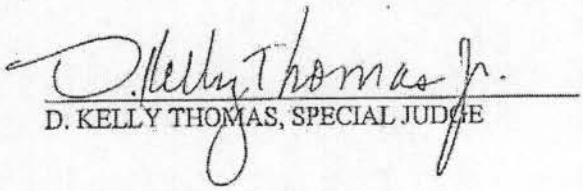
CSX's petition for rehearing is DENIED with costs taxed to CSX.

IT IS SO ORDERED.



CHARLES D. SUSANO, JR., PRESIDING JUDGE

THOMAS R. FRIERSON, II, JUDGE



D. KELLY THOMAS, SPECIAL JUDGE

Court of Appeals – Eastern Division
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Re: E2012-02392-COA-R3-CV - ANNE PAYNE v. CSX TRANSPORTATION, INC.

Notice: Order - Petition to Rehear Denied

Attached to this cover letter, please find the referenced notice issued in the above case. If you have any questions, please feel free to call our office at the number provided.

cc: John William Baker, Jr.
Sidney W. Gilreath

IN THE COURT OF APPEALS OF TENNESSEE
AT KNOXVILLE

ANNE PAYNE v. CSX TRANSPORTATION, INC.

Knox County Circuit Court
223107

No. E2012-02392-COA-R3-CV

Date Printed: 01/23/2014 **Notice / Filed Date: 01/23/2014**

NOTICE - Order - Petition to Rehear Denied

The Appellate Court Clerk's Office has entered the above action.

If you wish to file an application for permission to appeal to the Tennessee Supreme Court pursuant to Rule 11 of the Tennessee Rules of Appellate Procedure, you must file an original and six copies with the Appellate Court Clerk. The application must be filed "within 60 days after the denial of the petition or entry of the judgment on rehearing." NO EXTENSIONS WILL BE GRANTED.

Michael W. Catalano
Clerk of the Appellate Courts

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the officers, agents, or employees of such carrier, or by reason of any defect or insufficiency, due to its negligence, in its cars, engines, appliances, machinery, track, roadbed, works, boats, wharves, or other equipment.

45 U.S.C.A. § 51. HN3 The statute is broad and remedial, and it is to be liberally construed in order to accomplish the aforementioned purposes. **Blackburn**, 2008 Tenn. App. LEXIS 336, 2008 WL 2278497, at *8; **Reed**, 2006 Tenn. App. LEXIS 620, 2006 WL 2771029, at *2.

"Unlike a typical workers' compensation scheme, which provides relief without regard to fault, Section 1 of FELA provides a statutory cause of action sounding in negligence. . . ." **Sorrell**, 549 U.S. at 165. Under FELA, the railroad-employer's liability is premised upon its negligence. **Reed**, 2006 Tenn. App. LEXIS 620, 2006 WL 2771029, at *2. In order to recover, an employee must show:
(1) that an injury occurred while the employee was working within the scope of his employment;

(2) that the employment was in the furtherance of the railroad's interstate transportation business;

(3) that **[*16]** the employer railroad was negligent; and

(4) that the employer's negligence played some part in causing the injury.

Id. (*citing* **Jennings v. Ill. Cent. R.R. Co**., 993 S.W.2d 66, 69-70 (Tenn. Ct. App. 1998)). . . . FELA does not define negligence. **Id**. When considering whether an employer was negligent under FELA, "courts are to analyze the elements necessary to establish a common law negligence claim." **Id**. (*citing* **Adams v. CSX Transp., Inc**., 899 F.2d 536, 539 (6th Cir. 1990); *Davis v. Burlington Northern, Inc.*, 541 F.2d 182 (8th Cir. 1976), cert. denied, 429 U.S. 1002, 97 S. Ct. 533, 50 L. Ed. 2d 613 (1976)). The issue of negligence is to be determined "by the common law principles as established and applied in federal courts." *Reed*, 2006 Tenn. App. LEXIS 620, 2006 WL 2771029, at *2 (citations omitted). Thus, the plaintiff must prove the traditional elements of negligence: duty, breach, foreseeability, and causation. **Id**. (citing **Robert v. Consol. Rail Corp**., 832 F.2d 3, 6 (1st Cir. 1987)). However, HN4 FELA deviated from the common law by abolishing the railroad's common law defenses of assumption of the risk, § 54, and it rejected contributory negligence in favor of comparative negligence, § 53. **[*17] Sorrell**, 549 U.S. at 166, 168. In FELA cases, an employee's negligence does not bar relief, but the employee's recovery is diminished in proportion to his fault. **Id**. at 166.

HN5 "Under FELA, the employer railroad has a duty to provide a reasonably safe workplace." **Reed**, 2006 Tenn. App. LEXIS 620, 2006 WL 2771029, at *3 (citing **Bailey v. Cent. Vt. Ry**., 319 U.S. 350, 352, 63 S.Ct. 1062, 1062, 87 L.Ed. 1444 (1943); **Ulfik v. Metro-North Commuter R.R.**, 77 F.3d 54, 58 (2d Cir.1996); **Adams**, 899 F.2d at 539). This does not mean that the railroad has the duty to eliminate all workplace dangers, but it does have the "duty of exercising reasonable care to that end." **Van Gorder v. Grand Trunk W. R.R., Inc**., 509 F.3d 265, 269 (6th Cir. 2007) cert. denied, 555 U.S. 994, 129 S. Ct. 489, 172 L. Ed. 2d 356 (2008) (citing **Baltimore & Ohio S. W.R. Co. v. Carroll**, 280 U.S. 491, 496, 50 S.Ct. 182, 74 L.Ed. 566 (1930)). "A railroad breaches its duty to its employees when it fails to use ordinary care under the circumstances or fails to do what a reasonably prudent person would have done under the circumstances to make the working environment safe." **Id**. (citing **Tiller v. Atl. C.L.R. Co**., 318 U.S. 54, 67, 63 S.Ct. 444, 87 L.Ed. 610 (1943); **[*18] Aparicio v. Norfolk & W. Ry**., 84 F.3d 803, 811 (6th Cir. 1990)). In other words, "a railroad breaches its duty when it knew, or by the exercise of due care should have known that prevalent standards of conduct were inadequate to protect the plaintiff and similarly situated employees." **Id**. at 269-70 (internal quotations omitted).

Spencer, 2013 Tenn. App. LEXIS 477, 2013 WL 3946118 at *1-2 (footnotes omitted) (quoting **Jordan v. Burlington N. Santa Fe R.R. Co**., No. W2007-00436-COA-R3-CV, 2009 Tenn. App. LEXIS 8, 2009 WL 112561 at *5-6 (Tenn. Ct. App. W.S., filed Jan. 15, 2009)).

As already stated, CSX asserted the defense of contributory negligence. FELA provides as follows regarding contributory negligence:

HN6 In all actions on and after April 22, 1908 brought against any such common carrier by railroad under or by virtue of any of the provisions of this chapter to recover damages for personal injuries to an employee, or where such injuries have resulted in his death, the fact that the employee may have been guilty of contributory negligence shall not bar a recovery, but the damages shall be diminished by the jury in proportion to the amount of negligence attributable to such employee: *Provided*, That no such employee who may be injured or killed **[*19]** shall be held to have been guilty of contributory negligence in any case where the violation by such common carrier of any statute enacted for the safety of employees contributed to the injury or death of such employee.

45 U.S.C.A. § 53 (italics in original). Plaintiff did not argue that decedent Payne was not contributorily negligent to some extent by virtue of his years of smoking. Rather, the plaintiff asserted that the FELA's proviso quoted above, allowing for a full recovery notwithstanding contributory negligence if the defendant violated "any statute enacted for the safety of employees," applied because CSX violated the Locomotive Inspection Act[2] and various safety regulations[3] enacted or promulgated for employees' safety. The United States Supreme Court recognized nearly a century ago that, HN7 under FELA,

contributory negligence on the part of the employee does not operate even to diminish the recovery where the injury has been occasioned in part by the failure of the carrier to comply with the exactions of an act of Congress enacted to promote the safety of employees. In that contingency the statute abolishes the defense of contributory negligence, not only as a bar to recovery, **[*20]** but for all purposes.

Grand Trunk W. Ry. Co. v. Lindsay, 233 U.S. 42, 49-50, 34 S. Ct. 581, 58 L. Ed. 838 (1914). The federal courts have referred to a violation of a statute or regulation enacted for the safety of employees as "negligence per se." *See, e.g.*, ***Ries v. Nat'l R.R. Passenger Corp.***, 960 F.2d 1156, 1158-59 (3rd Cir. 1992); **Walden v. Ill. Cent. Gulf R.R.**, 975 F.2d 361, 364 (7th Cir. 1992).

FOOTNOTES

2 The Locomotive Inspection Act is codified at 49 U.S.C.A. § 20701 and provides in pertinent part:

HN8 A railroad carrier may use or allow to be used a locomotive or tender on its railroad line only when the locomotive or tender and its parts and appurtenances—

(1) are in proper condition and safe to operate without unnecessary danger of personal injury;

(2) have been inspected as required under this chapter and regulations prescribed by the Secretary of Transportation under this chapter; and

(3) can withstand every test prescribed by the Secretary under this chapter.