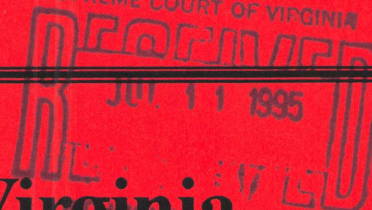


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CLERK
SUPREME COURT OF VIRGINIA



IN THE

Supreme Court of Virginia

RECORD NO. 950210

NORFOLK AND WESTERN RAILWAY COMPANY,

Appellant,

v.

ROBERT E. PURYEAR,

Appellee.

JOINT APPENDIX
Volume I

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VIRGINIA:

IN THE CIRCUIT COURT OF THE CITY OF ROANOKE

ROBERT EDWARD PURYEAR,

Plaintiff,

v.

NORFOLK & WESTERN RAILWAY CO.,

Defendant.

MOTION FOR JUDGMENT

CL 89000919

Serve: Norfolk & Western Railway Co.
c/o Wiley Mitchell, Jr.
Registered Agent
8 N. Jefferson Street
Roanoke, Virginia 24042

TO THE HONORABLE JUDGES OF SAID COURT:

The Plaintiff, Robert Edward Puryear, by counsel, moves the Court for judgment against the Defendant, Norfolk & Western Railway Co., and in support of his complaint, alleges as follows:

1. The Plaintiff, Robert Edward Puryear (hereinafter "Plaintiff") is a resident of the County of Roanoke, Virginia.
2. The Defendant, Norfolk & Western Railway Co. (hereinafter "Defendant"), is a corporation incorporated in the State of Virginia and conducting and doing business in the City of Roanoke, Virginia.
3. The Plaintiff's claim against Defendant is an action arising under the provisions of the Federal Employers

Liability Act, 45 U.S.C. Sections 51, et. seq., to recover damages for personal injury sustained by the Plaintiff while employed by the Defendant and while engaging in interstate commerce.

4. During all times herein mentioned, the Defendant was owned and operated, in interstate commerce, a railway, a portion of which is located in the City of Roanoke, Virginia.

5. The events giving rise to this suit occurred throughout the Shenandoah Division of the Railway owned by the Defendant.

6. In the course of operating the railway, the Defendant employed the Plaintiff as Division Road Foreman of Engines on the Shenandoah Division.

CAUSE OF ACTION

7. On or about September 30, 1987, the Plaintiff retired from his employer, Defendant Norfolk & Western Railway Co.

8. During many long years of service to the Defendant, the Plaintiff was constantly exposed to excessive noise from machinery and trains owned and operated by the Defendant causing permanent injury to his hearing.

9. The Defendant, Norfolk & Western Railway Co., had a duty to provide a reasonably safe work place and environment for the Plaintiff, free from noise at such levels as to damage hearing.

10. Notwithstanding said duty, the Defendant carelessly and negligently failed in this duty by failing to provide a safe work place and environment free of noises of such intensity as to produce hearing loss and a ringing sound in the ears.

11. As a direct and proximate result of such carelessness and negligence, the Plaintiff was caused to sustain a permanent hearing loss and a ringing sound in both ears.

12. Prior to the constant and excessive exposure to the noise levels of the work place, the Plaintiff experienced no hearing loss or ringing sounds in both ears.

13. By reason of the foregoing injury to the Plaintiff's hearing, the Plaintiff has been obliged to seek and continues to seek medical attention; has incurred and will continue to incur medical bills in the future in an effort to be cured of said injuries; and has suffered and will continue to suffer great physical pain and discomfort.

WHEREFORE, the Plaintiff, Robert Edward Puryear, demands judgment against the Defendant, Norfolk & Western Railway Co., in the sum of Five Hundred Thousand Dollars (\$500,000.00), plus costs in his behalf expended and such other relief as this Court shall deem meet.

ROBERT EDWARD PURYEAR

By: 

Of Counsel

C. Richard Cranwell, Esquire
Patrick S. Shiel, Esquire
CRANWELL, FLORA & MOORE
P. O. Box 11804
Roanoke, Virginia 24022-1804
(703) 344-1000

IN THE CIRCUIT COURT OF THE CITY OF ROANOKE

ROBERT EDWARD PURYEAR,

Plaintiff,

v.

NORFOLK AND WESTERN RAILWAY CO.,

Defendant.

CIRCUIT COURT

RECEIVED & FILED

OCT 17 1989

Deputy Clerk

CITY OF ROANOKE

The Defendant, Norfolk and Western Railway Company,
for its grounds of defense says:

1. It admits the allegations of paragraph 1.
2. It admits the allegations of paragraph 2.
3. Paragraph 3 alleges matters of law and requires no response.
4. It admits allegations of paragraph 4.
5. It denies the allegations of paragraphs 5.
6. It admits that on September 30, 1987, Plaintiff was employed by Defendant as Division Road Foreman of Engines on the Shenandoah Division.
7. It admits the allegations of paragraph 7.
8. It denies the allegations of paragraphs 8, 9, 10, 11, 12 and 13.
9. Plaintiff was guilty of negligence which contributed in whole or in part to his alleged injury.

10. It denies it owes Plaintiff five hundred thousand dollars (\$500,000.00) or any other amount.


AFFIRMATIVE DEFENSES

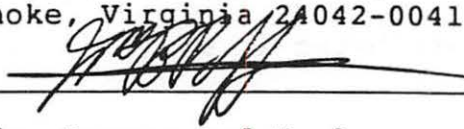
11. Plaintiff's alleged cause of action is time-barred.

12. If Plaintiff has any cause of action other than under the Federal Employers' Liability Act, he has assumed the risk of injury.

13. Plaintiff was or may have been contributorily at fault, which fault would be compared with the negligence of the railroad, if any, in reduction of any award to Plaintiff.

WHEREFORE, the Defendant moves that the Motion for Judgment filed herein against it be dismissed and that it be awarded its costs expended herein.


L. Keith Lambert, Esquire
Law Department
Norfolk and Western
Railway Company
8 North Jefferson Street
Roanoke, Virginia 24042-0041

By 
Woods, Rogers and Hazlegrove
105 Franklin Road, S.W.
Roanoke, Virginia 24004-0720

I hereby certify that a copy of the foregoing was mailed to C. Richard Cranwell, Esquire, and Patrick S. Sheil, Esquire, Cranwell, Flora and Moore, P. O. Box 118, Roanoke, Virginia 24022-1804.



L. Keith Lambert, Esquire.



* * *

P R O C E E D I N G S

- - -

THE VIDEOGRAPHER: We will now begin the deposition. The time is 11:19 a.m.

(Whereupon, the witness was first duly sworn.)

ARAM GLORIG, M.D., a witness herein, having been first duly sworn, was examined and testified as follows:

EXAMINATION

- - -

BY MR. MOORE:

Q. Doctor, would you state your name and address for the record.

A. First name is Aram, A-R-A-M, as in Mary; the last name is Glorig, G-L-O-R-I-G.

Q. And are you a medical doctor?

A. I am a physician, yes.

Q. And where do you presently practice?

A. My practice is in California in Los Angeles.

Q. And in what states are you licensed to practice?

Dr. Glorig - by Mr. Moore

A. Presently licensed in California and Texas.

Q. Are there other states where you have been licensed perhaps in the past?

A. I have been licensed in Washington, D.C. and Maryland and Connecticut and Virginia, I believe it was.

Q. What is your special area of practice?

A. What is my special what?

Q. Special area of practice?

A. Well, I practice what is called otology; that is, diseases related to the ear and related structures. My certification board is in otolaryngology which in simple english is ear, nose and throat.

Q. Do you also -- have you and do you conduct research in this area?

A. Have what?

Q. Do you conduct research also in this area?

A. I have done a lot of research over the past 35, 40 years, yes.

Q. Could you just give the jury some examples of this research?

Dr. Glorig - by Mr. Moore

A. Well, most of my research has been related to noise and its relation to hearing loss, other affects as well, but mostly hearing loss, for -- from 1952 till 1964 I directed a group of 12 to 14 scientists and we did nothing but study the relations of noise to hearing loss.

Q. And, Doctor, how long have you been practicing medicine?

A. Well, I got my MD in 1938 and then I had five years of postgraduate training, four years in the Army and I started practicing for about six or eight months before I went in the Army and then after I came out of the Army, which was 1946, I've been doing practicing one way or other since 1946.

Q. That's almost 50 years.

A. That's correct.

Q. And how old are you, Doctor?

A. I will be 88 -- what's today? Monday -- on Wednesday.

Q. Doctor, if you could, please, give me a brief summary of your professional background since you've graduated from medical school.

A. Well, I went to several hospitals, one in

Dr. Glorig - by Mr. Moore

Connecticut, one in New York City and one in Atlanta, Georgia where I received training both in pediatrics and otolaryngology.

I was certified, board certified, that is, in 1947 in otolaryngology, which is ear, nose and throat; and since then I've had several preceptorships and various relationships with other doctors improving my professional background.

I was a professor at Yale and I've been a professor at University of Texas Medical School and UCLA in Los Angeles, USC in Los Angeles, Loma Linda University in Los Angeles and George Washington University in Washington, D.C.

Q. And specifically, Doctor, were you the director of audiology at Walter Reed Army Medical Center in Washington, D.C.?

A. Well, I was director of the hearing center at Walter Reed from 1947 to 1952 at which time I was in charge of the entire Army program, I was director of technical research in hearing for the Army and I was also in charge of the Veterans' Administration program putting together the rehabilitation centers for soldiers with a hearing loss.

Dr. Glorig - by Mr. Moore

And then I went to Texas in 1964 and built, designed and founded the Callier Center for Communication Disorders, which is presently part of the University of Texas at Dallas; and when we turned the center over to the University of Texas at Dallas, I became Dean of the School of Human Development and I was still director of the center, Callier Center; and Callier Center is, was and is and I hope will be among the best such centers in the world.

Q. Could you explain a little bit about what they do at the center?

A. You have to speak louder.

Q. Could you please explain exactly what they do there at the center?

A. At the center? The center is composed of three different divisions; one is a school for deaf children, the other is a research division and the third is a division for handling communication disorders in the community around the center itself, practically the whole State of Texas. Anyone with a communication disorder can go there for help.

Q. And, Doctor, where are you presently

Dr. Glorig - by Mr. Moore

located?

A. Pardon?

Q. Where is your practice presently located?

A. I didn't hear.

Q. Where is your practice presently located?

A. Oh, my practice presently is located in Los Angeles at the House Ear Clinic at Third and ElDorado in Downtown Los Angeles.

Q. And you're presently treating people for various types of hearing loss, that's what you do presently?

A. Well, they gave me a name of forensic otologist and I handle all those cases that come to the House Ear Clinic, which is a group of practicing otologists that has anything to do with legal problems, suits and compensation cases, injuries, accidents, et cetera.

Q. Doctor, could you please explain how long it's been known in the medical community that noise in the workplace could cause permanent hearing loss?

A. Well, it's been reported in the literature way back as far as a couple hundred A.D. when the inhabitants near the Victoria Falls of the Nile

Dr. Glorig - by Mr. Moore

River seemed to be getting a hearing loss and it was blamed on the noise of the falls which made a very loud, thundering type noise; but officially recognized in about 1830 when it was reported in England among railroad workers and among coppersmiths and iron workers and that class of workers; and then in 1860 more literature and then all the way from 1860 until the 1900s there were several reports about noise causing hearing loss; and then in 1943, '42, '43 during World War II it began to take on a bigger aspect because of the losses that were being encountered in the United States Army because of the gunfire.

At that time, as a matter of fact, one of the ear protectors that we now use was developed at Harvard by a group for the Army, the V-51-R it's called.

From there on it exploded in terms of literature-all the way through the 1950s and there was a guide published by the American Academy of Otolaryngology which showed the program, all the details of a hearing conservation program and even suggested a safe level, which was approximately 90

Dr. Glorig - by Mr. Moore

dB-A, back as far as 1958.

I wrote a letter to the surgeon general of the Army in 1950 describing a hearing conservation program and urging that it be started in the military services and then the first official order from the military services came from the Air Force and about 1959 I believe it was the regulation which was 160-3.

There were many, many articles published. Our research group from 1952 to '64 must have published about 50 or 100 or more than that, about 100 articles that were put in the medical journals and other types of journals, safety journals, scientific journals describing what noise was doing to hearing. So we've known about it officially I would say since 1830 but widespread knowledge came in the early 1900s.

Q. In your research that you did and you have just described in the 1950s and early sixties, did you establish a measurement which you could say anything at that measurement would cause a measurement of noise in the workplace or where at that measurement would cause hearing loss?

Dr. Glorig - by Mr. Moore

A. Well, in about 1949 and '50 there was a committee called Z-24-X2 which was a combined committee from the Army, Air Force, Navy and other governmental institutions that looked at the problem of noise and its relation to hearing loss and at that time they stated they didn't know enough to really come out with a fixed safe level or a criterion, but the first official criterion that came out medically was probably the guide that the Academy published in 1958 which stated that about 95 dB-A -- 90 dB-A would be a reasonably safe level of which to start hearing conservation programs.

And from there on, much more data was gathered so the 90 dB-A was looked at as the official criterion.

When OSHA came out with theirs eventually, they had what they called an action level at 85, when you were supposed to test hearing. If the people that you were testing any of them showed a hearing loss, then you were supposed to start ear protection.

You did not have to start an entire hearing conservation program until the level was 90

Dr. Glorig -- by Mr. Moore

dB-A. At 90 dB-A then you were commanded by the U.S. Government, and that was not official until 1983.

It started in 1979 but they didn't describe what a hearing conservation program was in '79, so it was refuted -- as a matter of fact, I think in Virginia I think the case was that said that they -- nobody knew what a hearing conservation program was, so therefore they would not abide by it at that time.

So in 1983 they came out with a total description of what a hearing conservation program was and then it became officially adopted by the government saying that you had to have a hearing conservation program if the level was 90 dB-A -- was above 90 dB-A.

Q. Doctor, going back to your letter to the surgeon general of the Army which explained the elements of a hearing conservation program, could you please summarize those elements that you wrote in that 19 -- what, 1950 letter?

A. Well, the elements of a hearing conservation program have been fixed since before

Dr. Glorig - by Mr. Moore

that letter, but that letter was an official recommendation to the Army surgeon general that the Army should have -- make measurements of all of their equipment that made noise, should measure the hearing on all soldiers when they entered the Army, entered the service, and then annually or semiannually or every two years following that do a hearing test to follow these people who worked in the noisy situations and educate the men with respect to what noise does to hearing, what a hearing test was, what audiometry was; and then there was an effort -- supposed to be an effort made where you reduced the noise at the source, which of course is the obvious solution, but it's technically sometimes and economically very difficult. And that's about what a hearing conservation program consisted of then and still consists of now.

Q. Now, in the 1958 Guide to Conservation of Hearing and Industry, which was -- which you've mentioned, did that outline the elements of a hearing conservation program?

A. Yes. That was the purpose for publishing it, to tell people what a hearing conservation

Dr. Glorig - by Mr. Moore

program consisted of, and those elements that I've just described were included in the guide.

Q. And just to refresh my memory, who published that -- those guidelines?

A. The American Academy published it as an official medical supplement to their transactions and then it was distributed widely throughout medical societies, educational institutions and anyone who wanted it. It was advertised in such a way that people could write and get it if they wanted it.

Q. Was it sent out to industry?

A. Pardon?

Q. Was it sent out to industry?

A. Yes. It was written for industry specifically.

Q. Doctor, could you just explain briefly how levels of noise -- how it affects hearing?

A. Well, there has been a lot of work recently with respect to microscopic studies on individuals who have had noise exposure and died for one reason or other and their temporal bones removed and studied under the microscope and the seat of the

Dr. Glorig - by Mr. Moore

damage is usually in the hair cells.

Now, the hair cells are tiny cells, about 30,000 of them, that are located in the end organ of hearing which is called the cochlea, and the cochlea is the beginning of the nerve of hearing made up of 30,000 different cells that recognize different frequencies on the sound spectrum.

The cochlea is a spiral-shaped organ like a snail shell and the base of the snail shell is where the high frequencies are and then as you go up the spiral to the so-called helicotrema or the apex of the snail shell, the frequencies get lower and lower until you get down to about 20 cycles per second, and it is in that cochlea where the damage occurs because the cells themselves are overstimulated for too long a time and they go through a temporary change and then a permanent change if the noise continues long enough.

When that happens, the damage is permanent, there's no way to cure it or treat it or improve it in any way.

Q. There's no type of therapy or any type of surgical procedure that can be done to restore the

Dr. Glorig - by Mr. Moore

hearing?

A. Nothing, even hearing aids are difficult to use with a noise-induced hearing loss because of the kind of hearing loss it produces.

Q. Could you please explain that, Doctor? Hearing aids usually won't help this type of loss?

A. Hearing aids --

Q. Why would hearing aids not work with a noise-induced high frequency hearing loss?

A. Because noise-induced hearing loss occurs mostly in the high frequencies, there isn't much loss in the lows, and therefore when you put an amplifier on such as the early hearing aid amplifiers would amplify the whole spectrum, so you've already got reasonable normal hearing in the low frequencies and when you amplify that, it serves to mask the other information which doesn't amplify as much in the high frequency end.

Now we've got hearing aids that can select frequencies and they do not produce much amplification in the low frequencies now, but they do produce amplification in the high frequencies; but amplification is not what the real problem is,

Dr. Glorig - by Mr. Moore

the real problem is that you lose the ability to discriminate sounds in terms of their pitch and the hearing aid doesn't help that very much, all the hearing aid does is make sound louder at specific areas in the sound spectrum; so you can hear better with hearing aids in quiet, but the real problem with people with a noise-induced hearing loss is when they try to talk in the presence of other competing signals, such as noise or a lot of people talking or riding in an automobile or any such thing as that, they have a great deal of difficulty discriminating what the person is saying, they hear them but they don't understand them because of the high frequency loss and the hearing aid seems to -- certainly doesn't improve that and frequently the person complains that they have more trouble in noise with the hearing aid than they do without it, so we've got to do something about that, and so far we haven't succeeded.

Q. Doctor, while we're on this subject, what are some of the common complaints from people who have noise-induced high frequency hearing loss?

A. Well, complaints with their hearing

Dr. Glorig - by Mr. Moore

principally is they have a great deal of difficulty understanding in noise, that's the principal complaint.

The other is that they can't understand people and when you do what they call discrimination tests on them, you'll find that they're not able to discriminate consonants very well because they've lost high frequencies and the consonants are high frequency elements of speech and when you lose the hearing for consonants in speech, you lose discrimination because you don't hear the Ps and the Ks and the Bs and the Cs and Ds very well, so you hear them but you're not sure what they're saying.

The other complaints are they have difficulty because they turn up the TV too loud for the rest of the family and they isolate themselves because they can no longer understand what's going on in church, they don't go to movies very much and if they're at home with the TV, why they disturb the rest of the family because of the way they turn it up.

One of the real things that the noise-induced hearing loss brings on too is the

Dr. Glorig - by Mr. Moore

problem called tinnitus, T-I-N-N-I-T-U-S, and tinnitus is a ringing noise in the ear which is usually a high-pitched sound that is constant and it produces an annoyance to the individuals that with some people is quite hard to live with, they can't get used to it, some of them threaten to commit suicide and this kind of thing. Those are the real main problems with a hearing loss.

Q. Now, Doctor, does the American Medical Association have a formula for calculating disability rating of hearing loss?

A. Yes, the formula originally came out of Walter Reed when I was there in a little different order than it is now, but then I was on the Committee on Conservation of Hearing of the American Academy of Otolaryngology and I suggested that we ought to have some kind of a formula that we could use to determine how much disability accompanied their hearing loss; and the original formula was to use three of the frequencies that you test when you test hearing and these frequencies are 500, 1,000 and 2,000; 500 being one octave above middle C on the piano and 1,000 an octave above that and 2,000

Dr. Glorig - by Mr. Moore

another octave above that.

Well, we used that for quite a number of years until about 1969, I believe it was, when we began to take notice that perhaps the high frequencies like 3,000 and 4,000 and 6,000 had something to do with hearing and we should think about considering those in the formula, so 3,000 was added to the original three-frequency formula and this then became a four-frequency formula where the hearing levels at 500, 1,000, 2,000, 3,000 were averaged and then from that average were subtracted 25 dB, because at 25 dB it is considered that a handicap starts, you don't really have a noticeable handicap before your hearing levels at those four frequencies get greater than 25, so you subtract 25 from that average and you multiply the difference with one-and-a-half to arrive at percentage impairment. And that is the formula that is used in most states.

There are a few states that are different than that, but most states have accepted that as a formula to determine percent -- actually, what it does is determine percent impairment and then you

Dr. Glorig - by Mr. Moore

combine the two years into what is called binaural handicap.

Q. Does this formula adequately measure the disability one receives from a high frequency hearing loss?

A. Well, obviously one -- if you're trying to determine disability for hearing and understanding speech, you should use speech to determine this, but we have no satisfactory speech tests until very recently there's one coming out very soon that looks like it might work, so we use the pure tones for two reasons, one because we didn't have good speech signals to use, and two, because that's what was available to us from the hearing conservation programs, nobody tests in speech for hearing conservation programs, they use pure tones.

So we wanted a formula that we could adapt to what already existed in terms of the hearing levels on a pure tone basis as measured by audiometry.

The present formula going out through 3,000 does give some consideration to the high frequencies, but apparently not enough, because in a

Dr. Glorig - by Mr. Moore

study where quite a number of hundreds of thousands of people were involved where you asked them did they think their hearing was good, fair or poor, they said it was good as long as they had hearing better than 25 and then they began to say it was fair when they showed a high frequency loss and then it was poor when they had a loss of 40 dB or more.

So the high frequencies do have something to do with hearing speech, particularly when we're in a noisy situation, particularly when you're trying to pick signals out of other competing signals, so we are now looking at the formula to see what should be done about the high frequencies.

Presently we get men that show zero percent impairment on the basis of the AMA formula and yet we know they're having difficulties. This is outside of those people who have monetary grants that they're looking at; even people who don't have a motivation of this kind are complaining that they don't get along too well in noise, they're having trouble at home with the family, they don't hear children because of the high-pitched voices and that sort of thing, so we know the formula does need

Dr. Glorig - by Mr. Moore

something done to it in order to give more account to the high frequencies.

We're learning in the last year or two that high frequencies also have a lot to do with binaural hearing, that in order to pick signals out of other competing noises you need more high frequency information so that you could properly listen to one person when a dozen other people are talking, and on the basis of these findings we're beginning to come up with a possibility of a new formula.

Q. Are you conducting research?

A. Yes.

Q. At your lab to come up with that new formula?

A. Yes.

Q. Do you have any idea about when a new formula might be available?

A. Well, one has already been suggested in the literature but of course it has to have a lot of consideration by others, it has to be examined by others and so on and then approved by standard situations and so far it hasn't gone through all

Dr. Glorig - by Mr. Moore

that, it will probably take two or three years to do all that before a new formula is suggested.

A friend of mine and I and a couple of other men have just published a paper that will appear pretty soon suggesting a change in the formula as a temporary change looking toward what a future formula might be.

We hope that the future formula will be on the basis of testing with speech and not with pure tones, but if you do that then you're up against the problem that all hearing conservation programs use pure tones for their hearing conservation program and that's what you have when you get a man who has had pure tone tests, he's never had any speech tests.

So my lab is now developing a speech test, has already developed a speech test which may be adapted to a screening type thing that you would use in industry to test people and it's based on speech intelligibility.

Q. So it would take into consideration the loss that -- the high frequencies?

A. The loss of 3, 4 and 6, yes.

Dr. Glorig - by Mr. Moore

Q. Which the present AMA formula does not take into account at 4, 5 and 6; is that correct?

A. That's correct.

Q. Doctor, you've examined and treated people with hearing loss for over 50 years. What is the number one cause of noise-induced hearing loss?

A. Well, I wouldn't put it that way; the number one cause of noise-induced hearing loss is noise exposure.

Q. From what source?

A. The number one cause of hearing loss in the general population is industrial noise.

Q. Doctor, when does one notice a noise-induced hearing loss? Is it immediately upon injury or is it -- does it take a matter of time to develop?

A. Well, the problem there is that the loss first starts in the high frequencies and the high frequencies don't have a large effect on ordinary conversational type speech in ordinary circumstances, so you don't notice you've got a loss until you've got quite a bit of loss, and that quite a bit means that in the high frequencies you would

Dr. Glorig - by Mr. Moore

have probably 35, 40, 50 dB loss at 4,000 hertz and 3,000 and 6,000 along about the same except a little less.

When you really start to notice difficulty is when you begin losing hearing at 2,000 hertz, which occurs quite a bit later than that at 3, 4 and 6,000 hertz.

And then as you continue in the noise, 25, 30, 35, 40 years, you begin to get low frequency loss and then it begins to dawn on you, my God, I can't hear what's going on half the time, but usually that's related to the beginnings of a hearing loss at 2,000 and then at 1,000 and then 500. So you may go ten years or so before you really notice any real problem, depending upon what level the noise is, of course.

Q. So it wouldn't be unusual for someone to have an audiogram that shows a high frequency loss but it wouldn't be unusual for that person not to notice any problems with his hearing?

THE WITNESS: Depends upon how much --

Dr. Glorig - by Mr. Moore

what the level that the high frequency was.

Obviously if it was very severe, then he would notice some problems, but it usually takes a while for that to occur, 10, 15 years.

Q. Doctor, is alcohol consumption related in any way to high frequency hearing loss?

A. I've never seen anybody get a hearing loss from alcohol, unless as I call them a dead-beat drunk where they've got other problems from the alcohol that might produce a hearing loss, but I know of no relation between alcohol -- consumption of alcohol and hearing loss.

You may get a temporary change in hearing from excessive alcohol at one time, but when the effects of the alcohol wear off, that temporary loss will go back to normal.

Dr. Glorig - by Mr. Moore

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Q. Doctor, going back to the work you did on the noise research at the subcommittee from 1953 to 1964, you were director of research institute into noise?

A. Yes.

Q. What was the official name of that organization?

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A. Well, that was called the Subcommittee on Noise Research Center which was organized by the Subcommittee on Noise of the Committee on Conservation of Hearing at that time of the American Academy of Otolaryngology.

Q. And could you please describe some of the research that you did at that time in those 11 years?

A. Well, one of the things we needed was industrial subjects, so we had to get into industry and of course industry didn't want us to come in because they suspected they might have a problem and they weren't too sure they wanted it really laid out for them so that it would become public and cause problems with workers.

So through the influences of Dr. House, one of my colleagues, who knew the president of Lockheed and the president of NorthAmerica, we were allowed to go into Lockheed because the medical director there was a very forward looking man and he let us go in there and make noise measurements and test the hearing on the workers who worked in the areas where we made the noise measurements; and from

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that beginning, we began to get hundreds of thousands of audiograms that our team personally did as well as audiograms that were made by others for the industry.

And on the basis of those audiograms and the noise measurements and the years of exposure, and I examined a great many of these subjects to determine whether they had any other causes for their hearing loss, on that beginning we began to get the automobile industry, the steel industries, the paper industries, the bottle-making industries and so on because whatever we reported we reported anonymously as far as where the data came from, so that no company would get in a position of being embarrassed because they had a thousand people with a hearing loss because we didn't name the companies.

And we did that for the period from '52 -- well, it was actually from '49 the research center started until 1964, at which time we completed our job and had established the relations pretty well of how much noise it took to do how much damage and so we closed the research center and I went to Texas.

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All that data was -- part of the data was used to establish the present standards, not only here in this country but in Europe and throughout the rest of the world.

Q. During this time, did you consult with companies on setting up hearing conservation programs?

A. Yes, we -- when I say "we," I'm talking about the members of our staff, but particularly myself were going to visit the management of many of these industries and therefore offered to help them set up hearing conservation programs; at that time there was no regulation. So they were doing it on a voluntary basis.

And Lockheed had someone of the first programs which started in about 1949, 1950 and then NorthAmerican followed and Convair down in San Diego and Boeing up in Seattle all about that 1950, 1952 period started hearing conservation programs.

And then in 1955 the West Coast Public Paper Association came to me through their safety man, Dan Adare, and said we think we have a problem, could you help us decide if we do and what to do

Dr. Glorig - by Mr. Moore

with it. So I went into every pulp and paper plant on the West Coast and some in Idaho and Nevada and up in through there --

Q. Do you know how many plants?

A. Pardon?

Q. Do you remember about how many plants that was?

A. How many?

Q. Yes.

A. Oh, 25 or 30, I suppose. It was the pulp and paper industry. And then the Owen Illinois, the safety engineer there, Bill Hazard his name was, came to me and said what about the bottle industry, would you help us with that, so I and some members of my staff visited 21 of their plants throughout the country and did hearing tests on their employees and made measurements of the noise.

So the bottle industry and the paper industry and those industries got into this quite early in the early fifties, mid-fifties, so on. And we also went to the steel industries, Bethlehem Steel particularly, and General Motors and Ford, Chrysler was a little late but they -- we eventually

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got in there.

Q. And what hearing conservation measures did these companies put into effect?

A. Well, they did what was advised under the ordinary hearing conservation program, they tried to reduce the noise, they established like the pulp and paper companies where they were operating these large paper machines in a large room where there was quite a bit of noise, about 95 to 100 dB, they put booths in there that the men could sit in these air-conditioned booths and watch the dials and so forth and control the machine that way, so instead of being in the noise eight hours a day they were only in it for a few minutes a day because they went in and out of the booths; and then they started measuring hearing, we had thousands and thousands of audiograms that we did and that they did, we established hearing testing centers in many of these industries where we trained their personnel to do the audiometry and then we checked it from time to time and they started educating programs, I made three or four films that they used to educate their workers and we gave talks to management and unions

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and goodness knows what, all the way along here,
helping these industries get going.

Q. The educational films, what exactly was --
if you can give us some examples of what was said in
some of those films?

A. The educational program?

Q. The films.

A. Pardon?

Q. The films.

A. The film? Well, one of the films was
about -- it was about ear protection, we showed --
wrote a little story about wearing ear protection
and not wearing ear protection and that sort of
thing, what kinds of ear protection were available,
how much help the ear protection did.

Another film was called It Takes Two and
this was directed toward trying to get cooperation
between management and the employees because you
can't run a hearing conservation program with the
employees refusing to wear the plugs, so the film
was directed towards educating the men and
management, it had to be in a cooperative effort if
they were to have a successful program.

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2 - - -
3 And remember that there was no government
4 regulation at that time, this was strictly on a
5 voluntary basis.

6 Q. But education was a key element of the
7 program?

8 A. Oh, yes, very much so.

9 Q. And you mentioned hearing protection. Did
10 these industries institute the use of hearing
11 protection in high noise areas?

12 A. Yes, definitely.

13 Q. Did these companies make this hearing
14 protection mandatory or voluntary?

15 A. Well, they started out voluntarily at my
16 advice because I wanted to get the men educated a
17 little bit before we rammed it down their throat,
18 but after three or four months of education and
19 providing ear protection on a voluntary basis, they
20 made it mandatory.

21 As a matter of fact, Lockheed had a
22 mandatory system where if you came to work without
23 your ear protection you were given a day off without
24 pay, if you came a second time you were given a week
25 off without pay, if you came a third time you were

Dr. Glorig - by Mr. Moore

fired, so they were really following through on it, and the paper industry the same way.

Q. So it would be mandatory after initial few-month period?

A. After initial educational period, yes.

Q. These educational films that we mentioned that you produced, when were they produced, what year, roughly?

A. Oh, these were back in the early fifties. As a matter of fact, they're outdated now, I was looking at one the other day and the clothes the people wear from way back in the fifties, so we can't use them anymore because they date themselves too much.

Q. Were you also a consultant for British Airways?

A. Yes, I consulted with British Airways, several industries in England just on a voluntary basis. The British Airways paid me by allowing me to travel on the British airlines first class without any payment on my part, so I traveled all over the world. It was the way I was able to get to all these other countries and lecture and so on,

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through traveling on British Airways.

Q. And what did you do for British Airways?
What did they ask you to do?

A. Same thing I did for the others, helped them set up their programs in their maintenance factories -- maintenance plants I mean, also in their personnel onboard the planes, helped them talk about reduction of noise and that sort of thing.

Q. How long were you a consultant for British Airways?

A. 25 years.

Q. And from what period of time?

A. Well, I ended in 1985, so it was 25 years before that.

Q. 1960?

A. Something like that.

Q. Doctor, you mentioned audiometric testing. Could you please just very briefly explain what that is?

A. Well, audiometric testing is done by an instrument called an audiometer, which it has a set of earphones you put on the individual and the instrument itself has a frequency dial and a level.

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dial. The level dial controls how loud the tone is, the frequency dial controls what frequency you are testing the person at.

The human ear works from about 20 cycles per second on the low end, 20,000 cycles per second on the high end and the audiometry is done from about 250 as middle C on the piano to an octave above the top note on the piano, the top note on the piano happens to be about 4,000 hertz; and you do octaves and half octaves along in between those and when you get through you have a curve that represents the hearing levels at the different frequencies in this person's ear.

Q. And is measuring hearing with this device part of a hearing conservation program?

A. Oh, yes, hearing testing -- as a matter of fact, the hearing testing program is perhaps the most important part of a hearing conservation program because without it you don't know what the effect of the rest of your program has because what you're trying to do is prevent hearing loss and you don't know whether you're preventing hearing loss or not unless you test the hearing on these

Dr. Glorig - by Mr. Moore

individuals.

Q. And how long has audiometric testing been around?

A. Well, we had audiometers in the late 1800s but they became generally usable in about 1920, '22, '23, somewhere in there, they were commercially available at that time.

Q. And when did they come into widespread use?

A. When did what?

Q. When did it come into widespread use?

A. 1930.

Q. And you were using them in your -- when you consulted with industries?

A. Oh, yes.

Q. In the 1950s and '60s?

A. Of course.

Q. Doctor, have you ever heard of the 20-foot conversation hearing test?

A. Yes, many, many years.

Q. Could you please explain to the jury what that test is?

A. Well, you know when you take a visual test

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they put you at a certain distance and ask you to read a chart and then your vision is 20/20 or 15/20 or whatever it happens to be, so the conversational voice test was based on that same sort of -- same sort of progress -- process where they stand a person up and he's supposed to not look at you, he stands one ear toward you and then you say words to him.

If he repeats them back at 20 feet you say his hearing is 20/20 and that means his hearing is within normal. If he doesn't hear you, you start getting closer to him and every time you move in you say words and when he begins to respond his hearing is 10/20 or 5/20 or whatever.

But it's extremely inaccurate because you have no real way of controlling your voice and your voice is difficult to maintain at a specific level, even if you have what's called a VU meter to see the meter when it peaks at a certain point, you can control your voice a little that way, but not good enough.

As a matter of fact, I wrote an article castigating the Army that they were using a

Dr. Glorig - by Mr. Moore

bow-and-arrow type testing rather than a high-powered rifle which was the difference between a conversational voice and the audiometer.

Q. When did you write that article?

A. 1949, '50, somewhere about there.

Q. And when did the Army switch to the audiometric testing?

A. Well, the Army went to audiometric testing -- we were using audiometry at Walter Reed when I was there starting in 1946, '47; but for general use in the Army where they did it in the induction stations and so on, that didn't start until about oh, 1960, '62, somewhere in there.

Q. Now, Doctor, during the 1950s and 1960s, did you give lectures, talks to companies, industry, associations concerning noise?

A. All over the United States and all over most of the world.

Q. And what were the -- what did you tell these groups, these companies about?

A. What our research showed with respect to what noise does to hearing and what to do about it in the form of a hearing conservation program.

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Q. And that would be all the different elements that you previously described in your research?

A. That's correct.

Q. Now, Doctor, in 1966 did you give a -- hold a seminar at the 46th Membership Meeting of the Medical and Surgical Officers of the Association of American Railroads?

A. Yes, I did.

Q. Now, how did it come about that you were asked to do this?

A. Well, I don't know how it came about that I was asked but I was asked by the chairman of that meeting, I think his name was Dr. Olson, to organize a panel to present the problem of noise to the railroad physicians at the 1966 meeting in San Francisco, so I got two other men besides myself and we gave them talks in San Francisco at that time.

Q. And this was a group of railroad doctors?

A. This was a group of railroad doctors, yes.

Q. Before this meeting, Doctor, what did you know about noise and the railroad industry?

A. Well, I knew that I had been seeing cases

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of railroad workers that had hearing loss and I knew what the literature was saying, what the early literature as far back as 1830 was saying about railroad men having problems with hearing. This was not as only engineers; this was the shop men or the maintenance of way men and the engineers were showing a hearing loss in many cases.

And I also knew something about the levels involved because Bolt, B-O-L-T, Beranek, B-E-R-A-N-E-K, and Newman, N-E-W-M-A-N, this was a company of acoustic people in Boston who are asked by the -- I think it was the Bureau of Standards to look at the community problems related to railroads passing through communities because there were complaints that the noise was causing disturbances and what we wanted to find out was just how much noise was causing cumulative community reactions; and Bolt, Beranek & Newman did a lot of studies on what kind of noises were produced by engines passing through communities at different distances in order to establish somehow what sort of a -- what sort of a way, right-of-way, the railroad should have in order to prevent a nuisance from occurring, I knew

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that. And they had made some measurements of cab noises and so on incidentally to what they were doing.

Q. Do you remember --

A. Pardon?

Q. Do you remember any of the exact measurements that they had from like the cab noise?

A. Well, they were -- they were noticing that when the train passed through a community at 100 yards or so on the levels were enough to cause people to have some difficulty communicating, but this was not related to hearing loss at all, this was related more to annoyance that the railroads were causing as they passed through communities.

There was very little done on railroads as far as noise levels were concerned by 1966; following that there was some studies done, Kilmer did a study on engines; Bureau of Standards did some studies through Kilmer.

Q. So what -- did you think that there was a problem with noise in the railroad industry in 1966 before you spoke to this association of medical -- of railroad medical doctors?

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3 MR. HICKTON: Objection to the form of the
4 question.

5 THE WITNESS: Did I what?

6 Q. I'll restate it. From your review of
7 studies and -- did you have any firsthand experience
8 with --

9 A. Oh, I had ridden on a couple of trains and
10 a couple of engines by that time but not any
11 extensive studies, because the railroads -- we tried
12 to; the railroads wouldn't allow us to do any
13 research on railroad people at that time.

14 Q. Before 1966 you had asked to do studies
15 for certain railroads?

16 A. Yes, because as I said, I had seen
17 patients that were railroad workers with hearing
18 loss, therefore I thought perhaps they might have a
19 problem so I tried to get on trains, make
20 measurements and measure personnel that worked in
21 the railroads, particularly in some of the shops,
22 but I was not asked to nor allowed nor did they
23 respond to my request.

24 Q. Now, Doctor, could you please state what
25 you told the railroad doctors back in 1966 at this

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meeting.

A. What I called them?

Q. What took place, what did you describe to them?

A. Oh, I described a hearing conservation program, I showed slides of what happened because of noise exposure, any noise exposure of certain levels what happened to hearing; and then the other men, Dan Adare described the hearing conservation program in the pulp and paper industry and Callaway described various methods of noise reduction and booth manufacturing and that sort of thing, because we were interested in the railroads getting audiometry so we were interested in getting them to use the proper testing environment for testing and this required booths, and Dan Callaway described how you'll get good environment for good testing.

So when we got through they had a general information about the whole problem of noise and its relation to hearing loss.

Q. Was any reluctance to do like audiometric testing, was any reluctance to do that expressed at that meeting?

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MR. HICKTON: Objection to form of the question.

THE WITNESS: Well, I told them that I would be glad to help them set up their programs and we'll be glad to come in and do research for them at no cost to them as far as my recommendations were concerned or anybody else on my staff, we would do it voluntarily.

Q. You offered it at that time in 1966?

A. That's correct.

Q. You offered to consult with these railroads in setting up a hearing consultation program?

A. I offered to come and help them set up a hearing conservation program, yes.

Q. You offered to do the same thing you had done with Lockheed, British Airways, paper companies?

A. Correct.

Q. Did any of them take you up on your offer?

A. Not yet.

Q. Not yet?

A. Not yet, no.

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Q. And it's been what, 30 years?

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A. Well, 1966 the offer was made. It was made before that but officially it was made at that time.

7

8

9

Q. Have you ever been contacted by the Norfolk and Western Railway to consult on a hearing conservation --

10

11

12

A. Norfolk Western?

Q. Norfolk and Western Railway.

A. No.

13

14

15

Q. At this 1966 meeting, Doctor, did you explain to these railroad doctors the elements of a hearing conservation program?

16

17

18

A. Yes.

Q. And what exactly did you tell them, briefly?

19

20

A. I've already repeated this a dozen times is what a hearing conservation program --

21

22

Q. Well, if you could just do it one more time.

23

24

25

A. -- consists of which is the measurement of the noise, measurement of the hearing, noise reduction where possible, ear protection where it

Dr. Glorig - by Mr. Moore

isn't possible and during the time when you're doing noise reduction education of the employees as well as management and pre-employment audiograms, hearing testing. This was all given to them in that 1966 speech.

Q. At that meeting did you specifically discuss any particular -- you discussed the 90 decibel standard?

A. Discuss what?

Q. The 90 decibel standard or any standard by which any exposure after that -- any exposure in the workplace at that certain level would cause hearing loss?

A. Yes, I discussed the 90 dB-A and why dB-A was used and what kind of levels would produce what kind of hearing loss, showed them slides of population studies where they had been exposed to less than 80 and 85 and 90, 95, levels of that kind, what happens to hearing when you were exposed for 10, 15, 20 years to those kind of noise levels, that was all shown to them on slides.

Q. Did you also discuss audiometric testing, audiometric testing, as opposed to the 20-foot voice

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testing, was that discussed?

A. Oh, of course, of course, I was very adamant about the use of audiometry.

Q. And for the reasons you've previously described?

A. Right, audiometry was the only real way to test hearing, it could not be tested any other way, the spoken voice test was absolutely unreliable.

Q. Was there a discussion of other industries and what they had done to implement hearing conservation programs?

A. Sure, that's where I got the data from. I didn't mention -- well, I did mention the aircraft industries as being some of the first industries to get into hearing conservation, but most of the data came from other industries. I had no data from the railroad industry at all.

Q. And was the paper company industry discussed?

A. Pardon?

Q. The paper company industry, the pulp --

A. Yes.

Q. -- and paper company?

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A. Yes; bottle-making.

Q. I think Mr. Adare talked, he was a representative of a paper company association?

A. Well, Dan Adare was the safety man for the pulp and paper association on the West Coast, yes.

Q. And you had worked with him in setting up a hearing conservation program?

A. I worked with him for ten years, yes.

Q. And he also spoke at the association meeting in 1966?

A. Yes, he described their program in the pulp and paper industry.

Q. Now, Doctor, since 1966 you continued to practice medicine?

A. Well, I continued to practice my type of

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medicine, yes.

Q. You continued to do research into noise-induced hearing loss?

A. Some, yes.

Q. And you -- have you kept abreast of different developments in that field?

A. Yes.

Q. Now correct me, Doctor, if I pronounce this wrong. Are you aware of the Clark-Popelka study?

A. Clark-Popelka.

Q. Popelka, excuse me.

A. Yes, I know it well.

Q. And do you agree or disagree with the results of that study?

A. Disagree.

Q. Could you please explain to the jury why you disagree with those results, explaining those results and why you disagree with them?

A. Well, I disagree with some of the things he did to arrive at conclusions he made.

Q. Could you just please explain --

A. Like using only the better ear to

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determine --

Q. You might want to try explaining exactly what the study was first.

A. Well, the study was a study of some close to 8,000 railroad engineers that worked for Union Pacific and what he did was take the hearing measurements on each of those engineers and get their age and so on and then compare the hearing loss that they had or the hearing levels that they had with the hearing levels of a general population which was published by the International Standards Organization called ISO in 1999.

The population in that 1999 study was a population that I had tested in the United States between 1960 and 1962 and he compared the hearing of the railroad engineers with the hearing in that general population study and he had assumed for some reason that the general population study was a nonoccupationally exposed population but it wasn't, it had people in there who had occupational exposure, so that was one problem with the study.

And the other study was using the better ear only, he didn't show anything that happened to

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the worse ear; then he made some corrections because there were two different types of audiometry that were used, one was an automatic audiometer and when I did that study in 1966 we used what we call manual audiometry, that is to say people turned the dials, but the railroad study that he did was done with so-called self-recording audiometers and it is said that there is a difference between the results produced by the automatic versus the manual and he made a correction, what I believe is he made the correction in the wrong direction and it should have been in one direction and he made it in the other. And so the results of the study are questionable because of those reasons.

Q. And let me see if I got this correct. In that study they used raw data that you yourself had collected in 1962; is that correct?

A. Did that study what?

Q. In that study they used the raw data that you yourself had collected in your work in the early sixties?

A. Well, he used the results as reported by ISO 1999. The ISO was a committee, International

Dr. Glorig - by Mr. Moore

Standards Organization Committee, that used that population to predict what hearing levels you would expect in the general population as a function of age.

Q. But from the reasons you've discussed, you don't think that study is scientifically reliable?

THE WITNESS: I don't think the judgements he made on the basis of his data were correct.

Q. For the reasons you've already discussed?

A. Correct.

Q. Doctor, is there any relationship between age and loss of hearing?

A. Oh, yes. If you look at a nonexposed population, non-noise exposed population, and reasonably normal as far as health is concerned, you will expect to get some change in hearing as a function of growing older, that's true, yes.

Q. But is there some formula that this can be calculated?

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A. Well, there's no formula but there are numerous studies that have been done on aging starting with young people around 20 and going up to people around 80, 85 and looking at groups of these -- at these age levels and see what their hearing levels are and then drawing curves and presenting those curves as the example of what aging does to hearing; but most of those studies, including the one that I did, are contaminated with some noise exposure from the type of civilization we live in, so it's almost impossible now to get a pure age-related hearing level.

They've got some effect from disease, some effects from what we call socioacusis or noises other than job noises, that sort of thing, like riding in automobiles or whatever you do in a noisy civilization.

So what they do is use those curves and say this is what you would expect with age and therefore on the basis of this population that are noise exposed they are bound to have some loss from age as well as some loss from noise; and what most of them are doing in terms of establishing what they

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call a correction for age, they're assuming that the age-related hearing loss and the noise-related hearing loss accumulates on the basis of one to one makes two, but it isn't that at all, there is a mixing so that there is an overlap between the two processes, so that aging actually until you get to be 70, 75, 80 doesn't show really much in the presence of noise-induced hearing loss.

Q. So you really wouldn't see an effect until 75 or 80?

THE WITNESS: Pardon?

Q. When would you see the effects of aging on hearing loss?

A. Well, you see it at any time but in the presence of long noise exposure it doesn't really show up as very much until you get over 70 years of age.

Q. Would it show up say in someone who has been exposed to noise and is 40 or 50?

A. No, because of the loss you get from continuous noise exposure is such that the aging

COPY

ROBERT E. PURYEAR,
Plaintiff,
-vs-
NORFOLK & WESTERN RAILWAY,
Defendant.

VOLUME I

HEARD BEFORE
THE HONORABLE CLIFFORD R. WECKSTEIN

CENTRAL VIRGINIA REPORTERS
P.O. BOX 12628
ROANOKE, VIRGINIA 24027
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1 MR. CRANWELL: Yes, we are ready, Your Honor.

2 THE COURT: Are you ready to respond to having
3 a witness called, Mr. Oddo?

4 MR. ODDO: Yes, sir.

5 THE COURT: Bring the Jury in please, sheriff.
6

7 (The Jurors returned to the Courtroom at two
8 o'clock p.m. and the following took place in the
9 presence of the Court and Jury.)
10

11 THE COURT: Before we start with the evidence,
12 may I see counsel for just a moment?
13

14 (Court and Counsel had a side bar discussion
15 out of the hearing of the Jurors and the Court
16 Reporter.)
17

18 THE COURT: Ladies and gentlemen of the Jury,
19 the deputy sheriff tells me that one of you has asked
20 a question about taking notes. I'm going to give you
21 a long answer to a short question.

22 Traditionally courts have looked with
23 skepticism on jurors taking notes, and I will tell
24 you why. But before I tell you why, I will tell you

1 how this is going to end up. You can take notes if
2 you want to and if you want a pad, if any of you
3 wants a pad, we will give you a pad.

4 Let me tell you the concern, and that
5 happens to be an area in which people have done lots
6 of writing for judges. There are two major concerns
7 about note taking. The first deals with what happens
8 while the notes are being taken. You remember I told
9 you some things about how you judge a witness? You
10 judge a witness by the witness's appearance and
11 demeanor on the stand and manner of testifying as
12 well as by many other things.

13 It is perceived that if you are looking
14 down at your pad writing, you are less likely to be
15 able to make note of a witness's, mental note, of
16 appearance and demeanor. It is also often the case
17 that while you're writing down the last thing that
18 the witness said, you're missing the next thing the
19 witness says.

20 Note taking, and we all do it at one time
21 or another, note taking is necessarily incomplete
22 unless, like Mrs. Ferris, the Court Reporter, you
23 have a machine that gives you a way to take down
24 everything.

1 The second concern is in the Jury room.

2 And the concern there is when someone dogmatically
3 says, "I have it down on my pad, so it must be so."
4 Because it is, of course, not true that just because
5 you wrote it down in a particular way that's the way
6 it was said. Nor is it true, for the reasons we just
7 talked about, that if you didn't write it down, the
8 witness didn't say it.

9 It is perceived that sometimes the juror
10 who has a note pad wants to exercise more control
11 over the deliberations in the Jury room, and this is
12 not a good thing. It is perceived that sometimes
13 jurors who didn't take notes give more deference to
14 jurors who did than they ought to.

15 So I tell you if anyone is going to take
16 notes, just remember that the recollections that are
17 written down on the note pad are no better than the
18 recollections of the jurors who didn't take notes,
19 and that what is written down may be at the expense
20 of what is missed.

21 Having said all that, I want to put you on
22 the spot. Anybody want a pad? Or shall I ask the
23 bailiff to go get eight pads and eight pencils and if
24 you want to use them you can do that? Do you want to

1 do that?

2 THE JURORS: No.

3 THE COURT: Apparently the jurors have made a
4 free and voluntary decision not to take notes. If at
5 any time you decide you want a pad, let the sheriff
6 know or let me know.

7 Mr. Cranwell, would you like to call a
8 witness today?

9 MR. CRANWELL: We call Mr. Robert Puryear,
10 please.

11 THE COURT: I will ask you to stand beside the
12 witness box, and I will ask the Court Reporter to
13 swear you.

14

15 ROBERT E. PURYEAR

16 was called as a witness and after having first been duly
17 sworn to tell the truth, the whole truth, and nothing but the
18 truth, was examined and testified as follows:

19

20 DIRECT EXAMINATION

21

22 BY MR. CRANWELL:

23 Q Would you state your name and tell us your
24 current address please, sir?

1 A Robert E. Puryear, 2520 South Federal Highway,
2 Boynton Beach, Florida, 33435. Also 2756 Colonial Avenue,
3 Roanoke, Virginia, 24015.

4 Q You have a place in Florida and a place here
5 in Roanoke?

6 A Yes.

7 Q How do you divide your time up between the
8 two?

9 A I spend the majority of my time in Florida
10 during the winter months, and I usually come to Virginia in
11 the summer for a few months.

12 Q And are you little bit nervous right now?

13 A Yes.

14 Q All right. If you need a drink of water or
15 something, let me know and we will get you a drink of water.

16 Mr. Puryear, how long have you lived in the
17 Roanoke area?

18 A Since 1975 up through 1990.

19 Q Okay. Now, tell us how it is you happened to
20 come to live in the Roanoke area?

21 A Well, I grew up in Virginia and I have a lot
22 of relatives, friends in the Roanoke Valley and other parts
23 of the state. I do some work up here, so I come up in the
24 summer or any time that I need to.

1 Q You're not listening to me. Listen to me. My
2 question is how did you come to move to Roanoke from Crewe?

3 A I was promoted on my job in 1975, and came to
4 Roanoke to live.

5 Q Prior to that you were living where?

6 A Crewe, Virginia.

7 Q And where is Crewe, Virginia?

8 A It is a hundred twenty-eight miles east of
9 Roanoke on 460. It is almost approximately halfway between
10 Roanoke and Norfolk, Virginia.

11 Q How is it you were able to pick off the exact
12 miles like that for me?

13 A Well, as a railroad employee we would get paid
14 by the miles not by the hours. So we kept track of the
15 mileage, and I can remember it very well. That's how we got
16 paid.

17 Q How far is it from Crewe to Norfolk?

18 A A hundred thirty-four miles.

19 Q All right. Did you grow up in Crewe?

20 A Yes.

21 Q Did you have brothers and sisters?

22 A Yes.

23 Q Tell a little bit about your family.

24 A Father, he worked for the railroad and didn't

1 live to retire, but he worked there many years. Mother was a
2 housewife. I had three brothers and a sister. Two of the
3 brothers worked for the railroad, and the sister also worked
4 for the railroad.

5 Q Where did you go to high school?

6 A Crewe High School.

7 Q And when you graduated from high school what
8 did you do?

9 A I joined the Air Force.

10 Q How long were you in the Air Force?

11 A Four years.

12 Q What did you do in the Air Force?

13 A I was a map maker, a photogrammetrist. We
14 made charts of maps for the pilots to fly their missions from
15 early photography.

16 Q Where were you stationed?

17 A Stationed several different locations. Basic
18 training at Sampson Air Force base in New York. Went to
19 school at Fort Belvoir, Virginia. Stationed at Shaw Air
20 Force Base, South Carolina. Went to Kempo Air Field in Korea
21 during the Korean Conflict and then --

22 Q That was a war as opposed to a conflict;
23 wasn't it?

24 A Yes.

1 Q Then I was, when I finished my tour of duty in
2 Korea, I was sent back to Shaw Field, and that's where I was
3 discharged.

4 Q Okay. Now, when were you in the service, what
5 years?

6 A From September 5, 1951 until September 4,
7 1955.

8 Q Did you qualify with any firearms in the
9 military?

10 A Yes.

11 Q What did you qualify with?

12 A We had to go to the range and qualify with a
13 .22 rifle.

14 Q Okay. Do you recall whether or not you had
15 any ear muffs or anything when you qualified with the
16 firearms?

17 A We had to fire the rifle in an indoor range
18 and cinder block, sand floors. On each wall at each stall
19 there was ear phones, and we had to put those on when we got
20 into the firing position.

21 Q Now, when you got out of the Air Force what
22 year was that?

23 A 1955.

24 Q Where did you go? Did you go back home?

1 A I went back to Crewe, Virginia. And eight
2 days later I started working for the railroad.

3 Q Is Crewe a kind of a railroad town?

4 A Yes, sir.

5 Q Tell the Jurors why you would call it a
6 railroad town?

7 A Crewe was located halfway between Roanoke and
8 Norfolk, Virginia. So it was used as a terminal, which means
9 crew members that brought the train from Roanoke to Crewe got
10 off and stayed and went back on another train.

11 We would get on the train and go from Crewe to
12 Norfolk and come back the next day. And it also had
13 roundhouse facilities for steam locomotives and later a
14 diesel, small diesel facility.

15 Q Now, you had two brothers and a sister worked
16 at the railroad?

17 A Yes.

18 Q And tell the Jurors what each one of them did
19 at the railroad?

20 A My oldest brother that worked for the
21 railroad, he was a clerk. He worked in the office part-time,
22 part-time he had to go out onto the yard there in Crewe and
23 list cars as they came in and fix bills on them and go back
24 to the office and write these things up.

1 My sister, she went to work for the railroad
2 after moving to Roanoke, Virginia many years ago. I don't
3 remember when it was, approximately thirty-two years. She
4 also was a clerk. Worked in the general office building
5 downtown in Roanoke as a payroll clerk.

6 My father, he worked for the railroad and he
7 worked in the roundhouse. He was a machinist helper, sort of
8 like a automobile mechanic helper. He did help do repairs to
9 locomotives.

10 Q How many of your brothers and sisters are
11 still alive?

12 A Two brothers and one sister.

13 Q Has there been any history of any hearing loss
14 problems in your family?

15 A No.

16 Q Mr. Puryear, let's focus on when you got back
17 to Crewe and you went to work for the railroad eight days
18 after you got back from the Air Force. What job did you hire
19 on the railroad as?

20 A They hired me as a road fireman on steam
21 locomotives.

22 Q Now, what is a road fireman?

23 A Road fireman, he would work on the trains that
24 travel from Crewe to Norfolk.

1 Q And I don't know if we are going to talk about
2 what a fireman does. Just briefly could you kind of give the
3 Jurors a capsule of your work history with the railroad?

4 A Would you repeat the first part?

5 Q I'm sorry. Could you explain to the Jurors
6 what your, just briefly what your work history was with the
7 railroad, what position you started at, what promotions you
8 had, where you were located, what you were doing and what
9 your responsibilities were?

10 A Started out as a road fireman on steam
11 locomotives. Worked several years on steam locomotives. We
12 changed our mode of power to diesels and worked on diesels as
13 a fireman engineer until 1975 when I was promoted to road
14 foreman of engines and then later received another promotion
15 to division road foreman of engines.

16 Q Did you go from fireman to engineer?

17 A I was promoted five, six years after I was
18 hired to road engineer. I was qualified, but 98 percent of
19 the time that I worked on the railroad I was a fireman.

20 Q Why is that?

21 A You worked by seniority, and my seniority
22 never called for me to hold a job as engineer or to be marked
23 up. The times that I worked as engineer I was used in an
24 emergency.

1 They didn't have anybody, any other engineer
2 on the regular board or on the extra board. And so they
3 would go to the oldest promoted fireman on the seniority list
4 and use him, which they used me quite a few times.

5 Q Now, you accepted, you got promoted to road
6 foreman superintendent, road foreman, or something like that?

7 A Road foreman of engines.

8 Q Would you tell the Jurors when you got that
9 position did you have to relocate from Crewe?

10 A Yes, I did.

11 Q When that was?

12 A First of October 1975.

13 Q Where did you relocate to?

14 A I came to Roanoke from Crewe.

15 Q Would you tell the Jurors what that job was,
16 what your responsibilities were?

17 A As a road foreman you are a supervisor over
18 the engineers and firemen and you are trained. You observe
19 them to make sure that they are working by the rules,
20 handling the train properly.

21 You help instruct them on how to trouble-shoot
22 when you have trouble on the locomotives and you rode trains
23 with them as well as doing work in the office.

24 Q How many people working for the Norfolk and

1 Western held that job in the State of Virginia?

2 A We had the Radford Division, the Shenandoah
3 Division.

4 Q Wait a minute. How many in the Radford
5 Division?

6 A Two road foremen and one division road
7 foreman.

8 Q Three?

9 A Three.

10 Q All right?

11 A Norfolk Division, same. And Shenandoah
12 Division same.

13 Q Is that it?

14 A That's it.

15 Q Total of nine?

16 A We did have one terminal road foreman in
17 Roanoke. He stayed on the yard where the yard locomotives
18 were. And we also had one terminal road foreman at Norfolk
19 Virginia. We looking at 11 road foremen.

20 Q How long did you hold that position?

21 A From 1975 until 1980 or '81. Then I was
22 promoted to division road foreman.

23 Q How many people would have been working for
24 you?

1 A As road foreman I had approximately 90
2 engineers and firemen on the road and also on the yard.

3 Q Okay. And you were promoted you said to
4 division road foreman?

5 A I was. The last promotion that I received
6 before I retired was division road foreman, and I had the
7 same duties but I had road foremen working for me.

8 On the division that I worked on we had a
9 superintendent. On most divisions you have a superintendent
10 and assistant and then you have a division road foreman. On
11 our division we did not have an assistant superintendent, so
12 I was the supervisor in charge over the trainmen and the
13 engine crew.

14 Q How many positions were those? How many of
15 those were there in Virginia working for N & W?

16 A Division road foreman?

17 Q Yes.

18 A Three of us.

19 Q How many people would be working for you?

20 A As division road foreman on the Shenandoah
21 Division I had several hundred people, yard people, brakemen,
22 trainmen, conductors and from Winston-Salem to Hagerstown,
23 Maryland.

24 Q And is that the job you were working at when

1 you retired?

2 A Yes.

3 Q When did you retire?

4 A September the 30, 1987.

5 Q Now, let's if we can, you and I, start with
6 the steam engines when you were a fireman. You said you did
7 that, what, for about two or three years?

8 A Three years.

9 Q Three years. Tell the Jurors what your job
10 duties would have been as a fireman on the steam engine?

11 A As a fireman on a steam engine you had to
12 maintain the steam, of course, by fueling the fire box with
13 coal and you rode on the left-hand side of the locomotive,
14 engineer on the right.

15 You called signals with him to govern your
16 travel on the road. You also had to do some trouble-shooting
17 on the steam locomotives and keep a lookout down the track
18 for any obstruction or signals and also look back at the
19 train for any defects.

20 Q Was that an open cab or a closed cab?

21 A It was open. It did have a roof and window on
22 each side, but the back part was completely open, no
23 partition across there.

24 Q And when you were working steam engines what

1 was your run, I guess? Is that what you call it in railroad?

2 A Yes, right. My run was from Crewe to Norfolk,
3 Virginia and also worked the City Hopewell Branch line.

4 Q And then I assume the next day your run would
5 be from Norfolk back to Crewe?

6 A If I went out of Crewe to Norfolk, yes.

7 Q After you had been working steam engines for
8 about three years the railroad started converting to diesel
9 power, didn't they?

10 A Yes.

11 Q Do you recall when that might would have been?

12 A '58, '59, somewhere in there. As soon as that
13 started happening I was furloughed for a short time. When I
14 came back we had the diesels and I still we had a few steam
15 locomotives.

16 Q You say you were furloughed?

17 A Yes.

18 Q What did you do while you were furloughed?

19 A I joined the Petersburg Police Department and
20 worked as a patrolman and investigated accidents.

21 Q How long did you do that?

22 A Approximately 18 months.

23 Q Did you do anything else while you were
24 furloughed from the railroad?

1 A For a short period of time a couple times a
2 week or maybe two weeks I went to work somewhere else. I
3 didn't want to draw unemployment. I wanted to keep busy.
4 I did take other little jobs for a short period of time.
5 Basically it was railroad, Air Force and Police Department.

6 Q Did you ever have occasion to use a firearm
7 while you were a police officer?

8 A I didn't hear you.

9 Q Did you ever have occasion to use a firearm
10 when you were a police officer?

11 A I only fired the weapon that I was issued one
12 particular time and that was just to check the .38 revolver
13 to make sure it worked properly.

14 Never did any time get a chance to go to the
15 police academy or anything to take any training. It was just
16 on-the-job training back when I went on the department.

17 Q Now, you got called back to the railroad after
18 about 18 months, didn't you?

19 A Yes.

20 Q At that time you all were working on diesels?

21 A Diesels.

22 Q What run were you making then?

23 A I worked, after I came back on the road from
24 Crewe to Norfolk, as a fireman on locals which was a train

1 that would stop at different locations on the road to do
2 industrial switching, and also we would have a train that
3 would take cars to Norfolk.

4 Q On that run from Crewe to Norfolk, tell the
5 Jurors what your duties would be as a fireman, what you would
6 do?

7 A On the locomotive, diesel locomotive, as a
8 fireman on the main line from Crewe to Norfolk, it was like a
9 co-pilot assists an engineer, didn't have to keep it hot
10 anymore.

11 You would call the signals or trouble-shoot
12 any trouble that you would have on the locomotives and call
13 out signals to the engineer and keep a lookout at your train
14 behind you and also the road ahead of you.

15 Q Would you ever be out of the cab where the
16 engineer and the firemen set?

17 A Yes. The firemen would go back. All depended
18 on how many locomotives you had in your consist. Sometimes
19 five, two, three, four, one and we would go back, even if you
20 didn't have any alarm bells ringing or lights, to just make
21 sure that each locomotive was functioning properly as far as
22 loading up and doing its job and safety checks for maybe any
23 fire, anything of that nature.

24 Q Let me ask you this. Were the cabs on the

1 diesels enclosed?

2 A Yes, they were enclosed. They had two sliding
3 windows that opened on each side and a door at each corner of
4 the cab on the freight type locomotives.

5 Q When you were using the diesels in the winter
6 and the summer, what would you do with the windows?

7 A Summertime you would keep them open.

8 Q How about the doors to the cab?

9 A In the summertime you would keep your doors to
10 the cab open also to get a cooler breeze coming into the
11 locomotive. We did not have air conditioning. It was very
12 hot.

13 Q How hot would it get in the engines?

14 A In the summertime the black locomotives would
15 get up to a hundred degrees I'm sure or better.

16 Q Now, let me ask you, when you were on the
17 steam engine was there noise?

18 A Oh, yes.

19 Q Would you describe the kind of noise you had
20 on the steam engines?

21 A The noise on the steam locomotives were louder
22 than on the diesels. You had, of course, a stack, the
23 chimney that the smoke was going out that would get the
24 driving forces, the pistons going in and out of the cylinders

1 of the driving rods hooked to the wheels, the metal on metal
2 and the end of the steam engine.

3 The company did not keep these locomotives up
4 to par like they had been years before because they knew they
5 was going to get rid of them, so they rattled big time. They
6 made a lot of noise.

7 Q Now, on the diesels did you have noise when
8 you were in the cab riding as a fireman?

9 A Yes.

10 Q Let me ask you if you can -- well, could you
11 explain to the Jurors what the major source of the noise was?

12 A Major source of the noise on the diesel
13 locomotives, we had huge diesel engines inside the car body
14 and they had stacks up on top. I think, if I remember
15 correctly, it was two.

16 And then the power of that diesel coming out
17 of those stacks and out of shutter doors and the fans and the
18 air brakes inside, the heaters, the whistle, was all quite a
19 bit of noise.

20 Q Now, as compared to the diesels and the steam
21 engines which were the noisiest?

22 A The steam engines were noisier than the
23 diesels.

24 Q Let me ask you this. On the diesels did you

1 have a means of increasing the speed on the trains,
2 decreasing the speed?

3 A Yes.

4 Q What was that, how did you do that?

5 A It is a diesel locomotive equipped with a
6 control stand that has a throttle and it has ten positions,
7 idle and then --

8 Q Are you any kind of artist at all?

9 A It is just a lever that slides around, you
10 know, and stops. You can feel it click as it goes into each
11 notch. I could possibly draw one if you would like.

12 Q That's all right. I think everybody
13 understands what you're talking about. Go ahead.

14 A It is a throttle that you just pull back from
15 one notch. You have eight notches this way to give you
16 power. There is one notch if you are in idle or number eight
17 notch if you have an emergency and you want to shut the
18 diesel power down, everyone in the consist, you pull it out
19 and push it forward and that would kill every unit in the
20 consist. Even if you had ten units, it would kill them all.
21 They are all interconnected.

22 Q Now, when you were using the notches, which
23 notch would be generating the most noise?

24 A Number eight.

1 Q Why is that?

2 A That is the most amperage that you can produce
3 on that locomotive. You rev the diesel locomotives up in
4 that notch more than any other notch.

5 Q Why was that, sir?

6 A I didn't hear you.

7 Q Why was it in the eight notch more than any
8 other?

9 A Due to the length of trains, which they were
10 very long, several miles some of them, some of them shorter.

11 Q How many cars would you have on an average
12 train?

13 A Well, that all depended on which job. The
14 local, short jobs that you stopped a lot at the different
15 terminals and did the switching, we would have anywhere from
16 25 to 75 cars. Our time freights, which was fast time
17 freight they wanted to get over the road, anywhere from a
18 hundred twelve to a hundred fifty cars.

19 And then we had coal trains -- I'm sure you
20 have all seen them going through Roanoke -- that we ran from
21 Crewe on to Norfolk. I have been on trains we had as many as
22 two hundred fifty cars.

23 Q Let me ask you this. Does the number of
24 engines have anything to do with the terrain and the tonnage

1 that you are pulling?

2 A Well, you have to have enough power, enough
3 locomotive to pull the tonnage. So depends on which terrain
4 or which division you're on how many.

5 Q Pull it at what speed?

6 A Well, sometimes you would never get over 30,
7 35 miles an hour even though you had 60 miles an hour on the
8 track because we were loaded down. You had a long train,
9 loaded, heavy and they had figured the amount of power that
10 they needed to get this train over the road, and that's all
11 they would give you.

12 Of course, they wouldn't give you anymore too
13 for another reason. If you got any more, the draw bars
14 between the cars would not stand the pressure and they would
15 break.

16 Q Let me ask you this. If you were up here in
17 the hilly terrain in the Shenandoah Division and you were
18 pulling 50 or a hundred cars, what kind of power would you
19 need, how many engines would you need in your consist?

20 A Well, if you were pulling a hundred cars, say,
21 and you had tonnage, which we had a tonnage rating of six
22 thousand tons, and you needed three diesel locomotives to
23 pull this tonnage over the terrain on this division, and
24 these locomotives were at least three thousand horsepower or

1 better.

2 Q If you were going to pull the same tonnage,
3 say, down in the flatlands of Crewe, how many engines would
4 you need?

5 A I could take one locomotive and pull six
6 thousand tons down there, a small unit.

7 Q How many horsepower?

8 A Eighteen hundred.

9 Q Huh?

10 A Eighteen hundred. You wouldn't get up a lot
11 of speed but you could move them.

12 Q Okay. When you were running the Crewe to
13 Norfolk run, how many years did you do that?

14 A Twenty.

15 Q How many runs a week were you making?

16 A I was working seven days a week during my
17 career as a fireman engineer. I would usually get off twice
18 a month for two days each time, so I worked an average of 26
19 days a month my entire career other than vacation.

20 Q How many hours a day would you be on trains?

21 A Twelve hours.

22 Q Let me ask you, between Crewe and Norfolk do
23 you have to blow the whistle on the train any?

24 A Yes.

1 Q What are the rules, operating rules of the
2 railroad with respect to blowing the whistle?

3 A The operating rules of the railroad tell you
4 that you have to blow the whistle at all public road
5 crossings that have a whistle board, and if you don't have an
6 ordinance in that area, not to blow.

7 But it is rare to find anyplace. I only know
8 one place on Norfolk, Virginia that had this and that was
9 Waverly, Virginia.

10 Q How many approximate crossings were there
11 between Crewe and Norfolk where you would have to -- not you,
12 but the engineer. You're a fireman, right?

13 A Right.

14 Q You didn't blow the whistle; the engineer did
15 that?

16 A Engineer blew the whistle.

17 Q How many crossings between Crewe and Norfolk
18 approximately, if you can recall, would the engineer have to
19 blow the whistle, and how many times would he blow the
20 whistle and for how long?

21 A There were 60 plus crossings on the Norfolk
22 Division that I worked on, and the engineer would have to
23 blow the whistle four times for each one of these crossings
24 as he approached to warn traffic or pedestrians of the train.

1 Q For what distance and for how long a period of
2 time?

3 A The whistle boards were different lengths.
4 Most of them 17, 18 hundred feet; some of them a little
5 shorter. In the absence of a whistle board you supposed to
6 start a quarter of a mile before you get there and you would
7 blow two longs or long, pause, long, pause, then a short,
8 pause, then a long. So this would cover time of 30 plus
9 seconds.

10 Q Times about 30 seconds each?

11 A Yes, sir.

12 Q I mean 30 seconds for the four?

13 A Yes, uh-huh.

14 Q And you did that about 26 days a week or 26
15 days out of month?

16 A Yes. Plus you asked me other than road
17 crossings back before we got radios -- I don't remember
18 exactly the year -- late sixties, early seventies we used the
19 whistle for signals.

20 Q What kind of signals did you use the whistle
21 for?

22 A Well, we only had the whistle to use as
23 communication. Our conductor and brakeman sometimes would be
24 two miles away, so we had different whistle sounds to tell

1 them what we wanted or and we used this many times back
2 during those days. That's the way we communicated.

3 Q Was there a particular type of engine that you
4 were on or different types of diesel engines that you were on
5 there?

6 A Yes. I worked on several types, but I worked
7 on a GP-9 over 50 percent of the time I worked for the
8 railroad. And, of course, I worked passenger trains some,
9 steam, other locomotives.

10 Q Would you step over to the Jury and show them
11 the engine that you were on 50 percent of that time and
12 explain to them some of the duties, how you got to get out
13 and walk around those diesel engines and what you had to do
14 to keep them running?

15 A This is a cab where the engineer and the --

16 Q Might be better if you moved down here a
17 little where everybody can see?

18 A You have a cab located in between the front
19 end and the rear end of these locomotives. Shorter distance
20 on one end than the other. And you have a platform with
21 railings all the way around the locomotive on the long hood
22 end and also on the short hood end.

23 You have two doors to go into this cab; one on
24 this side over here and one back here. Then you can see the

1 car body doors running up and down along here. That's where
2 we had our protection trip switches that would pop out or all
3 of them popped out.

4 And we would get alarms up in the cab, lights,
5 also bells ringing, and then it was my job to go back and
6 find out what the problem was. You would have to keep going
7 through the locomotives if you had five until you found the
8 one with the lights in it was usually dead.

9 Therefore, you would have to go out, isolate
10 the locomotive, go outside, open these doors and stick your
11 head in and crank it up, push it in again and reset them.
12 They also had a lay shaft located approximately right here,
13 which is a lever that's connected to the governor that you
14 can pull this and rev up the diesel locomotive.

15 Q Is this like the thing on the carburetor on my
16 car?

17 A Yes, little wire where you can rev your engine
18 up. You can do this with this also. Several times I would
19 have to, going over a mountain or something, we could have,
20 as employees, just stopped, but we would usually go the extra
21 mile and do anything we could to get over the road.

22 We were out there long enough as it was. We
23 didn't want to be out there any longer. I have stood out
24 there for 30 minutes on the mountain to hold that lever.

1 Q Do you pass by these diesel engines when
2 you're walking down that catwalk?

3 A You pass by them on the outside. The doors
4 are closed. You have to open the doors to see the diesel
5 engine itself.

6 Q When you're out there walking by could you
7 compare the volume or loudness of the engines when you're out
8 there as compared to being inside the cab in the fireman's
9 seat?

10 A It was a lot louder on the walkway compared to
11 inside the cab. In the cab you had walls to protect you.
12 Everything was open out there and exposure was a lot louder
13 at that location.

14 Q How about when you had to open those panels up
15 and stick your head down there?

16 A With diesel engine running full throttle
17 number eight. Let me give you a little comparison. If two
18 people stuck your head in there together, fireman and myself,
19 as road foreman, I couldn't talk to you it was so loud. We
20 would have to step back, close the doors and then yell to
21 communicate.

22 MR. CRANWELL: Your Honor, we will offer these
23 as Plaintiff's Exhibits One and Two.

24 THE COURT: Without objection?

1 MR. ODDO: No objection.

2 THE COURT: I will ask the Court Reporter to
3 mark those and they are admitted.

4
5 (Plaintiff's Exhibit Numbers One and Two were
6 marked for identification and entered into the
7 Record.)

8
9 BY MR. CRANWELL:

10 Q Now, Mr. Puryear, in addition to the GP-9s did
11 you operate on any other diesels?

12 A I worked on the Alco diesel locomotives.

13 Q A --

14 A A-L-C-O.

15 Q Okay.

16 A From approximately ten percent of the time
17 that I was in engine service.

18 Q And where did you operate that engine?

19 A On the road between Crewe and Norfolk.

20 Q Is it similar in nature to the GP-9?

21 A In horsepower and appearance it was a little
22 different. Different company made these locomotives. They
23 were a lot louder than the GP-9 just due to the noise that
24 they made was like a thrashing machine. We called them

1 International Harvesters because they made so much noise.

2 Q Would you have the same responsibilities as a
3 fireman on that as you would on --

4 A Yes.

5 Q Would you still have to go down the catwalks,
6 pass by the diesel engines?

7 A Yes.

8 Q Would you still have to get down in the shells
9 and open them up and stick your head down where the motor was
10 to set trip switches and things?

11 A Yes.

12 Q Did they have whistles on them? Did you have
13 to blow the whistles?

14 A Yes.

15 Q Now, you got, as a fireman you had to get out
16 and move around?

17 A Yes.

18 Q Was it unusual to get caught outside with the
19 whistle blowing?

20 A No.

21 Q Why was that?

22 A When you're running on the road and you have a
23 problem and you're the fireman, you go back to check a unit,
24 of course you lose location where you are. You're not

1 worried about that. Engineers is up there taking care. Lots
2 of times brakeman will still be up there too.

3 There is two men. When you would come back or
4 went in there, blow the whistle when you go out the door if
5 the whistle board was there. Also I would get caught more
6 coming back due to running 35, 40, maybe 50 mile an hour.
7 Sometimes you would have your head down.

8 Q When you come back to the cab?

9 A I would have my head down and when I get to
10 the door I would reach up, start to open the door to step up.
11 Whistle being above me, maybe at a road crossing, and he
12 would blow the whistle and this happened many times.

13 Q What would you do to try to protect yourself
14 then?

15 A First you would jerk away from the sound and
16 put your fingers over your ears.

17 Q Did you work on any other engines other than
18 the Alco?

19 A I worked on passenger units, covered wagons.

20 Q Tell us about covered wagons?

21 A The covered wagons are a little bit more
22 streamlined than the freight locomotive. They built a shell
23 completely around the outside of the diesel locomotive. When
24 you had to go back, you had to go inside with the diesel

1 locomotive and it was much louder than the old covered
2 wagons.

3 This was on the -- I did work on the older
4 type covered wagons some like the ones that they are looking
5 at. Mostly it was on the Amtrak locomotives which were a lot
6 more horsepower and a lot noisier than the old 1500
7 horsepower.

8 Q Were they enclosed similar to these?

9 A Yes. You would have to walk inside next to
10 the diesel engine itself and it was all enclosed.

11 Q You want to show the Jurors what you're
12 talking about and tell them where you would have to walk?
13 Show them.

14 A This is the diesel engine itself and your
15 walkway, you would come down through here. This is an old
16 passenger. This is a steam generator back here. You come in
17 the door up here and go all the way back to check this one if
18 you have to.

19 Other times you come back, reset a button or
20 what have you or just make a safety check. Go back, see if
21 there is any fires or what have you or any leaks, oil leaks.
22 Any of these covers could be lose and check these things out
23 on each trip several times.

24 Others same thing, just shows the outside.

1 This is where you would go when you on the inside.

2 MR. CRANWELL: Three, four and five.

3

4 (Plaintiff's Exhibit Numbers Three, Four and
5 Five were marked for identification.)

6

7 BY MR. CRANWELL:

8 Q Now, was there another diesel engine that you
9 worked on?

10 A Another one was the 8500. There was a number
11 of them. It was a GE locomotive 35, 3600 horsepower.

12 Q Would that be the GEC36-7?

13 A Yes.

14 Q Where did you spend most of your time working
15 on a GEC36-7, the 8500 series?

16 A In the cab with the engineer and the fireman.

17 Q On what run did you do it most on?

18 A That was on through freights on the Shenandoah
19 Division.

20 Q That was after you transferred to Roanoke?

21 A Yes.

22 Q How frequently would you -- were you doing
23 road runs when you were running on this diesel engine?

24 A I would average three days a week.

1 Q Now, tell us about this particular engine.
2 Was there anything unusual about them when you all first got
3 them?

4 A The first thing that we noticed when getting
5 on it was a different design from the General Motors, and it
6 was a little bit more difficult to get up on and what have
7 you.

8 But as soon as we started a road trip and blew
9 the whistle, that was the big difference. The whistle was
10 located right up above our heads over the cab and it was
11 loud. It would ring your ears when the engineer would blow
12 it if you don't didn't know he was going to blow it.

13 Q You were a road foreman then?

14 A Yes.

15 Q Did you get any complaints from your engineers
16 and firemen about it?

17 A Yes, I did.

18 Q Did you report those complaints to the
19 railroad?

20 A Yes, I did.

21 Q Do you recall about when that would have been?

22 A That was all during the six year period from,
23 say, '81, '82 up until '87 when I retired.

24 Q Did you ever ride on a GE 8500 C36-7 where the

1 horn wasn't located right above the cab in your entire seven
2 years that you road on them?

3 A No, I did not.

4 Q Do you know whether or not the railroad had a
5 plan to relocate the horns?

6 A I was told by roundhouse foreman when I went
7 to talk to him about the location of whistle and everybody
8 was complaining. He said, "Yes, I know." He says, "There is
9 a plan," and, of course, I didn't see it, "to move the horn
10 further up over the diesel engine itself." And I told him,
11 "Well, that's good because it is really loud and everybody is
12 complaining."

13 He said, "But they are not going to do this
14 until that locomotive comes into the roundhouse for
15 inspection and we have the facility here at Roanoke to change
16 it." I asked him what about other places, had other
17 facilities over the system. Said "We going to wait and order
18 everything that they need and get it in Roanoke and do them
19 when they came in there."

20 Therefore, they may have changed some after I
21 talked to him, but I never road one that had been moved. And
22 I don't know if any were moved before I retired in 1987.

23 Q Could you describe the sound of the horn,
24 whistle, whatever you want to call it?

1 A It was just so loud that you just couldn't
2 stand it. I mean, if you weren't expecting it, didn't get
3 your fingers up to protect yourself, you would jerk your head
4 away from it at the window and immediately put your fingers
5 in your ears or lean up behind the partition so you wouldn't
6 get such a blast.

7 I don't know how loud it really was, but it
8 was the loudest whistle that we had.

9 Q How many crossings are there between Roanoke
10 and Shenandoah?

11 A Sixty plus.

12 Q Would I understand then you were replicating
13 about 240 blasts a trip?

14 A Yes.

15 Q How long would they be?

16 A About 40 plus, 30 plus, maybe a little longer.
17 Trains were slower in the mountain. Take them longer from
18 the -- they started blowing until they covered the mountain,
19 so at least 30 plus seconds.

20 Q These engines, are all these engines
21 controlled by this notch throttle that you explained earlier?

22 A Yes.

23 Q What percentage of the time would you be
24 running these engines in the eighth notch?

1 A Eighty to nine percent of the time.

2 Q Was that true on the Shenandoah as well?

3 A Yes.

4 Q Did you prepare, Mr. Puryear, a summary of
5 your work history at the railroad?

6 A Yes.

7 Q And is this a typed version blow up of the
8 work history that you prepared?

9 A Yes.

10 Q Would you just briefly -- it will be a little
11 bit repetitious, but would you just briefly take the Jurors
12 through it and tell them what engines you were working on and
13 what you were doing from 1985 through 1987?

14 MR. CRANWELL: You have got a copy of that,
15 Kevin.

16 THE WITNESS: Number one, I worked several
17 years on N & W steam engines as a fireman for average
18 of 12 travel hours per trip. Had a maximum hours
19 that we could work, 16 hours and the government made
20 us -- the Federal Railroad Administration laws would
21 not allow us to operate a train over 16 hours and
22 then we would have to get eight hours rest.

23 I did this an average of -- I was off an
24 average of four days a month including vacations.

1 I work regular. I worked seven days a week one time
2 six months without having a day off up to 16 hours
3 everyday. So I worked an average of 12 hours per
4 trip. Then I was furloughed for a short time on the
5 Police Department.

6 From 1961 to 1975 I came back as a fireman
7 on the Norfolk and Western Norfolk Division from
8 Crewe to Norfolk. I worked 98 percent of the time as
9 fireman and worked an average over ten travel hours
10 per trip. They changed it from 16 to 14 and then
11 down to 12 and still is 12 as far as I know.

12 But I worked an average of ten travel hours
13 per trip, 12 hours a day. Same time off, four days a
14 month and I would have some vacation. I worked on
15 the GP-9s 50 percent of the time because I preferred
16 the job that these locomotives were on.

17 Then I worked ten percent of the time on
18 Alco's which was on the same job that I liked
19 sometimes. And then I worked on the passenger engine
20 of the covered wagons between '72 and '75. I had
21 enough seniority that I could work on these passenger
22 trains. They were preferred jobs for some people.
23 They didn't pay as much money and you weren't on duty
24 as long. I didn't get on them sometimes when I stood

1 for them.

2 I worked those, I would say 60 trips, in my
3 railroad fireman engineers career. Then I was
4 promoted in '75 to N & W road foreman of engines for
5 the Shenandoah Division, which the division goes from
6 Winston-Salem, North Carolina to Hagerstown, Maryland
7 and my office was here in Roanoke. Had a hundred
8 twenty, hundred twenty-one miles to Winston-Salem and
9 a hundred six miles from Shenandoah to Hagerstown,
10 Maryland.

11 Worked an average three days per week as
12 road foreman on these trains -- other times I was in
13 the office -- trains with radar making efficiency
14 checks, checking for speed on curves or track speed.
15 The GE C36-7 was a General Electric locomotive that I
16 would average working on this one road trip per week,
17 maybe a little more.

18 These locomotives were assigned to this
19 part of the Norfolk Western system more so than out
20 west. I don't know the reason for that.

21
22 BY MR. CRANWELL:

23 Q Does that accurately reflect the work history
24 that you had with the railroad between 1955 and 1987?

1 A Yes.

2 Q Does that accurately reflect the time and the
3 engines that you were working on?

4 A They were the main ones that I worked on, and
5 I worked on others also. But these were the ones that I
6 wrote up for the test to be made.

7 MR. CRANWELL: Your Honor, we would move to
8 introduce this as Plaintiff's Exhibit Number Six.

9 MR. BROWN: Object to that. The man testified
10 to all these facts twice. He has referred to it on
11 the board once. To introduce it as an exhibit is to
12 emphasize that portion of the evidence above other
13 portions of the evidence. I don't think that's
14 proper.

15 THE COURT: Believing it to be in the
16 discretion of the Court whether or not to admit
17 exhibits, I overrule the objection and admit Exhibit
18 Six. Three, Four and Five are also admitted.

19
20 (Plaintiff's Exhibit Number Six was marked for
21 identification and Exhibits, Three, Four, Five and
22 Six were entered into the Record.)

23
24 MR. CRANWELL: May I make an objection also,

1 not to this exhibit. It is my understanding that
2 Mr. Oddo is going to do the cross-examination of this
3 witness and handle this witness. I don't want to be
4 double-teamed by these lawyers over here.

5 Whichever is going to deal with the witness
6 needs to state the objection and deal with it. I
7 don't want Mr. Brown up unless he is going to do the
8 cross-examination. I assume now he is going to take
9 the cross-examination of Mr. Puryear since he decided
10 he is going to participate as an objection to the
11 witness.

12 THE COURT: As a general rule of practice I
13 think whoever is going to cross-examine ought to make
14 the objections on the witness's testimony.
15 If Mr. Oddo is going to cross-examine, he should be
16 the one making the objections.

17 MR. BROWN: I will defer to Mr. Oddo
18 hereafter, Your Honor.

19
20 BY MR. CRANWELL:

21 Q Mr. Puryear, in your earlier testimony you
22 have indicated that you were exposed to noise inside the cab,
23 when you were out on the catwalks, when you had your head in
24 the engine and the whistles; is that correct?

1 A Yes.

2 Q Have you done an exhibit that reflects the
3 time on a normal run on the various engines of which you
4 would be exposed to the noise being emitted as those various
5 locations?

6 A Yes.

7 Q I ask you to take a look at that and see if
8 you can identify that for us, sir?

9 A This is the exhibit that I gave the times and
10 everything for the chart to be made.

11 Q Okay. Does that accurately reflect the times
12 that --

13 A The minimum times.

14 Q Okay. Could you run us through that chart and
15 tell us with each engine as to the what the normal number of
16 minutes of a run was and where you were exposed to various
17 levels of noise?

18 MR. ODDO: Judge, it says what it says. Do we
19 have to read it and then give it to the Jury?

20 THE COURT: Would you like me to see it so I
21 can better understand?

22 MR. CRANWELL: Yes, Your Honor.

23 THE COURT: I will let Mr. Puryear testify to
24 this and I will thereafter rule on whether this is

1 admissible in evidence.

2 MR. CRANWELL: All right.

3
4 BY MR. CRANWELL:

5 Q Mr. Puryear, let's start with the EMD F-7
6 engine. Would you tell the Jurors which one that was in your
7 earlier testimony and what the time of the trip was that you
8 took?

9 A This was the covered wagon or the streamline
10 passenger locomotive, and the trips were much shorter on this
11 train. And I was on duty average of two hundred ten minutes.

12 Q How long does that translate that into?

13 A Three hours and 30 minutes.

14 Q Okay.

15 A Then I was located on the outside walkway
16 seven minutes average, a lot longer, sometimes a little less.
17 Then the engine center right beside the diesel locomotive,
18 inside the car body 20 plus seconds.

19 Q I notice you have got in that .33 minutes. Is
20 that a third of a minute?

21 A Yes. The GP-9.

22 Q Well, how about the whistle and the horn when
23 you were in the seat or on the walkway?

24 A That's 27.5 or twenty-seven and a half

1 minutes.

2 Q That would be roughly 240 horn blasts for a
3 trip where you cross the 60 crossings?

4 A Yes.

5 MR. ODDO: I object to the leading questions,
6 Your Honor.

7 MR. CRANWELL: That was leading, absolutely,
8 Your Honor. I apologize to my worthy advocate. That
9 was a leading question.

10
11 BY MR. CRANWELL:

12 Q Would you explain to us how you arrive at the
13 27.5 minutes of exposure for the run, sir?

14 A That was the blowing of the whistle for a
15 railroad crossing 60 plus times, four blasts each time. That
16 was what amounted to twenty-seven and a half minutes for the
17 trip.

18 Q Now, how about on the GP-9s?

19 A GP-9, I was in the cab six hundred minutes or
20 ten hours per trip. I was out on the walkway 30 plus seconds
21 going from locomotive to locomotive by doing problems and
22 engine walkway, passing by the diesel locomotive and the
23 whistle up above, 20 plus seconds, and right at the engines
24 center beside the diesel engine, 30 seconds.

1 On the GEC 36-7 were the large horsepower
2 locomotives.

3 Q Let's come back before you get to that, on the
4 engine walkways was that 20 seconds or 20 minutes?

5 A Twenty minutes.

6 Q Explain to them why it would be 20 minutes on
7 a ten hour run?

8 A You would have to go outside of the diesel cab
9 where you rode two or more times each trip trouble-shooting
10 or just checking on your power. And you spend more time out
11 on these because we would usually have more than two
12 locomotives.

13 You would have three, four or five of these.
14 So you would have to go all the way through them and come
15 back. So that takes longer. So 20 minutes out there on
16 those type units.

17 Q How about the GEC 36-7?

18 A Same amount of time on the road, six hundred
19 minutes or ten hours. And road crossings the same, 29
20 minutes plus and whistle horn and walkway, 30 seconds walking
21 outside. Engine walkway outside time all together was 15
22 minutes, and then center of the engine beside the diesel
23 locomotive was 20 or 30 seconds.

24 Q Now, Mr. Puryear, you worked at all this for

1 over a period of about 20 years; is that right?

2 A Thirty-two years.

3 Q Well, excuse me, thirty-two years.

4 MR. CRANWELL: Your Honor, I would move to
5 introduce this as Plaintiff's Exhibit Number Seven at
6 this time?

7 THE COURT: If there is an objection, we will
8 take up admissibility next time the Jury is out.

9 MR. CRANWELL: Okay.

10 MR. ODDO: There will be an objection.

11 THE COURT: I understood that.

12 MR. ODDO: Just for the Record.

13
14 (Plaintiff's Exhibit Number Seven was marked
15 for identification.)
16

17 BY MR. CRANWELL:

18 Q Mr. Puryear, as the division road foreman, was
19 that considered a management position or a labor position?

20 A Management.

21 Q Were you ever at any time during the time that
22 you were division road foreman or road foreman told whether
23 or not the railroad thought there might be excessive noise
24 and the workers might be exposed to excessive noise?

1 A I never knew it the entire time.

2 Q Were you ever given any hearing protection?

3 A No.

4 Q Did anybody ever tell you that you could have
5 hearing protection if you wanted it?

6 A Not on the railroad they didn't, no.

7 Q Did you ever hear the words hearing
8 conservation program?

9 A I never knew anything about any of them.

10 Q Were you ever aware that the N & W had made
11 hearing protection mandatory in its shcps over here in 1984?

12 A I didn't know that either.

13 Q Were you aware that they made hearing
14 protection mandatory over in their materials yards over in
15 '85? Did they ever tell anybody about that?

16 A No.

17 Q Did they ever give you any training in hearing
18 protection?

19 A No.

20 Q Did they ever show you any of the films they
21 were showing to yard people or material people?

22 A No.

23 Q Did they ever tell you such films existed?

24 A No.

1 Q Did the railroad ever perform any hearing
2 tests on you while you were employed?

3 A No.

4 Q Did you have to have an annual physical?

5 A I can't recall after I became a road foreman
6 if I did or not.

7 Q What about when you were a working man?

8 A We would have to have an eye test, hearing
9 test. Somebody would say "Did you hear me?" But we took no
10 actual test really for that.

11 Q Did they ever put you in a booth, put the ear
12 phones on you and do an audiogram?

13 A No.

14 Q Did you know they were doing it to other
15 employees at the railroad?

16 A No, I did not.

17 Q Did anybody at the railroad ever provide you
18 any education or any warnings that exposure to high levels of
19 noise on the job could cause hearing loss?

20 A No, they did not.

21 Q Mr. Puryear, when did you first suspect that
22 you might have a hearing loss problem?

23 A When I went to Doctor Sydnor in January of
24 1987.

1 Q What was it that caused you to go to see
2 Doctor Sydnor in January of 1987?

3 A In the latter part of '86 I went to Doctor
4 Ford's office -- he is the medical director for Norfolk and
5 Western Railroad in Roanoke -- on some company business.
6 I didn't go to see him for myself. I had to talk to him
7 about another employee.

8 I was in there and I was talking to him, and I
9 mentioned that I had ringing in my ears. And Doctor Ford
10 sort of chuckled. He said, "Yes, me too." Says, "I have got
11 it and I got mine from helicopters in Vietnam."

12 We talked a little bit about other things and
13 I left and came back a few days or a week later and told him
14 my ears were still ringing, they haven't let up. He says
15 "Well, I don't think they will, but you should go to our
16 specialist, Doctor Sydnor, and have a hearing test made,"
17 which I did.

18 Q When did you see Doctor Sydnor; do you recall?

19 A It was in, I think, January of 1987.

20 Q Was that the first time you ever learned that
21 you had a hearing loss?

22 A Yes.

23 Q Did you get any further medical treatment or
24 tests after that?

1 A I went to Doctor Renick here in Roanoke and
2 the results were the same. I got the same answer from him
3 that I did from Doctor Sydnor. And I also had tests made in
4 Chesapeake, Virginia, Doctor Powell. And the Norfolk and
5 Western, they wanted me to go to Charlottesville and have
6 tests made up there, which I did.

7 Q Who did you go see up there?

8 A I can't remember his name. I think it started
9 with an L.

10 Q Was it Doctor Lambert?

11 A Yes, that's it.

12 Q Was that an examination as a part of this
13 litigation?

14 A Yes.

15 Q Mr. Puryear, would you tell the Jurors some of
16 the things that you enjoyed doing, say, back in 1984, '85,
17 '86, '87, the kind of lifestyle you lived?

18 A During that time I belonged to a country club
19 here in Roanoke and would go out with couples, friends, my
20 wife, myself and have dinner or go to restaurants and enjoyed
21 doing this very much and played some golf and watched a lot
22 of television and worked on the railroad.

23 Q Did you ever go to movies?

24 A Once in awhile, very seldom.

1 Q Very seldom.

2 Q Now, tell us the Jurors what are the principal
3 problems that you experience today with your hearing?

4 A I have difficulty understanding people when
5 there is background noise, a lot of people around. On the
6 telephone when you have background noise I cannot hear well.
7 I have to go -- I have a portable phone. I will get
8 somewhere where it is quiet.

9 Television, in Florida is the main place
10 because, as you know, windows stay up year round. And any
11 outside noise or anything I have difficulty hearing inside my
12 apartment. And so I took my TV to a television shop and had
13 them put a jack plug on the side that I can use earphones,
14 plug it into it and listen to the TV program. And I have an
15 adjustment on the two wires that come up to your ears to
16 control the volume so I can enjoy the television. I couldn't
17 do it without that because of outside noise.

18 Q Do you go out to restaurants now?

19 A I haven't been out to a restaurant in a pretty
20 good while.

21 Q Why?

22 A Well, I can set at the table with friends and
23 everything. I can't understand what anyone is saying, so
24 much chatter around from other people. I'm setting there

1 shaking my head even if I don't hear them because I'm
2 embarrassed about it. I have to ask "what did you say" over
3 and over, so I just quit going out with them.

4 Q Do you have any grandchildren?

5 A Yes.

6 Q How old are they?

7 A Fourteen, and 11.

8 Q Boys, girls?

9 A Boys.

10 Q Do you have trouble communicating with them?

11 A With background noise I can't hear them very
12 well and then the pitch of their voice doesn't -- I don't
13 understand them clearly either. Even my younger relatives,
14 my niece's children, nephew and niece, they have got five
15 kids between them and they are seven and below. I have a
16 difficult time understanding them too and I'm around them
17 some but not a whole lot.

18 Q Why are you not around them a whole lot?

19 A Well, of course, part of them live in Richmond
20 and I don't get over there that much. And the other two are
21 at my sister's house quite a bit and I visit and when I am
22 there.

23 When they are talking to me, I don't
24 understand them. I'm asking what they said and they don't

1 understand that. So I don't see them that much anymore.

2 Q Mr. Puryear, what problems does the ringing in
3 the ear create for you?

4 A Big time. It is continuous and it is loud, 24
5 hours a day. And it has been ringing now since latter part
6 of '86. It keeps me from going to sleep. I can't get to
7 sleep and when I do --

8 Q Let me ask you something, just to be real
9 quiet for a minute. You can hear the ringing now, can't you?

10 A I really can.

11 Q But when I am talking you don't pay much
12 attention to it, do you?

13 A It still aggravates me, but I can forget it
14 about it for a second or while you're talking.

15 Q What about when you get in bed at night?

16 A That's a difficult time because it is quiet
17 and I have a hard time getting to sleep. And then if I go to
18 sleep and get two or three hours rest and something wakes me
19 up, then I have the same thing to go through again. So,
20 therefore, I haven't been getting good rest for quite a few
21 years now.

22 Q Kind of take us through a normal night for
23 you, sir?

24 A Average night I will go to bed at ten o'clock,

1 10:30 and I will lay there and toss and turn for sometimes
2 two hours and eventually drop off to sleep and usually wake
3 up at least once a night.

4 I don't stay awake as long then as I do at the
5 first part of the night. Maybe I don't wake up fully, but I
6 go back to sleep then and sleep a couple more hours. I get
7 up and then, of course, I'm dragging the rest of the day most
8 days.

9 Q Now, you are currently being treated by Doctor
10 Frazier, a psychiatrist, for depression; aren't you?

11 A Yes.

12 Q You were sitting here in the courtroom when
13 Mr. Kevin Oddo made his opening statement. Would you tell
14 the Jurors how it is you happened to see Doctor Frazier?

15 A An employee of mine back when I was in engine
16 service mentioned Doctor Frazier, that he had been going to
17 him for his problems and that he liked him. And I had told
18 him a little bit about what I was going through and he said
19 maybe he could help you.

20 Q Does he have a hearing loss?

21 MR. ODDO: Objection, Judge; that's
22 irrelevant.

23 THE WITNESS: As well as I remember this
24 gentleman had several problems and one of them was

1 hearing loss.

2

3 BY MR. CRANWELL:

4 Q Do you know how long you have been seeing
5 Doctor Frazier now?

6 A I don't remember the first time, what the date
7 was that I had been to him, but I would say approximately six
8 times. And I started going to him more after I went to
9 Doctor Powell and realized -- I kept living on hope until I
10 went to him that this was going to clear up that I wouldn't
11 have it anymore. He told me I had to live with it the rest
12 of my life and then I really went depressed then.

13 Q You heard opening statements about your
14 domestic problems --

15 MR. ODDO: I object to the form of these
16 questions; argumentative.

17 THE COURT: Overruled.

18

19 BY MR. CRANWELL:

20 Q Did you give Doctor Frazier a complete history
21 about your domestic life?

22 A Yes.

23 Q And was that at his request?

24 A He just let me talk about my life.

1 Q Now, you had some problems with your domestic
2 life; haven't you, sir?

3 A Yes.

4 Q How are you getting along with your former
5 spouses today?

6 A My former spouses?

7 Q Uh-huh.

8 A I have no communication with them. I haven't
9 talked to any of them in years.

10 Q Okay. You all don't have any consternation or
11 anything, no custody fights, no support fights?

12 A No.

13 Q Are you taking any medication?

14 A Yes.

15 Q What medications are you taking?

16 A I went to Doctor Frazier back before I went
17 back to Florida last year, and he suggested that I go to my
18 medical doctor in Florida and talk to him about a
19 prescription of Paxil, no Prozac.

20 I did, and Dr. Smith, my medical family doctor
21 in Florida prescribed it for me and I took it for awhile but
22 I stopped taking it because I was too jittery and I was
23 worried about the after effects, what it would do to me down
24 the road.

1 So I stopped and started trying to cope with
2 things like they were until I got back to Virginia and went
3 to Doctor Powell. And then after he told me that I had to
4 live with this ringing and depression, I went back to Doctor
5 Frazier again and he prescribed me Paxil. I have been taking
6 that since then and it has helped me somewhat cope with
7 things.

8 Q How many tablets a day do you take?

9 A I take 30 milligrams a day. That's three
10 tablets.

11 Q What time of day do you take them?

12 A I take them in the mornings first thing after
13 I eat something.

14 Q Okay.

15 A Correction. A tablet-and-a-half. They are 20
16 milligrams. I break one in half so I take one-and-a-half
17 tablets in the morning.

18 Q Now, Mr. Puryear, you also have a girlfriend,
19 don't you?

20 A Yes.

21 Q You all getting along all right?

22 A We have been doing okay, no problem.

23 Q Do you all go out places?

24 A No, same problem, you know. I'm embarrassed

1 and can't hear anything. We go out riding up on the parkway,
2 what have you. But I don't go around other people. Maybe
3 twice in the past four years.

4 Q Mr. Puryear, I want to come back just very
5 briefly to the, I guess it's the Alco or the 8500, one of
6 those engines. Which one of them would you have run most
7 with the door to the engine room open?

8 A You're speaking of the covered wagon. That's
9 the passenger locomotives that had the diesel engine
10 enclosed. Are you talking about the diesel engine room door?

11 Q Yes, sir.

12 A That was on those units. We ran with it open
13 50 percent of the time I would say.

14 Q Why would you leave that door open?

15 A It was also hot on the passenger locomotives.
16 We did not have any air conditioning, and with the diesel
17 room door open and the back door at the end of the locomotive
18 that leads outside, you could leave those doors open and you
19 would get a draft so to speak coming through the window.

20 Or we crack our doors and put a flag stick in
21 it to get air in the door, and it would create a breeze and
22 also was convenient to watch what was going on back in the
23 engine room because you could see by leaning out of your seat
24 and looking back through the door.

1 And also we had the older covered wagons and
2 the blocks and latches on those doors weaken and if I you
3 close it, most of the time it would jar open and we wouldn't
4 bother to get up to close it.

5 MR. CRANWELL: Your witness.

6 THE COURT: Before cross-examination, we have
7 been in the courtroom for something over an hour and
8 a half. I think this would be a good time to take a
9 recess.

10 Ladies and gentlemen of the Jury, if you
11 will go with the deputy sheriff we will take ten or
12 15 minutes.

13
14 (The Jury was excused from the Courtroom at
15 2:33 p.m. and the following took place in the
16 presence of the Court and Counsel.)

17
18 THE COURT: Do want to break before we discuss
19 the admissibility of Plaintiff's Seven? Either way.
20 Mr. Puryear, you can step down if you like.
21 Mr. Oddo, state your objection.

22 MR. ODDO: I have several objections to this
23 exhibit. There is some extraneous matter on here.
24 As you can see it talks about 115 DBA exposure. I

1 think that's on there three times. It is also my
2 understanding this is going to be an exhibit that
3 will be used by Doctor Campanella who is going to
4 have some other columns on here with some other
5 information. We are just going to keep seeing the
6 same thing over and over again.

7 MR. CRANWELL: If it is really that big of a
8 deal, I will put it in through Doctor Campanella.
9 The testimony is already in. If he prefers I can
10 sanitize the extraneous material on it. It is not
11 going to be the end of the world one way or the
12 other.

13 THE COURT: Let the Record reflect that the
14 Plaintiff's has withdrawn Plaintiff's Exhibit Seven.
15 Anything else you want to take up before we take a
16 brief recess?

17 MR. ODDO: No, sir.

18 THE COURT: We will stand in recess.

19
20 (A recess was taken.)

21
22 (The Parties returned to the Courtroom and
23 the following took place in the presence of the Court
24 and Counsel.)

1 MR. CRANWELL: Your Honor, are lawyers
2 permitted to have a change of heart?

3 THE COURT: Heart and lawyers in the same
4 sentence?

5 MR. CRANWELL: Change of mind.

6 THE COURT: Go right ahead.

7 MR. CRANWELL: No, that's all right. I will
8 put the exhibit in by Doctor Campanella, and I may
9 call Mr. Puryear briefly after the exhibit and
10 everything to verify the numbers. I don't want to
11 take anymore time.

12 You have got to take the stand. I was
13 going to go back to that exhibit. I know how I will
14 do it.

15 THE COURT: Okay. Before the Jury comes in,
16 two passing comments not worthy of being on the
17 Record, but we are on the Record. The reason for my
18 gesture, Mr. Cranwell, was I think that when you're
19 that close to a jury and you're speaking that loudly
20 to a witness, it causes discomfort.

21 Likewise, when you came through the Jury
22 box, I think it causes discomfort, and I think the
23 last thing the trial advocate wants to do is make a
24 juror uncomfortable. Your judgment entirely from

1 advocacy point is every bit as good as mine.

2 MR. CRANWELL: I didn't take it as a
3 criticism. I apologize. It was unintentional. I do
4 think you were appropriate to suggest to me that I
5 needed to move.

6 THE COURT: Ready for the Jury and the
7 cross-examination?

8 MR. ODDO: Yes, sir.

9 THE COURT: I think we no longer have either
10 of the Jurors who have six o'clock deadlines, but I
11 still think probably on the first day of trial we
12 ought to be somewhere in the five o'clock ballpark.
13 Do you agree, Mr. Cranwell?

14 MR. CRANWELL: Yes, I agree.

15 MR. ODDO: We were talking about getting
16 through this witness and Doctor Campanella today.

17 THE COURT: All right. We will see what
18 happens.

19 MR. CRANWELL: Judge, we will make Doctor
20 Campanella spend the night if the Court chooses.
21 Do you want everybody to go early?

22 MR. ODDO: I don't plan on too extensive a
23 cross-examination.

24 MR. CRANWELL: If he is not very long, we may

1 get through by 5:30.

2 THE COURT: I was thinking about the first two
3 hours of direct.

4 THE SHERIFF: The Jury is present, Your Honor.

5 THE COURT: Thank, you sheriff. Mr. Oddo, you
6 may cross-examine.

7 MR. ODDO: Thank you, judge.

8

9 CROSS EXAMINATION

10

11 BY MR. ODDO:

12 Q Mr. Puryear, it is true, is it not, that you
13 wore hearing protection for a time when you worked for the
14 railroad on the job?

15 A Yes. After the January appointment in 1987
16 with Doctor Sydnor he told me that I should protect my ears
17 while on duty or any other time to keep from having anymore
18 hearing loss?

19 Q No one at the railroad prevented you from
20 wearing the ear plugs; is that right.

21 A No.

22 Q You were not aware of any rule that said you
23 were not allowed to wear ear plugs?

24 A I didn't know of any rule.

1 Q You mentioned earlier when you were in the Air
2 Force being tested on the guns you wore hearing protection at
3 that time?

4 A Yes.

5 Q You knew, obviously, at that time the purpose
6 was to help reduce the noise; isn't that right?

7 A From the rifle fire.

8 Q That's right. You knew that at that time?

9 A I gathered that, you know. I was only 19 and
10 I figured that was hearing protection.

11 Q Sure. And isn't it true that you actually
12 started having problems with your hearing in the Spring or
13 the early Summer of 1986 and not in January of 1987?

14 A I was not aware of any hearing loss until I
15 went to Doctor Sydnor in January of '87.

16 Q I'm not asking you whether anybody ever
17 actually told you you had a hearing loss. Isn't it true that
18 you yourself knew that you were having trouble hearing as
19 early as the Spring and Summer of 1986?

20 A I don't remember anything about having any
21 problems back then other than a couple times the -- my home
22 was open to the yard and I had a television downstairs and I
23 would spend some time down there watching, and a couple times
24 the children would say something to me about the TV being

1 loud.

2 Q That was in the 1970s, wasn't it, actually?

3 A I don't remember when it was. No. Well, I
4 don't remember.

5 Q Well, let's put it this way. In the first
6 part of 1986 you started noticing that something must be
7 wrong with your ears?

8 A I don't recall.

9 Q Well, do you remember when your deposition was
10 taken in this case on October 17, 1991?

11 A Yes.

12 Q And at page 68, line one, weren't you asked
13 the following question and didn't you give the following
14 answer. "Question: When did you first notice that you had
15 to start saying to people 'What did you say? Would you
16 repeat that?"

17 Your answer was "I can't recall because when I
18 first started, but I didn't realize, you know, that -- didn't
19 pay any attention that I may have been doing that. In 1986,
20 the first part of that year I started noticing something must
21 be wrong with my ears. I am not hearing that well. I have
22 to ask people to repeat, you know, especially if there is
23 other noise around."

24 Did you not give that testimony in your

1 deposition?

2 A Evidently I did, but I don't recall.

3 Q Certainly that was true at the time; was it
4 not? You were under oath?

5 A I evidently mentioned something in there about
6 I was having some problems with other people around, but I
7 didn't know that I had any hearing loss.

8 Q You knew that something must be wrong with
9 your ears?

10 A I didn't know that I had any hearing loss.
11 That's all I can say.

12 Q You gave that testimony; did you not, sir?

13 A Did I say in the testimony that I was having
14 problems and that I knew I did?

15 Q Yes.

16 A I don't remember saying that.

17 Q Well, that's what I just read to you. That's
18 what your testimony was. Do you want to see it?

19 A No, I'm fine with what you said.

20 Q Okay. We can agree on that. You knew that
21 what was causing you to have this problem was the noise at
22 work or the alleged noise at work, the horns?

23 A I didn't have any idea that was causing my
24 problem.

1 Q Didn't you associate your problems with the
2 level of noise at work?

3 A No.

4 Q Didn't you think that the level of noise at
5 work was so great that it couldn't be good for you?

6 A I never give it any thought. I figured a
7 company like Norfolk and Western spends three million dollars
8 for a locomotive, they weren't going to put you out there in
9 an unsafe environment for you to work to cause hearing loss.
10 I had no idea that that type noise of those locomotives would
11 cause any problem.

12 Q Didn't you testify, and again, I'm at the same
13 deposition page 125. Question was "Why then back in 1982 and
14 '83 approximately when the GE 8500s came on board were you
15 concerned that the men were complaining of noise, that their
16 hearing might be damaged?"

17 Your answer was "Because it was so extreme,
18 and the volume so great it couldn't be good for you. It
19 would really cause you to jerk your head away and throw your
20 hands up like any real severe noise that would happen to
21 you."

22 A I said that, and the whistle was very loud.
23 But I didn't know anything about noise damage. I had no
24 idea.

1 Q You knew it couldn't be good for you?

2 A It was startling when they blew it that loud
3 and you would jerk your head away, and that indicated that I
4 didn't want to be around it.

5 Q Because it couldn't be good for you?

6 A Couldn't be good for you, that's correct.

7 Q Now, you took us through your work history and
8 when you were promoted to the road foreman in 1975. From
9 that point on to 1987 you didn't ride the trains as often as
10 you had before correct?

11 A That's correct.

12 Q In fact, part of your duties involved working
13 in an office from '75 to '87?

14 A That's correct.

15 Q And the route that you worked on before 1975
16 was between Crewe and Norfolk?

17 A Yes.

18 Q And obviously the area between Crewe and
19 Norfolk is not mountainous like it is here; is that right?

20 A That's correct.

21 Q What's the fastest time you could make that
22 134 mile trip from Crewe to Norfolk?

23 A Passenger train, three-and-a-half hours.

24 Q How about with the freight trains?

1 A You would be on duty 12 hours.

2 Q Twelve hours to go the 134 miles?

3 A Ten hours to actually pull it, 12 hours on
4 duty.

5 Q So obviously during that time period if you
6 could do it in three-and-a-half on a passenger train, you
7 were stopping and switching cars off and doing various things
8 that caused you to be on the road ten hours instead of
9 three-and-a-half hours, right?

10 A On the locals you would be stopping and doing
11 switching, but you would be switching in number eight notch
12 when you start up and stop and start again. So I was on duty
13 on those jobs, actually on duty moving ten hours on those
14 jobs.

15 Q Part of that time, part of that ten hours you
16 would be idling, right?

17 A If you changing direction, yes.

18 Q Okay. Now, let's talk about your condition.
19 It is true, is it not, that you don't have any headaches or
20 dizziness or ear pain as a result of this hearing loss; isn't
21 that true?

22 A I have no ear pain, no dizziness that I know
23 of. Do have some headaches once in awhile.

24 Q That's not caused by the hearing loss?

1 A I don't know what caused it.

2 Q You have no problems in a quiet environment?

3 A I can hear pretty good in a quiet environment.

4 Q Obviously, you drive back and forth from
5 Florida to Virginia, you have no problems driving a car?

6 A That's correct.

7 Q This ringing or the tinnitus that you talked
8 about, you don't notice that all the time; isn't that true?

9 A Most of time I'm conscious of it, it is
10 ringing.

11 Q You don't notice it all the time; isn't that
12 true?

13 A When I am asleep. I can forget about it for a
14 few minutes here and there.

15 Q When you're active?

16 A It is better.

17 Q And isn't it true that you get about five or
18 six hours of sleep every night?

19 A Most of the time.

20 Q And then when you have a full days' activities
21 you don't have any trouble getting a good nights' sleep; is
22 that right?

23 A I have an easier time going to sleep when I
24 have a full day activity. Still I have trouble going to

1 sleep; might not take as long.

2 Q Didn't you tell Doctor Lambert that you don't
3 have trouble getting to sleep every night?

4 A Some nights I might go to sleep in a
5 reasonable length of time.

6 Q Also isn't it true that part of the reason you
7 don't go out as much as you used to is you don't have the
8 opportunity to go out as much as you used to?

9 A I may have said that to him, but I do have the
10 opportunity to go out but I just prefer not to do that
11 anymore.

12 Q But you may have told Doctor Lambert --

13 A I may have told him that I didn't have time.
14 I don't understand why I would have said that.

15 Q You play a lot of the golf, don't you,
16 Mr. Puryear?

17 A Yes, sir.

18 Q You play three times a week or so?

19 A Try to play three times a week.

20 Q Hearing loss obviously doesn't cause you any
21 problems on the golf course?

22 A The language out there, I don't pay any
23 attention to it anyway.

24 Q You also mentioned that you have this problem

1 with children's voices. Isn't it true that you only see your
2 grandchildren once a year?

3 A Approximately once a year.

4 Q And your daughters, who are grown now, you see
5 about once a year too?

6 A My daughters?

7 Q Yes.

8 A Yes.

9 Q Now, you live in Florida for most of the year
10 with your girlfriend and you have a good relationship with
11 her?

12 A Yes.

13 Q She has a hearing loss, doesn't she?

14 A Yes.

15 Q It is true, is it not, that you would be
16 willing to wear a hearing aid? You don't have any objections
17 to the concept of a hearing aid?

18 A If it would help me in my situation, I would
19 certainly try. I felt, when I was wearing those ear plugs,
20 self-conscious. I don't know how I would be.

21 Q You would be willing to give it a try?

22 A Oh, yes.

23 Q You have seen Doctor Frazier up here in
24 Roanoke. Isn't it true the first time you saw him wasn't

1 until November of 1993?

2 A I don't remember the date but that could be.

3 Q If he said that was the first time, that
4 certainly would be true; wouldn't it?

5 A Yes.

6 Q And you have seen him, I think, a total of
7 what, five times now since November?

8 A Five or six. I'm not sure.

9 Q Three or four of these times have been within
10 the last six weeks or so; isn't that right?

11 A Yes.

12 Q You have never seen a psychiatrist in Florida?

13 A No.

14 Q And you never saw Doctor Frazier until after
15 you filed this lawsuit?

16 A That's correct.

17 Q Now, isn't it true Mr. Puryear that the
18 divorces that you mentioned -- I believe there are three of
19 them?

20 A Yes.

21 Q Those were very stressful events in your life;
22 weren't they?

23 A Right at the time, yes.

24 Q Isn't it true that those could have caused you

1 some depression?

2 A Could have.

3 Q And isn't it also true, Mr. Puryear, that you
4 have had some problems with your son over the years, and
5 those were also stressful times that could have contributed
6 to the depression as well?

7 MR. CRANWELL: Your Honor, I don't know that
8 this man's whole life has to be laid open. I think
9 whether he may have had trouble with the son is
10 totally irrelevant. Unless counsel can show
11 relevance and medical testimony that it is, I think
12 it is improper.

13 THE COURT: We are not discussing his whole
14 life. I will overrule the objection to this
15 question.

16
17 BY MR. ODDO:

18 Q Now Mr. Puryear, since you left --

19 THE COURT: Do you want to go back to the
20 question?

21 MR. ODDO: I thought he answered. I'm sorry.

22
23 BY MR. ODDO:

24 Q Go ahead and answer that question,

1 Mr. Puryear?

2 A I have had a few problems but they are
3 short-lived and I got over them. That was back four, five
4 years ago.

5 Q Those were certainly stressful times?

6 A Sure.

7 Q Could have caused some depression?

8 A Could have.

9 Q And your last divorce I think, what was that,
10 1991 or 1992?

11 A 1991.

12 Q Now, since you have left the railroad,
13 Mr. Puryear, you have held several jobs; is that true?

14 A Yes.

15 Q You have worked at a couple of golf courses?

16 A Yes.

17 Q I think you said you were a ranger at the golf
18 course and you got to play free golf and were paid for your
19 duties?

20 A Yes.

21 Q You enjoyed that, obviously, being a golfer?

22 A Yes.

23 Q Is that right?

24 A Yes.

1 Q In your spare time in Florida you said you
2 also like to fish occasionally?

3 A I did some fishing.

4 Q And you have a your own business now, don't
5 you?

6 A Yes.

7 Q What you do is you testify against the Norfolk
8 and Western and some other railroads; isn't that right?

9 MR. CRANWELL: Your Honor, I object to the
10 characterization "against." I think the man gives
11 testimony as to the facts that might be.

12 THE COURT: I think the witness can answer the
13 question whatever the answer may be. He is on
14 cross-examination. I overrule the objection.

15 MR. CRANWELL: Note my exception to the
16 Court's ruling.

17 THE COURT: I don't think in our time at the
18 Bar it is necessary to note an exception.

19 MR. CRANWELL: I know.

20
21 BY MR. ODDO:

22 Q My question was that you now have your own
23 business. In that business what you do is you work for
24 lawyers and you testify against railroads including the

1 Norfolk and Western; is that right?

2 A I testify against them or for them, either
3 one.

4 Q You have never testified for them, have you?

5 A No. I haven't been asked.

6 Q And you have testified for Mr. Cranwell's
7 clients against their railroad and another railroads; is that
8 right?

9 A I will if it comes up. I have given
10 depositions. I haven't been to court.

11 Q And you get paid for doing that?

12 A Yes.

13 Q Now, when you are not playing golf and when
14 you're not working I believe you describe yourself as a couch
15 potato; is that right?

16 A I did years ago. I just wanted to be away
17 from everybody and watch TV and I may have said that's what
18 my life was, like a couch potato.

19 Q Well, in fact, when I just deposed you in
20 September that still how you described it, right?

21 A Except when I am working. I stay pretty close
22 to home. I don't sit on the couch. I do have a recliner and
23 a TV.

24 Q You like to lounge around and watch some TV,

1 right?

2 A Yes.

3 Q I believe you can watch the television with
4 some headphone device that you use?

5 A Yes.

6 Q You're not claiming any wage loss in this
7 case; isn't that correct?

8 A I didn't hear you.

9 Q You're not claiming any wage loss in this
10 case; isn't that correct?

11 A No.

12 Q You have not lost any wages as a result of
13 this hearing problem?

14 A No.

15 Q And your medical bills total approximately
16 five hundred dollars?

17 A Five hundred plus.

18 Q In that neighborhood?

19 A Somewhere between that and a thousand.

20 Q You have got no other out-of-pocket loss;
21 isn't that right?

22 A No.

23 Q You agree?

24 A I do not have any out-of-pocket loss as I know

1 of, no.

2 MR. ODDO: That's it, Judge.

3 THE COURT: Mr. Cranwell, any Redirect?

4 MR. CRANWELL: Just a few.

5
6 REDIRECT EXAMINATION

7
8 BY MR. CRANWELL:

9 Q You were asked a question if Doctor Sydnor
10 told you to wear a hearing protection?

11 A Yes.

12 Q That's Doctor Sydnor here in Roanoke, Brantley
13 Sydnor?

14 A Yes.

15 Q Do you remember being asked a question if
16 anybody at the railroad told you that you couldn't wear the
17 hearing protection? Do you remember being asked that
18 question?

19 A Yes.

20 Q Who was your boss?

21 MR. ODDO: At what time, Judge?

22 MR. CRANWELL: When he was wearing hearing
23 protection. I think everybody knows what I'm talking
24 about.

1 THE WITNESS: I think B. J. Hoops was the
2 superintendent at the time.

3
4 BY MR. CRANWELL:

5 Q Where was his office located?

6 A Shenandoah Division and then over -- I mean
7 old freight station beside the railroad track on Second
8 Street I believe, and then over at the general office
9 building, GOB.

10 Q Where was your office?

11 A My office was in the old freight station,
12 Second Street.

13 Q Did Mr. Hoops ever ride on the train with you?

14 A No.

15 Q Would he have had any way of knowing that you
16 were wearing hearing protection when you were out there?

17 A No.

18 Q How long ago was it that you had problems with
19 your son, Mr. Puryear?

20 A Back in the late eighties.

21 MR. CRANWELL: That's all.

22 THE COURT: All right. You may step down,
23 sir. Thank you.

24 Mr. Cranwell, I will ask you to call your

1 next witness and then we will give the Court Reporter
2 time to change paper.

3 MR. CRANWELL: Doctor Angelo Campanella.

4
5 ANGELO CAMPANELLA, Ph.D.

6 was called as a witness and after having first been duly
7 sworn to tell the truth, the whole truth, and nothing but the
8 truth, was examined and testified as follows:

9
10
11 THE COURT: Members of the Jury, the lawyers
12 have told me that there is going to be a time that
13 I'm going to have to rule on whether the law of
14 evidence will permit some particular lines of
15 inquiry. I don't know whether it is best to do that
16 before we start with Doctor Campanella or whatever
17 you say.

18 MR. CRANWELL: Judge, if the Jury wants to
19 take a little five minute break, we can probably get
20 it out of the way.

21 THE COURT: All right. Let's do it now then.
22 Ladies and gentlemen, if you will go with the
23 sheriff.

1 (The Jurors were excused from the Courtroom
2 and the following took place in the presence of the
3 Court and Counsel.)

4
5 THE COURT: All right. The Jurors are no
6 longer in the courtroom. Doctor Campanella is on the
7 witness stand. He has been sworn. Let's go to that
8 area where counsel told me I was going to have to
9 hear Doctor Campanella.

10 MR. CRANWELL: Let me be sure I understand.
11 Well, maybe I ought to ask Keith.

12
13 (A discussion was held out of the hearing
14 of the Court and the Court Reporter.)

15
16 MR. CRANWELL: Your Honor, as I understand it,
17 and let me be sure I do, there is some objection to
18 some of the sound measurements that were taken by
19 Doctor Campanella; is that correct, the 1975 ones?

20 MR. ODDO: Judge, it is my understanding that
21 Doctor Campanella is going to offer testimony on
22 decibel levels of various locomotives that he
23 relies on. He has got three locomotives.

24 First one he relies on tests he did in

1 1975. We object to the 1975 tests on grounds that
2 they are not comparable or sufficiently comparable to
3 the circumstances that exist in this case. We are
4 going to ask for those to be excluded.

5 On this one down here, the middle one, the
6 GP-9, he relies on a combination of his work and
7 Kilmer's work. Kilmer's work is okay. Campanella's
8 work, again, is the same thing from 1975 that we have
9 a problem with and we will ask you to exclude. The
10 bottom one is fine for purposes of this motion.

11 THE COURT: Take Doctor Campanella through
12 what the tests are.

13
14 DIRECT EXAMINATION

15
16 BY MR. CRANWELL:

17 Q Doctor Campanella, let's go back to nineteen
18 hundred and seventy-five, and we will look at the EMD F-7.

19 A Yes.

20 Q Would you tell the Court what an EMD F-7 is?

21 A It is the old style of diesel locomotives
22 where the covering over the engine extends completely out to
23 the edge of the locomotive and goes down so that the brakeman
24 or the fireman can walk inside of that enclosure and inspect

1 the engine while it is under way.

2 THE COURT: Is that the same thing as an
3 EMD 7-A? You don't know; is that right?

4 THE WITNESS: It is the F series, F-3. There
5 are others. If it is a covered wagon, it is similar.
6 That's the same as the F-7s.

7 THE COURT: Showing the witness Plaintiff's
8 Exhibits Three, Four and Five.

9 THE WITNESS: What they did in this unit is
10 they removed the side panels. I don't know whether
11 this was the type that -- this is exactly the same
12 locomotive except the sheet metal has been removed.

13
14 BY MR. CRANWELL:

15 Q Doctor Campanella --

16 A I have an opinion as to how that would reflect
17 on my measurements.

18 Q Let's go ahead and go through the tests that
19 you did. Did you have occasion in 1975 to conduct some noise
20 level testing on the EMD F-7 engine?

21 A Yes.

22 Q And would you tell the Court the circumstances
23 surrounding that testing?

24 A I was asked to measure the sound levels at the

1 place of employment of a diesel locomotive engineer who had
2 been a fireman previously.

3 Q And is that a part of an ongoing litigation?

4 A Yes.

5 Q And was there a request made to do a field
6 test with the railroad?

7 A Yes.

8 Q Was that request denied?

9 A It was denied.

10 Q Was an alternative offered?

11 A The alternative was to have the engine be
12 stationary at what is called a load cell or a load bank.

13 Q Now, tell the Court what a load cell or a load
14 bank is?

15 A It is a set of resistors which will absorb all
16 of the electrical power that the diesel electric generator on
17 the locomotive can produce. So it is equivalent to the
18 engine running at its full rate of power, which is in this
19 case about 1700 horsepower.

20 Q Would that be notch eight?

21 A Yes.

22 Q Now, doctor you're an acoustical engineer?

23 A Yes.

24 Q Is it normal in your field of acoustical

1 engineering to do noise level testing, other types of testing
2 on engines, diesel engines by use of power banks?

3 A Yes.

4 Q With respect to replication of the noise of
5 the engine itself, not background noise or anything that you
6 get from the track, do you have an opinion as to whether or
7 not it accurately replicates the engine noise when an engine
8 is in motion?

9 A Yes.

10 Q What is that opinion?

11 A It is the same as when it is in motion.

12 Q Would you explain to the court why it is the
13 same?

14 A The engine noise is caused by the engine
15 during its process of producing power. If it is producing
16 the power, its full hundred percent power, then it is
17 producing a hundred percent of the noise that it can
18 generate. The rpm is the same.

19 Q What is it that produces the noise when an
20 engine is producing power?

21 A The explosions in the cylinders.

22 Q And the movement of the cylinders?

23 A Primarily the explosions and to a lesser
24 extent the movement or the clattering of metal.

1 Q Is it a standard practice in your field to
2 conduct these kinds of tests to measure noise levels of
3 diesel engines, gasoline engines, electrical engines and
4 other engines?

5 A Yes. It is sometimes called a dynamometer.

6 Q Explain to the Court what a dynamometer is?

7 A It's exactly what the load settle is. It
8 absorbs all the power the engine can create.

9 Q Now, with respect to the --

10 MR. CRANWELL: Your Honor, that's the first
11 set of tests. Do you want to take that before I move
12 on, or do you want to take him on Cross on the first
13 one?

14 THE COURT: The first set of tests is the only
15 one, as I understand it, that you object to,
16 Mr. Oddo; is that correct?

17 MR. ODDO: And part of the second test, Judge,
18 because he relies on part of the second locomotive,
19 because he relies, not only on Kilmer, but on his own
20 tests.

21 THE COURT: Same tests though.

22 MR. ODDO: That's right. But we have only
23 covered part of the basis for the objection. He has
24 not gotten into the numbers yet.

1 THE COURT: As I understand it, the test
2 which --

3 MR. CRANWELL: The numbers go to the weight,
4 not admissibility.

5 THE COURT: The tests you objected to are the
6 1975 tests conducted by Doctor Campanella, right,
7 Mr. Oddo?

8 MR. ODDO: That's correct.

9 THE COURT: On more than one engine?

10 THE WITNESS: Two engines.

11 MR. ODDO: Correct.

12 THE COURT: We have covered one engine?

13 MR. CRANWELL: You want me to move to the
14 GP-9?

15 THE COURT: I guess so.

16 MR. ODDO: Maybe I should articulate a little
17 more clearly.

18 THE COURT: You can. I suspect -- I'm glad
19 that Mr. Cranwell told the Jury they were only going
20 to be out five minutes.

21 MR. CRANWELL: Judge, I thought I would be as
22 quick as I can.

23

24

1 BY MR. CRANWELL:

2 Q With respect to the test on the GP-9, would
3 you tell the Court briefly what you did?

4 A I used Kilmer's cab noise information because
5 it is accurate. It is the 89.3 asterisk and that means eight
6 hour time-weighted average.

7 The whistle horn of a hundred nine and the
8 walkway of a hundred three are my measurements.

9 Q How were those measurements made?

10 A By standing alongside the engine when the
11 whistle was sounded, the horn. It is fairly well over the
12 point where I was standing.

13 Q How about the walkways?

14 A Same way.

15 Q Where did you stand?

16 A In the engine walkway.

17 Q Where did you hold the dulcimer or the
18 hand-held mike?

19 A At my head level.

20 Q Is that the normal accepted practice in your
21 field to measure sound levels?

22 A Yes.

23 Q Why do you hold it at head level?

24 A Because that's where the ear is located which

1 can be damaged.

2 Q Were these operating engines?

3 A Yes.

4 Q Were they out in the field or were they on
5 that cell bank?

6 A The GP-9 was there at the load cell. I'm
7 sorry. They were -- that GP-9 was at a load cell.

8 Q Okay. All right. I will come back and ask
9 you again.

10 MR. CRANWELL: Your Honor, I have already
11 asked about the load cell being comparable. That's
12 it, Your Honor.

13 THE COURT: Mr. Oddo.

14
15 CROSS EXAMINATION

16
17 BY MR. ODDO:

18 Q Doctor Campanella, it is true, is it not, that
19 for the test you did in 1975 you did not come up with a dose
20 or a time-weighted average; is that right?

21 A That's correct.

22 Q You came up with a maximum level? You were
23 measuring maximum levels, right?

24 A That is the measurement that must be used in

1 order to compute a time-weighted average.

2 Q Well, you didn't take this thing over the road
3 and factor in all the times it is in idle and so forth?

4 All you did was take a maximum level and use
5 that. You did not come up with a time-weighted average as
6 you were doing the tests?

7 A In the case of the F-7 I used the values I
8 found in the cab as a steady state noise for the eighth
9 notch. I also used the values of all the other notches
10 equally distributed.

11 It is Mr. Puryear's information to me that he
12 spent the majority of the time in the eighth notch. Because
13 many of these trains were heavily loaded, and it took the
14 full power to make the trip. I used 50 percent as a
15 conservative estimate here.

16 Q You measured maximum levels; did you not?

17 A Yes, that's the way to do it.

18 Q All right. And maximum levels are
19 insufficient to determine what the dose is?

20 A We are in a game of semantics here. The level
21 that I call a maximum level is the -- imagine the engine in
22 the eighth notch. The engine is running steady. That's
23 probably the loudest noise that engine is going to make on a
24 continuous basis, minute after minute, perhaps hour after

1 hour. At that point I read my meter and average over about
2 ten seconds.

3 Q Ten seconds?

4 A Yes.

5 Q All right. Not the ten or 12 hours that
6 Mr. Puryear was on the train?

7 A No.

8 Q Okay. Now, you had your sound level meter set
9 on fast response; didn't you?

10 A Not on that one.

11 Q Didn't Kilmer say you had your sound level
12 meter on fast?

13 A Those level readings were done from a strip
14 chart recording where I averaged the band that would make it
15 a slow response.

16 Q So if Kilmer says in his study you had your
17 sound level meter on fast and fast is the wrong way to do it,
18 you deny that?

19 A I have made measurements on fast. It is when
20 the air blasts of the brakes are released. It doesn't do
21 much good to measure it slow for that if you want to see the
22 maximum value the air blast produces. In the case of the
23 engine, my measurement is equivalent of slow.

24 Q You're supposed to do it on slow; aren't you?

1 That's what the FRA regs say.

2 A If a person is going to calculate a TWA, they
3 should use slow. So all of my data that I put into a TWA is
4 not the so-called maximum you described, although it may be
5 the largest average value I got for that specific engine.

6 Q Well, let's get this straight. Did you have
7 your sound meter on fast or did you have it on slow in 1975
8 when you were doing these tests?

9 A I went into a strip chart recorder and read it
10 averaged over a band which is equivalent of slow.

11 Q What did you have your sound meter on,
12 Doctor Campanella, fast or slow?

13 A When you record a strip chart record it comes
14 out as a fast reading which is spread over a band which you
15 average by eye and create a slow reading out of it.

16 Q Is your answer fast?

17 A No, it's slow. It can't be because that's not
18 what I reported. The meter may have been on fast, but if you
19 have ever used a strip chart recorder, you record everything
20 and then average the value of the band of information because
21 it is a wiggly line.

22 Q The meter may have been on fast?

23 A Yes.

24 Q ANSI regulations say it should be on slow,

1 correct? You know what ANSI is; don't you?

2 A Yes, I do.

3 Q ANSI says put it on slow; doesn't it, or do
4 you know?

5 A I have been making these measurements for a
6 long period of time. I know how to create a slow
7 measurement.

8 Q My question is does ANSI say it should be on
9 slow?

10 A I reported a slow measurement, so regardless
11 of how I had to set the meter, I didn't report the fast
12 reading. If I reported a hundred, it went from 99 to a
13 hundred and one.

14 Q What does ANSI require, Doctor Campanella?

15 A They ask for a slow reading on a meter when
16 you read the wiggling needle.

17 Q What does FRA require or do you know?

18 A They mentioned a slow and I reported what is
19 equivalent to a slow reading.

20 Q But you had your meter on fast?

21 A They have not made as many measurements as I
22 have. Yes, I had it on fast.

23 Q All right. Only took us ten minutes to get
24 that. Now, the levels that you got on the F-7, correct me if

1 I am wrong, you got readings of 75, 78, 81, 85, 88, 89, 90.5
2 and 90.5, right?

3 A They are all equivalent slow readings, yes,
4 that's correct.

5 Q You used those numbers and you got an average
6 of 99; is that what it says on that chart, 99?

7 A Yes.

8 Q Now, you took the GP-9 and got 71, 74, 80, 81,
9 84, 85, 88 and 87?

10 A Uh-huh.

11 Q What's your average there, 89.3?

12 A That is not my measurement on that chart; that
13 is Kilmer's.

14 Q All right. So you didn't use your -- what are
15 you saying, you didn't use your measurements?

16 A That is correct. And you will notice in the
17 GP-9 chart there is a blank line for the whistle and horn at
18 the seat.

19 Q Now --

20 A There is a reason for that.

21 Q Let's move on.

22 MR. CRANWELL: Let him finish his answer.

23 THE WITNESS: I need to point this out to you
24 to convince you that I used Kilmer's data, because

1 that sound included other sounds that were occurring
2 in the cab at the time.

3 So it is not necessary to add in a line, a
4 second line there which says whistle or horn at the
5 seat. Because that 89.3 already includes the whistle
6 or horn at the seat.

7 THE COURT: Let me interrupt your examination,
8 Mr. Oddo. Originally when counsel took this question
9 up, I understood that there was going to be objection
10 to some of Doctor Campanella's testimony because, as
11 I understood it, the defendant was going to object
12 that the evidence would not meet the standards for
13 experiments required by the Supreme Court of
14 Virginia.

15 I am now pretty well satisfied, unless
16 counsel talk me out of it, that without taking Doctor
17 Campanella's testimony from the beginning out of the
18 presence of the Jury, going through it and finding
19 out where you object, neither the Judge nor the
20 Supreme Court, on review of whatever the Judge's
21 rulings are, is going to be able to comprehend either
22 the nature of the testimony or the nature of the
23 objection so that we have something plainly presented
24 and plainly preserved.

1 Now, each of you has the opportunity to
2 tell me the error of my ways. Mr. Cranwell?

3 MR. CRANWELL: Your Honor, as I said, I
4 assumed, as you did, that there was going to be some
5 questions about this wasn't done on the open road,
6 you don't replicate readings in the mountains in the
7 Shenandoah Valley or something like that.

8 I haven't heard any of that. I have to
9 assume that whatever he is talking about here goes to
10 the weight of the testimony and not the
11 admissibility.

12 THE COURT: Mr. Oddo?

13 MR. ODDO: Judge, maybe if I could ask him a
14 couple of quick questions, that might clarify.

15 THE COURT: Go right ahead.

16

17 BY MR. ODDO:

18 Q Doctor Campanella, the locomotives that you
19 tested in 1975 were not Norfolk and Western locomotives;
20 correct?

21 A That's correct.

22 Q And you don't know whether they were identical
23 to the locomotives that Mr. Puryear has ridden on, because
24 you have never actually seen the locomotives Mr. Puryear road

1 on?

2 A I have seen several GP-9s. That's not the
3 only one I tested.

4 Q You never actually tested one that Mr. Puryear
5 road on?

6 A That's correct.

7 Q You don't know whether the GP-9s that
8 Mr. Puryear was riding on were identical to the GP-9s you
9 were testing in 1975?

10 A That's correct.

11 Q And the GP-7 -- I'm sorry. Was it GP-7 or
12 F-7?

13 A F-7.

14 Q The F-7 that you were shown the photograph of,
15 that was different from the F-7 that you were working on in
16 1975?

17 A In only one respect. The sheet metal had been
18 removed from the side of the engine in the photograph just
19 shown to me.

20 MR. ODDO: Judge, with his testimony that he
21 doesn't know whether they are identical, we would
22 move that there has not been foundation established.

23 THE COURT: Doctor Campanella, whose
24 locomotives did you test?

1 THE WITNESS: Baltimore, B & O.

2 THE COURT: Do you have any basis for
3 knowledge about the similarity or differences between
4 the locomotives, the GP-9s and the F-7s that the
5 B & O was operating in 1975 and that the N & W was
6 operating in 1975?

7 THE WITNESS: The --

8 THE COURT: Do you have any basis for
9 knowledge about the locomotives that the N & W was
10 operating in 1975?

11 THE WITNESS: No.

12 THE COURT: Can you then, therefore, tell me
13 whether or not you tested locomotives that were the
14 same or substantially similar to locomotives that the
15 N & W was operating in 1975?

16 THE WITNESS: I have every reason to believe
17 that they are sufficiently similar for this purpose.

18 THE COURT: Do you have any basis for knowing
19 that?

20 THE WITNESS: I haven't made any direct
21 comparisons with them, no.

22 THE COURT: Mr. Cranwell?

23

24

REDIRECT EXAMINATION

BY MR. CRANWELL:

Q Let me just come back. The EMD F-7, was that manufactured by a particular company?

A Electric Motor Division of General Motors.

Q Did General Motors sell EMDs to various railroads?

A Yes, they did.

Q And how about the GP-9s; who manufactured them?

A General Motors.

Q Did General Motors sell to the various railroads?

A Yes.

Q And how about the GEC 36-7; who manufactured that?

A That's General Electric.

Q And did they sell to various railroads?

A Yes.

Q Were these model numbers that the manufacturers put on for identification purposes?

A Yes.

Q So that you could identify this as a GP-9

1 manufactured by General Motors?

2 A Yes.

3 Q And EMD F-7 manufactured by General Motors?

4 A Yes.

5 Q And GEC 36-7 manufactured by General Electric?

6 A Yes.

7 Q Have you looked at different GP-9s?

8 A Yes.

9 Q Did you find any difference in the different
10 ones that you examined?

11 A One of them had a louvered engine, a louvered
12 cover over the engine which produced more noise than the one
13 I measured in 1975.

14 Q So if the engines that Mr. Puryear was riding
15 had louvered engines, would the noise levels higher than what
16 you reported on your chart?

17 A Yes.

18 Q How about the EMD F-7s; have you seen more
19 than one?

20 A I have seen a -- I have tested just one. I
21 have seen others that look similar to it.

22 Q How about GEC 36-7?

23 A I have done one GEU 33 which is a 3300
24 horsepower.

1 Q Is it the normal accepted practice in the
2 acoustical engineering field to rely on the model numbers and
3 manufacturers as a part of your testing?

4 A Yes.

5 MR. CRANWELL: Your Honor, that's all I have.

6 THE COURT: Do you want to argue your
7 objection, Mr. Oddo, or ask some more questions?

8 MR. ODDO: I have just two questions I think,
9 Judge, if I may.

10 THE COURT: Okay.

11
12 RECROSS EXAMINATION

13
14 BY MR. ODDO:

15 Q Doctor Campanella, you don't know the specs
16 that the N & W was ordering its locomotives off of, do you?

17 A No.

18 Q You don't know the specs that the C & O or
19 B & O or the other railroads --

20 A I have those, specifications.

21 Q Do you?

22 A Yes.

23 Q But you don't know the N & W specs?

24 A That's correct. Usually relates to

1 accessories, steam generators and so forth.

2 MR. ODDO: Judge, he has admitted that he
3 doesn't have a basis for comparison.

4 THE COURT: Mr. Cranwell?

5 MR. CRANWELL: Your Honor, I don't think there
6 is any question Doctor Campanella says he has a basis
7 for comparison. He said these are all model numbers
8 created by the manufacturer. The real anomaly I find
9 in all this is that the railroad wants to rely on the
10 Kilmer studies, and it would be essentially subject
11 to the same attack, Your Honor, that they didn't know
12 the exact specific engine.

13 Now, what I'm saying is very simply this.
14 I think the argument he makes goes to the weight of
15 the testimony and not its admissibility. This man
16 said it is normal in his profession to rely on this
17 kind of data in making noise measurement levels. And
18 I don't know what else he can do other than to say
19 these are comparable models.

20 Unless they have specific evidence that the
21 models are some way, somehow vastly different, it
22 seems to me that that's where we are at. Seems to me
23 that the model numbers, as we have said, are uniform
24 model numbers of manufacturers. I think that's a

1 reasonable comparison.

2 That's like saying you can't look at a Ford
3 Mustang, 1975 model Ford Mustang, and do a
4 replication test on it because it is not the
5 identical Mustang in question. If the position that
6 the N & W is taking is correct, then the only way I
7 would be able to do this is to get the, I guess the
8 model numbers off of each engine off each run that
9 was made, try to find a comparable engine that I
10 don't guess there is any in existence and conduct
11 tests on them.

12 Now, the railroad itself has conducted a
13 test on an engine, one GEC 36-7. They offered us no
14 opportunity to witness the test or anything.

15 Your Honor, I come back and say I think
16 that we have made out a case in terms of this is the
17 normal type of information and data relied on by
18 experts in this field to render their opinions. That
19 is clearly what the Virginia statute says. He has
20 clearly testified that that is the case, and I think
21 it is admissible.

22 THE COURT: I don't reach the Kilmer test. I
23 don't reach the test, if any, that the railroad might
24 offer or what the railroad might seek to rely upon.

1 The railroad objects to Doctor Campanella testifying
2 about specific tests he has conducted.

3 Doctor Campanella testifies that he has no
4 basis for knowledge about the locomotives that the
5 Norfolk and Western Railway Company was operating in
6 1975 at the time he conducted these tests or about
7 the basis for assuming that they are similar from or
8 different -- similar to or different from the B & O
9 locomotives that he examined.

10 You need, in my view, a predicate which is
11 missing, which is for somebody to get on the witness
12 stand and say that the GP-9s, the F-7s that the
13 Norfolk and Western was operating were similar to in
14 your example, the manufacturer's stock '75 Mustang.

15 You and I know more about '75 Mustangs --
16 or at any rate, I do -- than I know about
17 locomotives. I don't think that under Virginia case
18 law this evidence is admissible without any
19 additional predicate.

20 MR. CRANWELL: Your Honor, may I, if I can...

REDIRECT EXAMINATION

BY MR. CRANWELL:

Q The EMD F-7 unit, what railroad was that in 1975?

A The B & O.

Q And the GP-9?

A B & O and Main Central and also Southern.

Q Main Central and Southern. And the GEC 36-7?

A That's N & Ws data.

MR. CRANWELL: Can I ask him to step down from the witness stand and call Mr. Puryear back?

THE COURT: Sure.

MR. ODDO: I object to that, Judge.

MR. CRANWELL: I'm going to lay the predicate.

THE COURT: Go ahead. Would you wait outside please, Doctor Campanella, because you're a separated witness.

THE COURT: What's your objection, Mr. Oddo?

MR. ODDO: We are through with Mr. Puryear, Judge.

THE COURT: The Court, in it is discretion, allows Mr. Puryear to testify. You are still under oath Mr. Puryear.

1

2

ROBERT E. PURYEAR

3

was called as a witness and after having been previously

4

sworn to tell the truth, the whole truth, and nothing but the

5

truth, was examined and testified as follows:

6

7

REDIRECT EXAMINATION

8

9

BY MR. CRANWELL:

10

Q Mr. Puryear, when you were working for the

11

railroad did you have occasion to ride trains on other lines?

12

A Yes, I did.

13

Q What parts of the United States did you ride

14

trains?

15

A As far west as Kansas City, Detroit, Chicago,

16

Buffalo, all over Virginia.

17

Q Are you familiar with the B & Os EMD F-7?

18

A Yes, several railroads.

19

Q How many EMD F-7s did you ride for other

20

railroads?

21

A Two different railroads road R F & P, the

22

Richmond, Fredericksburg and Potomac Railroad. They are a

23

covered wagon. We leased them to try them out.

24

The leased diesel engine they had in it was a

171

1 1200 horsepower, and some of them had two 1200 horsepower
2 diesels. But all of the locomotives of other railroads are
3 the same locomotive.

4 Like Doctor Campanella, they might have some
5 accessories like air condition or maybe two control stands or
6 one. But basically the diesel locomotive engine is the same,
7 makes the same noise. I have been on many of them.

8 Q How about the GP-9?

9 A Different railroads. I have been on those,
10 C & O. I don't remember the other companies that owned them,
11 but other diesels, GMs and GEs on the B & O, the UP, the
12 Southern, they are all basically the same except for
13 accessories. Made by the same company.

14 MR. CRANWELL: Your witness.

15
16 RECROSS EXAMINATION

17
18 BY MR. ODDO:

19 Q Mr. Puryear, you didn't see any locomotives
20 that Doctor Campanella tested, did you?

21 A No.

22 THE COURT: Any other questions?

23 MR. ODDO: No, sir.

24 THE COURT: Any redirect?

1 MR. CRANWELL: No, sir.

2 THE COURT: You may step down, sir.

3 THE COURT: Do you want to say anything else,
4 Mr. Cranwell?

5 MR. CRANWELL: Your Honor, the Court said we
6 needed to lay the predicate. We just laid the
7 predicate. Mr. Puryear said he had seen these all
8 over the United States, B & O, UP, Southern.

9 Engines are all essentially the same with
10 the exception of accessories. If you want me to
11 qualify him as an expert, I certainly can.

12 THE COURT: Mr. Oddo?

13 MR. ODDO: Judge, Mr. Puryear said that the
14 F-7s that he saw had two 1200 horsepower engines.
15 First time around he said the one he rode had an 1800
16 horsepower engine.

17 So clearly he never saw the ones that
18 Doctor Campanella tested. He can't tell you that
19 those are the same as the ones he was riding on. He
20 still hasn't shown it to be the same or substantially
21 similar.

22 THE COURT: Mr. Cranwell, anything further?

23 MR. CRANWELL: Your Honor, again, I will
24 reiterate. Mr. Puryear just took the witness stand.

1 He testified that B & O, C & O, UP, Southern,
2 something in Chicago, and he said that the only
3 difference in them would be for accessories like air
4 conditioning and those things.

5 THE COURT: I'm going on overrule the
6 objection and admit the evidence assuming that the
7 Jury hears the same predicate.

8 We are not dealing with reconstruction
9 evidence. I think that the plaintiff has laid a
10 sufficient foundation for the trier of fact to
11 determine, if the trier of fact be so advised, that
12 the tests conducted by Doctor Campanella in 1975 were
13 on locomotives that were the same or similar to the
14 locomotives operated by the Norfolk and Western in
15 the particulars relevant to those tests, and that the
16 facts, circumstances or data relied on was of a type
17 normally relied on by others in a particular field of
18 expertise in forming opinions and drawing inferences.

19 And that the -- this loops back around to
20 the first, that the data from one locomotive
21 manufactured by a particular manufacturer of a
22 particular model number would be substantially
23 similar at the same time to the data from another
24 railroad on a locomotive of the same manufacturer and

1 model number.

2 I think we are in the area of weight rather
3 than admissibility. I will admit the evidence.
4 Counsel will please now tell me, when you put
5 Mr. Puryear back on in the presence of the Jury and
6 then we put Mr. Campanella on, how long would you
7 anticipate the testimony will take?

8 MR. CRANWELL: Judge, realistically I bet we
9 don't get out of here until 6:30 or quarter to seven.

10 THE COURT: It is 4:50 p.m. You told me that
11 Doctor Campanella could stay. Do you want to check
12 with Doctor Campanella or are you satisfied of that?

13 MR. CRANWELL: I will be absolutely sure.

14
15 (A discussion was held out of the presence
16 of the Court and the Court Reporter.)

17
18 MR. CRANWELL: He hasn't checked out. He can
19 spend the night is the answer, Your Honor. I
20 apologize.

21 THE COURT: Let's bring the Jury back in and
22 send the Jury home to come back tomorrow. Mr. Oddo?

23 MR. ODDO: I was going to make sure that the
24 Record clearly reflected the exception to the ruling,

1 that we do not believe the standard articulated in
2 Firestone and other cases has been satisfied here.

3 In particular, I note that the F-7 was a
4 locomotive that Mr. Puryear worked on many years
5 before 1975. There has certainly been no linking of
6 those two dates.

7 I understand the Court's ruling has been
8 made. Just note our objection to the ruling.

9 THE COURT: Understand also that judges only
10 rule on objections that are presented to them. You
11 can, you and Mr. Brown can counsel about what you
12 need to do during the course of the testimony if
13 anything.

14 I'm not suggesting more or less. You have
15 just articulated something different than what you
16 articulated when you talked about the time.

17 MR. CRANWELL: Your Honor, we can handle the
18 time. There is no question that he operated between
19 1972 and 1975. We put that on in direct evidence.

20
21 (The Jurors returned to the Courtroom at
22 4:55 p.m. and the following took place in the
23 presence of the Court and Jury.)
24

V_I_R_G_I_N_I_A

IN THE CIRCUIT COURT FOR THE
CITY OF ROANOKE

ROBERT E. PURYEAR,

Plaintiff

-v-

NORFOLK & WESTERN RAILWAY
COMPANY,

Defendant

:
:
:
:
:
:
:
:

CASE NO: CL89000919

VOLUME II
OCTOBER 12, 1994
9:30 A.M.

HEARD BEFORE:

THE HONORABLE CLIFFORD R. WECKSTEIN

CENTRAL VIRGINIA REPORTERS
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ROANOKE, VIRGINIA 24027
(703) 380-5017

1 bring the jury in, please, sheriff. Mr. Puryear,
2 would you step around to the witness stand.

3
4 (The jury returned to the courtroom.)

5
6 ROBERT E. PURYEAR

7
8 was called as a witness and after having first been duly
9 sworn to tell the truth, the whole truth and nothing but the
10 truth, was examined and testified as follows:

11
12 THE COURT: Good morning, members of the
13 jury. Well, I told you last night that I would ask,
14 and I don't want to make liars of any of you if you
15 told your friends and family members. Did you
16 manage to get through the night without discussing
17 the case with anyone?

18 A JUROR: I spoke with my cat.

19 THE COURT: There you went. Mr. Puryear has
20 been sworn by the clerk to testify again this
21 morning on a matter that is intended to lay the
22 foundation, as I understand it, for the next
23 witness. Mr. Cranwell, if you will proceed, please.
24

DIRECT EXAMINATION

BY MR. CRANWELL:

Q Mr. Puryear, would you recite for the jury the engines that you may have worked on during your career? And let me focus specifically. Did you have occasion to work on an engine known as a EMD F-7?

A Yes.

Q Is that capital EMD?

A Yes.

Q Could you tell us who manufactured that particular --

A General Motors.

Q Would that be kind of an old vintage or a new vintage diesel engine?

A Old vintage covered wagon passenger locomotive.

Q Similar to --

A This one, yes.

Q What was the diesel power plant on it?

A It was a diesel engine, 1,500 horsepower.

Q Did anybody else other than General Motors manufacture that unit?

A Not as I know of. Another company could

1 have, but I never rode any but the General Motors.

2 Q Okay. And when you rode the General Motors
3 model, was it a Norfolk & Western engine?

4 A No, it was not. We leased it from RF&P
5 Railroad to test that locomotive.

6 Q What does RF&P stand for?

7 A That is Richmond Fredericksburg & Potomac
8 Railroad.

9 Q You-all leased it from them?

10 A I think it was leased or borrowed. I am not
11 sure. I know that we didn't own them.

12 Q All right. And did you work on an engine
13 called a GP-9?

14 A Yes, I did.

15 Q Who manufactured that?

16 A General Motors.

17 Q What was the power plant?

18 A 1,750 horsepower. And I think later as they
19 bought new ones they increased 50 horsepower, up to 1,800,
20 some of them.

21 Q Did you have occasion to operate any of those
22 that were owned by railroads other than the Norfolk &
23 Western?

24 A Yes.

1 Q What railroads ran GP-9s?

2 A Nickel Plate; Wabash; CSX, or C&O back then;
3 SCL, Seaboard Coastline; ACL, Atlantic Coastline. These are
4 the railroads that I was familiar with and I had been on
5 their locomotives.

6 Q How about B&O?

7 A B&O, also.

8 Q How about Southern?

9 A I don't remember if Southern still had those
10 locomotives when we merged or not.

11 Q How about Union Pacific?

12 A I rode the Union Pacific units, but they were
13 not GP-9s. They were the high horsepower 3,000, 3,500
14 horsepower.

15 Q How about Nickel Plate?

16 A Nickel Plate GP-9s, I rode those.

17 Q Did you have occasions to ride the GEC 36-7?

18 A Yes.

19 Q Who manufactured that?

20 A General Electric.

21 Q What kind of power plant?

22 A 35, 3,600 horsepower.

23 Q Did you have occasion to -- well, let me ask
24 you this question: Did other railroads other than N&W run

1 those engines?

2 A Yes.

3 Q The ones you have just named with the --

4 A Yes. Most railroads in the United States run
5 GEs that type locomotive and also General Motors.

6 Q When you have a consist of five engines,
7 let's say we got GP-9s -- GP-9s would be Plaintiff's Exhibit
8 Number 2?

9 A Yes.

10 Q And Plaintiff's Exhibit Number 1?

11 A Yes.

12 Q When you had a consist of five GP-9s, let's
13 say, pulling a load, how many engineers and firemen would
14 you have in those five engines?

15 A You would have one engineer and one fireman.
16 Sometimes you wouldn't have a fireman, in the later years.

17 Q And how would you -- when you put the
18 throttle up in the eighth notch on the engine that the
19 engineer was in, how did that make the other engines run?

20 A We had what we called a jumper cable that had
21 a place in between each locomotive with a socket sort of
22 thing to speak. It was approximately this large, and it had
23 like, I am guessing, approximately 27 different wires that
24 plugged in.

1 The jumper cable had the little holes in it,
2 and then the receptacle had the little prongs that fit it.
3 And they were all compatible from the largest locomotive we
4 had down to the smallest.

5 Q When you say "compatible," what about
6 railroading in the United States, Mr. Puryear?

7 A You can leave Roanoke and run our locomotives
8 or any locomotive anywhere in the United States that would
9 run over their tracks, and they will interchange one
10 locomotive with another railroad. They all work the same
11 way.

12 Q Have you ever run a consist with GP-9s where
13 you had -- the engines were owned by more than one railroad?

14 A Yes. One time I have had two different
15 railroad locomotives together.

16 Q Is that an unusual occurrence or a usual
17 occurrence in the railroad industry?

18 A It happens all the time. They interchange.
19 They may run from our railroad. Our locomotives may go all
20 the way across the country.

21 Q I am going to show you two photographs and
22 ask you if you recognize the type of engine in that.

23 A This is a GP-9, the same as the other
24 exhibit.

1 Q That is from the transportation museum over
2 here on -- back behind the courthouse?

3 A Second Street, yes.

4 Q What railroad?

5 A That is the Nickel Plate.

6 MR. CRANWELL: Can we mark those as
7 Plaintiff's Exhibit Number 8 and 9?

8 THE WITNESS: That is the GP-9, same as the
9 other exhibit.

10

11 BY MR. CRANWELL:

12 Q Do you want to step over here and show the
13 jury how the two engines are alike?

14 A I need the N&W exhibit.

15 MR. CRANWELL: They have made the rounds
16 here. Have you marked those? Do you
17 need to mark them first?

18 THE WITNESS: We are looking at the short
19 hood end of the Nickel Plate GP-9 and an N&W GP-9.
20 You will notice that the lot is the same, the
21 number, same place, two headlights.

22 This one is N&W. Somebody has robbed it.
23 They have a bell hanging from the thing. Someone
24 has robbed the bell off the locomotive, also, but,

1 basically, these are identical locomotives. The
2 only difference is the paint and logo. It says
3 Nickel Plate on this, and they have yellow and
4 black. And N&W, their colors are black and white.
5 You can see, you know, they are the same locomotive,
6 just a different color.

7 A JUROR: I have a question. Is Nickel Plate
8 the name of a railroad --

9 THE WITNESS: Yes.

10 A JUROR: -- or is that the locomotive?

11 THE WITNESS: Railroad.

12 THE COURT: Give the court reporter a moment
13 to mark those exhibits.

14 MR. ODDO: No objection.

15
16 (The photographs were marked Plaintiff's
17 Exhibit Number 8 and 9 for identification.)
18

19 BY MR. CRANWELL:

20 Q Where does the Nickel Plate run?

21 A It is in the northeast Chicago area in there,
22 I think. I am not sure. It interchanged with our railroad.

23 Q The two engines we see in Plaintiff's Exhibit
24 Number 9 and Plaintiff's Exhibit Number 2, the engines for

1 the Nickel Plate and the N&W, could you run those in the
2 same consist?

3 A Yes.

4 Q Would occasionally some of the railroads have
5 any differences in their GP-9s, for example?

6 A Color, logo, they may get other accessories
7 that we did not have. For example, air-conditioning. Well,
8 I don't know if they ever had them on the GP-9s,
9 air-conditioning on any railroads, but later other railroads
10 had the air-conditioning.

11 The tool compartments could be different,
12 but, basically, the locomotive is the same. Same engines,
13 diesel engines, same platform on the frame, traction motors.

14 Q Would the same be true for the GEC 36-7s?

15 A Yes.

16 Q How about couplings between cars and engines
17 from different railroads or --

18 A They all are compatible. They will couple,
19 interchange, with any car. It is just a network all over
20 the country that -- you know, the trains could start in
21 Florida and go to Chicago and on out to L.A. and switch with
22 other cars in between.

23 Q What is the farthest you have been?

24 A Kansas City west, St. Louis, Chicago

1 Buffalo, Atlanta.

2 Q You were, I guess, in all the yards for N&W
3 in Virginia and around the Eastern Seaboard?

4 A Yes. N&W and also other railroads.

5 Q Would it be unusual to see GP-9s for other
6 railroads in any N&W yards?

7 A No, it would not be.

8 Q Would it be unusual to see N&W GP-9s in other
9 yards?

10 A No.

11 Q How about the GEC 36-7s?

12 A Same with those.

13 Q And how about the old ones, the EMD-7s?

14 A That was in my earlier career, and they were
15 in Virginia, the Richmond area, mainly. That is the way I
16 came into contact with them when they were not on the N&W.

17 MR. CRANWELL: Okay. Your witness.

18 MR. ODDO: Judge, may I have just one minute?

19 THE COURT: Yes, sir.

20 MR. CRANWELL: How about marking these as
21 Plaintiff's Number 10, the two pages.

22

23 (Two pages depicting manufacturer and
24 power plants of engines were marked

1 Plaintiff's Exhibit Number 10 for
2 identification.)

3
4 MR. CRANWELL: Your Honor, could I move the
5 introduction of Plaintiff's Exhibit Number 10? Two
6 pages.

7 THE COURT: Any objection?

8 MR. CRANWELL: Just identifying the
9 manufacturer and the power plants of the various
10 engines.

11 MR. ODDO: That is fine. I have no
12 objection.

13 THE COURT: Plaintiff's Exhibits 8,9 and 10
14 are admitted without objection. You may
15 cross-examine, Mr. Oddo.

16 MR. ODDO: Thank you, Judge.

17
18 (Plaintiff's Exhibit Numbers 8, 9 and 10
19 were entered into the Record.)

20
21 CROSS-EXAMINATION

22
23 BY MR. ODDO:

24 Q Mr. Puryear, the Nickel Plate that you talked

1 about, the Nickel Plate merged into the Norfolk & Western
2 about 30 years ago; isn't that right?

3 A I don't remember the year, but they were
4 taken in by N&W.

5 Q Quite some time ago; right?

6 A Yes.

7 Q Now let's talk about the GP-9s a little bit.
8 You mentioned the locomotives that you rode on. You have
9 never ridden on a Main Central GP-9; isn't that right?

10 A I don't recall ever riding one of those.

11 Q And it is true, is it not, that you have
12 never actually seen the locomotives that Doctor Campanella
13 has tested or had tested some 20 years ago?

14 A I don't know what number it was. I have no
15 way of knowing. It was one that was the same type
16 locomotive, same horsepower.

17 Q But you don't know which one he tested.

18 A No.

19 Q And you don't know whether you have ever seen
20 that one.

21 A No, I don't.

22 Q Isn't it true, Mr. Puryear, that different
23 railroads have different setups on their locomotives for
24 horns and brake exhausts?

1 A Yes, they could. It all depends on what the
2 different railroads ask for, you know, if they want
3 air-conditioning, want the tool box different, but basically
4 they are the same.

5 Q But they could have different setups.

6 A Yes.

7 Q And isn't it true, Mr. Puryear, that between
8 1971 and 1975 the Norfolk & Western did not have passenger
9 service?

10 A I don't remember the exact years, but we did
11 away with it until Amtrak came back, and then they did away
12 with it again.

13 Q Amtrak came back in about 1975. Does that
14 sound right to you?

15 A It was before that, because I was a fireman
16 engineer on those covered wagons between Crewe and Norfolk,
17 Virginia.

18 Q But there was a period of time where the
19 Norfolk & Western did not have passenger service.

20 A Yes.

21 Q And that was during the time that you worked
22 there.

23 A Sometime during the time I worked there, yes.

24 MR. ODDO: Okay. No further questions, Your

1 Honor.

2 THE COURT: Redirect, Mr. Cranwell?

3 MR. CRANWELL: No.

4 THE COURT: Thank you, sir. You may step
5 down.

6
7 (The witness was excused from the witness
8 stand.)
9

10 THE COURT: Would you call your next witness,
11 please.

12 MR. CRANWELL: Call Doctor Campanella.

13 THE COURT: Madam reporter, would you swear
14 the witness, please.
15

16 ANGELO CAMPANELLA
17

18 was called as a witness and after having first been duly
19 sworn to tell the truth, the whole truth and nothing but the
20 truth, was examined and testified as follows:
21
22
23
24

DIRECT EXAMINATION

BY MR. CRANWELL:

Q State your name and give us your business address, please.

A Angelo Campanella. I am an acoustical engineer.

Q And what is your address, sir?

A 3201 Ridgewood Drive, Columbus, Ohio.

Q And before I go into your work experience and your educational background, would you tell the jurors what an acoustical engineer is, what an acoustical engineer does?

A It is the science of sound and noise. I measure noise. I work with architects/engineers in designing buildings and noise control structures, measure noise in industry and in the community, advise persons how to reduce the noise, how to protect themselves against it if it is excessive.

Q Okay. Now would you tell us about your educational background, sir.

A Yes. I started college in Wilkes-Barre, Pennsylvania, majoring in physics. Then I transferred to Penn State where I received a BS degree in physics and mathematics, a Master's degree in physics with a thesis in

1 experimental acoustics and electrical engineering, and a
2 Ph.D. in physics, again, experimental acoustics,
3 measurements, in 1955 at Penn State.

4 Q And when you finished at Penn State, what job
5 was your first job, Doctor Campanella?

6 A I worked in military electronics developing
7 electronics systems and also some noise control.

8 Q What kind of systems were you developing in
9 the military?

10 A They were primarily infrared reconnaissance
11 and also communications systems.

12 Q And how long did you do that, sir?

13 A For six years.

14 Q And after that, what did you do?

15 A I then came to Columbus, Ohio, where I worked
16 in the industry as an industrial physicist in the area of
17 nucleonics and also --

18 Q Now you know I am going to ask, don't you.

19 A Which?

20 Q What is nucleonics?

21 A Well, since my training is in physics, I have
22 experience, knowledge, in these various areas. In this
23 case, it is the application of radio isotopes for public and
24 useful needs.

1 Q Okay. Go ahead. And what else did you do
2 there?

3 A Then we did process control using nucleonics
4 and also infrared techniques.

5 Q Okay. What kind of infrared techniques?

6 A In this case, it was the shorter infrareds
7 which would pass through, typically, a sheet of paper and
8 used as measuring its thickness and also moisture content.

9 Q And how long did you do that, sir?

10 A For three years. Four years, actually.

11 Q Then what did you do?

12 A Then I went to Rockwell where I participated
13 in missile guidance.

14 Q Rockwell?

15 A Rockwell International, which is now
16 McDonnell Douglas.

17 Q Okay.

18 A They are in Columbus, and they build guided
19 missiles otherwise called smart bombs, which were used in
20 Desert Storm.

21 Q What did you do there?

22 A I was an electro-optical supervisor in the
23 shop that built -- designed and built the seekers that would
24 see the target and select it and provide information to head

1 toward it.

2 Q Did you participate in the design of those
3 tracking systems?

4 A Yes.

5 Q This may not be relevant, but just for my
6 education, how are you able to put a bomb in the ventilating
7 shaft in Baghdad?

8 A You need what is called a laser designator.
9 This is the system they used in that case where a forward
10 aircraft called a FAC, a Forward Air Controller, would have
11 a forward looking infrared devise called a flare which then
12 would create a picture just as a TV picture would be in the
13 daytime, except this is at night.

14 On that picture, he would select an item
15 which in this case would be, say, a smokestack or a
16 ventilating stack and place his cross arrows on it in his TV
17 monitor in the aircraft, which then put a laser beam on that
18 specific spot, and he held the beam there.

19 A second aircraft launched a missile with a
20 laser seeker in its nose and headed right for that bright
21 spot and hit it.

22 Q Okay. What did you do after you left
23 Rockwell?

24 A I worked again in process control using

1 infrared techniques for three years.

2 Q Who did you do that for?

3 A A company called Brun Sensor Systems.

4 Q And after that, what did you do, Doctor
5 Campanella?

6 A A year in aircraft communications designing
7 aircraft radios.

8 Q And in the early '70s, you went back to your
9 acoustics, didn't you.

10 A Well, it was obvious to me that I was having
11 a series of jobs, and that is kind of like acting as a
12 consultant. I had always thought of becoming a consultant,
13 and if I would choose one it would have to be something I
14 could sell in the street, and I couldn't sell this infrared
15 stuff in the street, so I reached back to my Ph.D. thesis
16 and said, "I am an expert there, so I will simply hang out a
17 shingle and call that my expertise."

18 Q Have you been in the acoustical field since
19 that time?

20 A Yes, I have.

21 Q Would you tell the jurors the kind of work
22 you have done in the field of acoustics over the last, what,
23 20, 25 years?

24 A Twenty-two years.

1 Q Twenty-two years.

2 A I have measured sound on countless occasions.

3 Q Sound measurements. How many sound
4 measurements have you taken in 22 years?

5 A It has to be many, many thousand.

6 Q Tell the jurors how you take a sound
7 measurement and why you take a sound measurement.

8 A You place a microphone at the specific
9 location and space where you want to measure the sound. It
10 is not the meter, it is the microphone that is important.

11 Then you read the meter or have the meter
12 register on a digital scale or on a strip chart recorder
13 that reading, and then you can either read off the meter or
14 read off the strip chart recorder with an average line to
15 provide the information. The microphone and the entire
16 display system is calibrated before that.

17 Q Is there a thing called a dosimeter that is
18 used?

19 A A dosimeter, yes, I have used those.

20 Q Excuse me, a dosimeter.

21 A They came into play in later years. After
22 1980, typically.

23 Q Would you tell me what a dosimeter is and how
24 you use them.

1 A Well, it is a small instrument pack that does
2 all of those functions automatically with the wonders of
3 computers and miniaturization and the like. It has the
4 microphone. It is capable of being calibrated. It
5 registered the information within itself typically by taking
6 half second samples and averaging them over a long period of
7 time and then accumulates either a total dose or, in some
8 instances, they can read out the sound level that existed
9 minute after minute for the entire observation period.

10 Q And after you accumulate this data, have you
11 given advice to employers on how to, say, for example,
12 insulate the workplace or protect their workers?

13 A Yes. That is usually the objective.

14 Q Doctor Campanella, do you belong to
15 professional societies?

16 A Yes.

17 Q Tell the jury what some of the societies you
18 belong to.

19 A Well, I am a member of The Acoustical Society
20 of America, of The American Society for Testing and
21 Materials, The Society of Automotive Engineers, The National
22 Council of Acoustical Consultants and Institute of Noise
23 Control Engineers.

24 Q Tell me what The Acoustical Society of

1 America is and what it does.

2 A That is a society of professionals who
3 practice in the area of acoustics.

4 Q How long has that society been in existence,
5 Doctor?

6 A It began in 1929.

7 Q Would it be safe for me to say that there
8 were a group of people in America with engineering degrees
9 that in as early as 1929 were interested in the impact of
10 noise on human beings in the workplace?

11 MR. ODDO: Objection, leading.

12 THE COURT: Overruled.

13 MR. CRANWELL: Go ahead and answer it, then.

14 THE COURT: It is preliminary.

15 THE WITNESS: Yes. Their noise measurements
16 started around that time.

17
18 BY MR. CRANWELL:

19 Q How about The American Society for Testing
20 and Materials?

21 A Were interested in buildings, primarily, and
22 providing buildings that are quiet and safe.

23 Q How about The National Council of Acoustical
24 Consultants? What does that group do?

1 A That is a gathering of acoustical consultants
2 like myself in the United States. We meet twice a year and
3 discuss methods and techniques of our work.

4 Q And how about the Concert Hall Research
5 Group?

6 A That group was recently formed with the aim
7 of improving knowledge in the area of reverberation and
8 sound propagation in large spaces such as auditoriums.

9 Q When reverberation -- did I say that right?

10 A Yes.

11 Q Tell me what that means.

12 A Well, if you are outside in free space, as
13 you produce sound, it simply goes away from you and you
14 never hear of it again, whereas if you are in a building,
15 the sound is reflected back to you from the walls. That
16 increases the sound level in the room, elongates its
17 duration, so it can make music sound better or make speech
18 not as intelligible.

19 Q The Institute of Noise Control Engineers?

20 A Their objective is to bring together
21 professionals that specialize in the area of noise control,
22 in which case it is the measurement of the noise, the
23 techniques to stop it at its source, if possible, by
24 covering a sound source or on its way with barriers or walls

1 or at the receiving end to cover the receiving item.

2 Q How long has this organization been in
3 existence?

4 A They started around 1980.

5 Q All right. Are you a delegate to some
6 international conference on acoustics?

7 A I have been the U.S. delegate to the
8 International Standards Organization, technically, Committee
9 43, which is acoustics subcommittee --

10 Q What is the acronym -- acronym. Is that
11 what I want to say?

12 MR. BROWN: Acronym.

13 MR. CRANWELL: Thank you, sir. Say it again.

14 MR. BROWN: Acronym.

15
16 BY MR. CRANWELL:

17 Q What is the acronym for the International
18 Safety Organization?

19 A International Standards Organization.

20 Q Is that what we call ISO?

21 A Yes. That is simply the letters that belong
22 to it. If I said "iso", which some people now say, that
23 would be an acronym. If I say I-S-O, it is simply stating
24 the letters of the item.

1 Q How long has ISO been around?

2 A Since the '60s, I believe. It was formed
3 sometime after World War II when it was realized we needed
4 it.

5 Q Tell me what you do as a delegate for the
6 United States on acoustics.

7 A I provide -- I participate in the writing of
8 international standards that will be used worldwide.

9 Q What kind of standards?

10 MR. ODDO: Judge, I object. I think we are
11 getting into the area that we talked about on the
12 earlier motion. We are getting into the ISO
13 standards.

14 THE COURT: I understand your objection. I
15 don't think this line is objectionable, so I
16 overrule it, but you understand the limitations. Go
17 ahead, Mr. Cranwell.

18 MR. CRANWELL: Your Honor, I assume that I
19 have got the right to qualify this man.

20 THE COURT: That is why I have overruled the
21 objection.

22

23 BY MR. CRANWELL:

24 Q What kind of standards do you-all --

1 A It was building acoustics, again, and more
2 recently in the calibration of a reference sound source,
3 absolute calibration.

4 Q Doctor Campanella, have you had occasion to
5 qualify as an expert witness in acoustics in court
6 proceedings before?

7 A Yes.

8 Q Could you tell some of the courts you have
9 qualified in?

10 A Franklin County, Ohio, some in West Virginia,
11 in Lebanon County in Virginia, several times in Ohio in
12 those areas.

13 Q Federal courts?

14 A Federal court, yes.

15 MR. CRANWELL: Okay. Your Honor, I would
16 move to have Doctor Campanella declared an expert in
17 the area of acoustics.

18 THE COURT: Do you want to ask any questions
19 or say anything, Mr. Oddo?

20 MR. ODDO: No objection, Judge.

21 THE COURT: I find that Doctor Campanella is
22 qualified to offer opinion testimony in this field.
23
24

1 BY MR. CRANWELL:

2 Q Doctor Campanella, as a part of your
3 experience in the field of acoustics, have you actually gone
4 on the premises of businesses and done noise level
5 measurements?

6 A Yes.

7 Q Doctor Campanella, how long have you been
8 doing that particular type of work?

9 A Since 1973.

10 Q Doctor Campanella, let's you and I focus on,
11 for just a moment -- The Acoustical Society of America had
12 been in existence by 1972, what, about 20 or 30 years?

13 A Forty years.

14 Q Forty years. What was the state of knowledge
15 in your field at that time with respect to exposure of human
16 beings to excessive levels of noise?

17 A It was well-known that it caused damage to a
18 person's hearing, produced a reduction of hearing at four
19 kilohertz as soon as excessive noise was experienced for any
20 length of time.

21 Q Did a lot of businesses hire you to conduct
22 studies for that?

23 A Some did, yes.

24 Q Doctor Campanella, is there any way a large

1 corporation could have avoided in the 1970s the knowledge
2 that exposure to noise was injurious to one's hearing?

3 A Did you say avoided?

4 Q Yeah. Could they avoid this knowledge any
5 way?

6 A They would have to not read any acoustical
7 literature, not read the OSHA regulations, and not ever
8 allow anyone on their premises with a sound level meter.

9 Q Well, with respect to 1972 in the United
10 States of America, was that a significant year with respect
11 to exposure to excessive levels of noise?

12 A Yes.

13 Q What happened that year?

14 A The Occupational Safety & Health Act was
15 promulgated.

16 Q I guess somebody could have avoided knowing
17 that that had happened if they hadn't read the newspapers or
18 had any legal department in their corporation or anything,
19 couldn't they?

20 MR. ODDO: I object.

21 THE COURT: I sustain Mr. Oddo's objection.

22 That is a leading question.

23 MR. CRANWELL: It is a leading question.

24

1 BY MR. CRANWELL:

2 Q Doctor Campanella, were you aware in 1972
3 that there had been promulgated national noise exposure
4 standards?

5 A Yes.

6 Q Were the people that you came in contact with
7 -- what was the state of knowledge of people that you came
8 in contact with in business, in the industry?

9 A They knew it was a problem. That was one of
10 the reasons why I went in consulting in acoustics in the
11 first place. There was the -- it looked like the
12 opportunity now to do it.

13 Q Prior to 1972, had there been any government
14 action with respect to noise exposure levels?

15 A 1969, the Walsh-Healey Act required that
16 government contractors limit the noise exposure to their
17 employees.

18 THE COURT: Spell Walsh-Healey, if you would,
19 Doctor.

20 THE WITNESS: Walsh is W-A-L-S-H -- H-E-A-L-Y
21 or L-E-Y. I am not sure which it is.

22 MR. CRANWELL: E.

23 THE COURT: And while I have interrupted you,
24 would you spell dosimeter?

1 THE WITNESS: D-O-S-I-M-E-T-E-R.

2 THE COURT: Thank you.

3

4 BY MR. CRANWELL:

5 Q Doctor Campanella, in the '70s in your field,
6 were you familiar, generally familiar, with the literature
7 that was published with respect to exposure to excessive
8 levels of noise?

9 A I was aware -- I was aware of exposure to
10 excessive noise causing hearing damage.

11 Q How about the literature in the field?

12 A I didn't really concentrate on it until 1972.

13 Q Okay. How about in 1972?

14 A There was plenty available. I didn't have to
15 look very far.

16 Q Doctor Campanella, do you know what a hearing
17 conservation plan is?

18 A Yes.

19 Q What is a hearing conservation plan?

20 A Well, first thing it has done is determine
21 whether the employee has been exposed to noise over 85
22 decibels.

23 Q Wait a minute. Let me put these up for you.

24 MR. ODDO: Judge, I think we have crossed the

1 line on that 85 decibels. He is referring now to
2 something other than --

3 THE WITNESS: That is the law.

4 THE COURT: Doctor Campanella, when the
5 lawyers are making objections is not the time for
6 you to say anything. Do we need to take this up out
7 of the jury's presence?

8 MR. CRANWELL: Your Honor, I am just -- I
9 will do whatever you say.

10 THE COURT: I am not sure that the answer was
11 responsive to the question anyway.

12 MR. CRANWELL: Yes, sir, Your Honor. I
13 assume he is fixing to give me the contents of what
14 you do when you do a hearing conservation program.

15 THE COURT: Ladies and gentlemen of the jury,
16 I am going to ask you to go, please, with the deputy
17 sheriff to the jury room while we take up this
18 matter.

19
20 (The jury was excused from the courtroom.)
21

22 THE COURT: Mr. Oddo, would you state your
23 objection, please.

24 MR. ODDO: Judge, he testified that 85

1 decibels was some triggering point, and under the
2 FRA regulations, which are the ones that govern this
3 case, 85 decibels is not. In fact, it is something
4 higher than that.

5 I think he can answer the question on what a
6 hearing conservation program involves without
7 talking about 85 decibels. He can talk about it
8 involves testing and monitoring and so forth, but he
9 does not need to mention 85 decibels.

10 MR. CRANWELL: Your Honor, in all due respect
11 to my worthy opponent, if he thinks that his
12 obligation is governed only by the FRA, then he
13 needs to understand what the instructions of the law
14 are going to be in this case.

15 The instructions are going to be that his
16 employer has a duty to provide a safe place to work.
17 Compliance with the FRA does not guarantee that he
18 has met that obligation. It is just like going 55
19 miles an hour. That doesn't guarantee that you are
20 not negligent. In the cases I have been involved
21 in --

22 THE COURT: Mr. Cranwell, I am not going to
23 relitigate matters that I ruled on before trial,
24 whether you were there or, in this case, your

1 associate, Mr. Moore, was there.

2 The Ruling of the Court made without
3 objection, that I recall, was that when numbers are
4 involved in which there are FRA standards, congress
5 has preempted the field, and those are the standards
6 that must apply.

7 We took this up before trial in order not to
8 have to take it up during trial. I don't recall
9 there being contest on that point, although I recall
10 telling Mr. Moore that if he wanted to come up with
11 authorities to demonstrate that I was in error on
12 that he could do so before trial.

13 Mr. Oddo, have I misstated where we were
14 before trial?

15 MR. ODDO: That is my understanding, Judge,
16 and there was an order sent to Mr. Moore. I am not
17 sure whether he has tendered it to the Court or not,
18 but you are correct in your recollection of what was
19 discussed last week.

20 THE COURT: That does not -- I am not
21 disagreeing with you about the duty to maintain a
22 safe workplace, but when we come to what the
23 standards are, I ruled before trial.

24 MR. CRANWELL: Judge, if that is your ruling

1 and we haven't excepted to it, I want to except to
2 it, because that is an incorrect ruling, I submit
3 most humbly to the Court.

4 There are a number of standards out here that
5 you can look at. The custom in the industry is a
6 standard that you look at, the various ISOs,
7 international standards, all those things.

8 But, look, I will -- I want to get this case
9 tried, and so what I am saying to you is I don't
10 mention the number 85. Let's see if we can try this
11 one with the handcuffs on and see how it comes out,
12 because it looks like that is the way it is going to
13 have to be.

14 THE COURT: That is why I said I didn't know
15 that the answer was responsive to the question. To
16 say what a hearing conservation program is does not,
17 so far as I know, require you to start plugging in
18 decibel numbers, does it, Doctor Campanella?

19 THE WITNESS: The literal instruction is to
20 find excessive noises. I was providing my
21 definition of an excessive noise which may be
22 outside of the context of the FRA.

23 THE COURT: Okay.

24 THE WITNESS: And I was answering the simple

1 question that was put to me.

2 THE COURT: I thought it was a simple
3 question. I understand.

4 MR. CRANWELL: Let's go. Don't mention 85.
5 Let's roll.

6 THE COURT: Bring the jury in, please. Do
7 you want me to tell the jury to disregard the
8 number? I don't think you do.

9 MR. ODDO: I am sorry?

10 THE COURT: Do you want me to tell the jury
11 to disregard the number?

12 MR. ODDO: That is fine. Yes, sir.

13 THE COURT: Do you want it?

14 MR. ODDO: Yes, sir.

15

16 (The jury returned to the courtroom.)

17

18 THE COURT: Ladies and gentlemen of the jury,
19 in just a moment, Mr. Cranwell is going to ask
20 Doctor Campanella once again the same question he
21 asked him.

22 When you hear Doctor Campanella's answer, you
23 will please disregard any numbers you heard him
24 mention when he began answering the question last

1 time.

2 With that, Mr. Cranwell, would you proceed.

3

4 BY MR. CRANWELL:

5 Q Doctor Campanella, would you tell us what the
6 elements of a hearing conservation program are, sir?

7 A The first step is to go to the workplace with
8 sound level meters and determine whether excessive noise
9 levels exist in the workplace.

10 Q What is second?

11 A If no excessive noise is heard, then no
12 conservation program is necessary.

13 Q If you have excessive noise, what do you do,
14 sir?

15 A Then the first step is to provide -- to make
16 protection available to -- here we go -- employees who are
17 exposed to, I am sorry, 85 or more decibels.

18 THE COURT: No. No, sir. No, sir. No, sir.
19 Ladies and gentlemen of the jury, you will disregard
20 that testimony, which is improper and is not in
21 evidence. You can testify --

22 MR. CRANWELL: Let me handle this, Judge.

23 THE COURT: All right.

24

1 BY MR. CRANWELL:

2 Q What is the FRA standards on noise exposure?

3 A They are 90 for eight hours and 87 decibels
4 for 12 hours.

5 Q Do you recognize this, sir?

6 A Yes.

7 Q Is this the standards for FRA?

8 A Yes.

9 Q And that is what governs the railroad.

10 A Yes.

11 Q So if you were doing a conservation program
12 for a railroad and you went to the workplace, you would be
13 measuring for 12 hours work periods with decibel levels of
14 87 and above --

15 A That's correct.

16 Q -- or eight hours with 90 and above.

17 A Yes.

18 Q Strike 85 from your mind. You hear me?

19 A Yes.

20 Q Don't mention it again.

21 A Okay.

22 MR. CRANWELL: Your Honor, I will move this
23 in as an as an exhibit.

24 THE COURT: Any objection?

1 MR. ODDO: No objection, Your Honor.

2 THE COURT: We will pause and ask the

3 reporter to mark that as Plaintiff's 11.

4 Plaintiff's 11 is admitted.

5

6 (A chart entitled FRA Noise Exposure
7 Limitations was marked Plaintiff's Exhibit
8 Number 11 and was entered into the Record.)

9

10 BY MR. CRANWELL:

11 Q Employees exposed on the railroad to excesses
12 of 87 for 12 hours or 90 for eight hours or if we go down
13 the list, right, Doctor Campanella?

14 A Yes.

15 Q If an employee is exposed to 92 decibels,
16 what is the maximum amount of time?

17 A Six hours.

18 Q 95?

19 A Four hours.

20 Q 100?

21 A Two hours.

22 Q 112?

23 A 102 is at a half.

24 Q Excuse me. I can't see that far. I have got

1 to turn sideways.

2 A And one hour at 105.

3 Q Okay.

4 A Et cetera. And nothing ever ever beyond 115
5 decibels.

6 Q What else do you do?

7 A Then we look for engineering means to reduce
8 the noise to meet that standard. This would be to put
9 covers over the units; pipe the noise away. Steps to stop
10 the noise at its source.

11 Q Okay.

12 A If that is not feasible, then we put a
13 barrier between them, the person and the noise.

14 Q Okay.

15 A And, finally, if that is not feasible, then
16 we provide the employee with hearing protection.

17 Q Is there an educational element to it?

18 A Yes.

19 Q What is that?

20 A To educate both the management as to how to
21 provide -- to implement the engineering methods or barriers
22 or protection methods. Keep up with management and the
23 employee, because if he is responsible to wear hearing
24 protection, he has to know how to wear it effectively.

1 Q Doctor Campanella, with respect to the state
2 of knowledge in your field in 1972, what were the elements
3 of a hearing conservation program then?

4 A Same.

5 Q Doctor Campanella, on the noise exposure
6 chart that we just -- Plaintiff's Exhibit Number 11, it
7 appears to me that there is a sequencing in terms of a time
8 exposure and decibel level.

9 A Yes.

10 Q Would you explain that to the jurors?

11 A The beginning point is 90 dB for eight hours.
12 Then the question is if the sound level is greater, then the
13 exposure time should be less, and the question becomes what
14 is the schedule of the discounting of the time as the sound
15 level gets louder and louder.

16 On an energy basis, that is if you say the
17 acoustical energy is doubled, then the exposure time should
18 be halved, then the step for doubling would be three
19 decibels.

20 MR. ODDO: Objection, judge. We are into ISO
21 standards now.

22 THE COURT: I overrule the objection.
23
24

1 BY MR. CRANWELL:

2 Q Listen to me. Listen to me. Don't you fuss
3 with him, now. I told you you can't do that. Go ahead.
4 What is the progression?

5 A The progression that is used here is that
6 when the sound level is five decibels higher, the time
7 should be half. And you see that in going from 90 to 95,
8 the time goes from eight to four.

9 Q And when you go from 95 to --

10 A To 100, it is halved again to two and then
11 105 to one and to 115 -- 110, it is a half, and at 115 it
12 says a quarter or less, but upon going over that, nothing.

13 Q Now, Doctor Campanella, these are what -- I
14 think you have an asterisk here that says, "Exposure to
15 continuous noise shall not exceed 115 dBA."

16 MR. ODDO: Objection, leading.

17 MR. CRANWELL: Your Honor, this is an exhibit
18 that is already in.

19 THE COURT: I don't think it is an
20 objectionable question when the lawyer reads
21 something from the chart. Overrule the objection.

22 MR. CRANWELL: May I proceed?

23 THE COURT: Yes, sir.
24

1 BY MR. CRANWELL:

2 Q Is there a definition of what is a continuous
3 exposure?

4 A Yes.

5 Q And is that set by FRA?

6 A Yes.

7 Q Would you tell us what constitutes a
8 continuous exposure?

9 A A continuous noise is a noise whose rise time
10 is slower than 35 milliseconds and whose duration is over a
11 half a second or more out to the point where it has dropped
12 20 decibels.

13 Q Let me be sure I understand this. If the
14 noise is two seconds --

15 A That is continuous.

16 Q Okay. Now, Doctor Campanella, we have been
17 talking a lot about decibel levels. Could you tell us what
18 that means so that we can all understand what a decibel
19 level actually is, sir?

20 A Well, the problem starts with the extremely
21 wide range of sound energy that we can hear. The ratio of
22 the minimum sound like a -- less than a whisper or less out
23 to the loudest noise I can imagine is probably a billion to
24 one. Our ears are wonderful mechanisms. That is why they

1 are a little delicate. That is hard to work with with
2 pencil and paper and reports, because you render a lot of
3 zeros and decimal points.

4 It was decided around 1929 to rate the
5 loudness of sound on a logarithmic scale, the same way that
6 earthquakes are on a Richter scale and that chemical pH is
7 on a pH scale from 1 to 14. And that way you can compress a
8 lot of numbers into a relatively easy-to-use range.

9 In the case of the decibel, it is the -- it
10 is 20 times the logarithm -- I will just say it for a moment
11 here -- of the ratio of the sound in question to our
12 threshold of hearing. So that if the sound was just at our
13 threshold of hearing it would be zero decibels, and if it
14 were ten times the amplitude or a hundred times the energy,
15 it then would be 20 decibels. And if it is a hundred times
16 the amplitude, then it would be 40 decibels, et cetera.

17 Q Now when you say "energy," what do you mean
18 by that, sir?

19 A It is the -- it is the -- well, energy is
20 force times velocity. In this case, it is pressure times
21 velocity. So --

22 Q When it strikes my --

23 A That is the pressure, yeah. The square of
24 the pressure.

1 Q Now, Doctor Campanella, were you asked in
2 this case to undertake a study of the work exposure and
3 noise exposure of Mr. Robert Puryear?

4 A Yes.

5 Q And would you tell the jurors what
6 information that you accumulated and reviewed as a part of
7 that analysis, sir?

8 A I read Mr. Puryear's deposition. I also
9 spoke with him to determine the type of equipment he was on.
10 I then went into my records to find sound level measurements
11 that I had made on similar equipment or measurements that
12 were made by others of a credible variety on that specific
13 equipment.

14 I then from those sound level measurements
15 calculated a day's noise dose and prepared what is now one
16 of these exhibits.

17 Q Did you --

18 MR. ODDO: Judge, excuse me. Judge, we are
19 going to make an objection to one of the opinions
20 that this man is going to express, and I think we
21 need to take that up outside the presence of the
22 jury. It has to do with the earlier testimony that
23 Mr. Puryear gave us this morning.

24 THE COURT: All right. Ladies and

1 gentlemen --

2 MR. CRANWELL: Judge, can we -- can the
3 plaintiff put their case on and he object as an
4 objectionable question comes up rather than us
5 having all these --

6 THE COURT: Ladies and gentlemen, would you
7 go with the sheriff to the jury room, please.

8 MR. CRANWELL: Your Honor, can I put an
9 objection on the Record?

10 THE COURT: Wait until the jury is out of the
11 courtroom, please.

12
13 (The jury was excused from the courtroom.)

14
15 THE COURT: No. You can wait until Mr. Oddo
16 finishes his objection. You can then respond by
17 saying why you don't think he can make his
18 objection, if that is what you want to do.

19 MR. ODDO: Judge, I apologize for having to
20 call the jury out again, but we are going to get
21 into testimony in the next couple of minutes that
22 talks about the noise and his opinions of the noise
23 on the F-7.

24 Now we went through this yesterday, and

1 Mr. Puryear was supposed to lay the predicate or lay
2 the foundation to allow Doctor Campanella to state
3 that the tests that he did were comparable to the
4 circumstances and the situations that Mr. Puryear
5 found himself in when he worked for the railroad.

6 What Mr. Puryear testified to this morning,
7 and it is on that handwritten exhibit right there, I
8 am not sure what the number is, he testified that
9 the only F-7s that he worked on were the N&W and
10 then ones that were leased from the RF&P. And we
11 know from yesterday that Doctor Campanella tested
12 the F-7s from D&O. And there was no attempt made --
13 or I guess there was an attempt made, but he did not
14 testify that the F-7s that he has worked on include
15 F-7s from the D&O.

16 So I would submit that the predicate was not
17 laid to the F-7. He testified as to the D&O only
18 with regard to the GP-9, and, as I said, it is
19 handwritten out on the chart.

20 THE COURT: Mr. Cranwell?

21 MR. CRANWELL: Your Honor, again, Mr. Oddo
22 keeps confusing the requirements in the law if I am
23 conducting some kind of experimental test to
24 replicate a test that I want to introduce at trial

1 -- or to replicate circumstances of something at
2 trial is in fact substantially similar.

3 The law in Virginia under 801 I think it is
4 432 on the expert opinion testimony says that
5 experts can give opinions based on facts and data
6 and information acquired in their field if it is the
7 normal kind the experts rely on.

8 If experts in his field -- if he testified
9 experts in his field rely on these types of tests in
10 developing and rendering opinions that he is going
11 to render on behalf of Mr. Puryear, he can do that.

12 Now the other side can attack the credibility
13 of that testimony by showing that it wasn't on an
14 identical piece of equipment or the same equipment
15 and all those kind of things to try to tear his
16 opinion down, but it doesn't delete the ability for
17 him to rely on that information to give an opinion.

18 Further than that, in this case, Mr. Puryear
19 has laid a very strong predicate that all these
20 engines are virtually the same, that they are
21 interchanged among railroads on a regular course,
22 that the cars are interchanged, the couplings are
23 changed. They can even hook them up and run them in
24 the same consist together. So I think we have met

1 all this.

2 I will tell you what I think is going on, and
3 I would like to put my objection on the Record on
4 that after you rule on this.

5 THE COURT: Go ahead and finish what you
6 wanted to say.

7 MR. CRANWELL: Judge, I think this is all
8 trial tactics. I think it is designed to try to
9 disrupt the plaintiff's case. I think it is
10 calculated -- at least unless I don't have very good
11 hearing, I heard somebody say now is the time to
12 make this objection.

13 I don't have -- unless they have got a
14 crystal ball over there and know what questions I am
15 going to ask, I don't know how they know now is the
16 time to make the objection.

17 Now what I think is going on is an attempt to
18 disrupt the plaintiff's case. I was a little bit
19 surprised yesterday in Opening Statement when
20 counsel referred to my style of litigation. My
21 style of litigation is not an area of comment or
22 anything to a jury, but he commented on it.

23 Now I think what they are attempting to do is
24 to try to disrupt my methods of trying a case. I

1 think that is improper. I think it is improper
2 conduct. And I think that what they are doing is
3 they are doing this not calculated for any reason to
4 try to get any objection in but to try to disrupt
5 the plaintiff's case, and I think that is improper,
6 and I object to it.

7 THE COURT: Well, I will overrule the latter
8 objection. I didn't have any trouble deducing that
9 the charts that plaintiff's counsel was about to
10 show to Doctor Campanella where the charts
11 containing the measurements that were discussed out
12 of the jury's presence yesterday.

13 I made explicit to Mr. Oddo and Mr. Brown the
14 proposition that they were going to have to object
15 at this time at trial in order to preserve those
16 objections. I think this was indeed the time and it
17 was the duty of counsel to make the objection.

18 Once the jury has seen the chart and has been
19 told or shown that this is information, then if an
20 objection were sustained it would be trying to put
21 the genie back into the bottle, which is much more
22 difficult than keeping him in there to begin with.
23 So I do not believe that counsel was engaging in
24 improper trial conduct.

1 Furthermore, it is everywhere taught in trial
2 tactics classes that it is appropriate in Opening
3 Statement to do exactly the sort of thing Mr. Oddo
4 did yesterday in contrasting his manner of
5 presentation to your manner of presentation. I see
6 nothing wrong or improper about that. I have seen
7 both of the --

8 MR. CRANWELL: What if he said he was a good
9 guy and I was a bad guy, would that be proper?

10 THE COURT: He didn't say that. I have seen
11 you do it, and I have seen Mr. Brown do it, and
12 there is nothing wrong with it.

13 Now moving on from that, I overrule
14 Mr. Oddo's objection to which ruling his objection
15 is preserved for all of the reasons he previously
16 stated.

17 Admissibility is for the Court and not for
18 the jury. I think as a general proposition when
19 there is predicate evidence that predicate evidence
20 ought to be replicated in greater or lesser degree
21 in the presence of the jury if the jury is going to
22 have to pass, as it is here, on weight, which was
23 why I said Mr. Puryear needed to testify or ought to
24 testify in the presence of the jury.

1 I agree with Mr. Cranwell that he has laid
2 the foundation for the admission of scientific
3 evidence in this case and that it will be for the
4 jury to determine the weight to assign to that
5 evidence.

6 The foundation is there for admissibility.
7 The foundation is there for the jury to determine
8 that the locomotives that Doctor Campanella is going
9 to testify he tested in 1975 were the same as or
10 substantially similar to locomotives upon which
11 Mr. Puryear worked.

12 The foundation, likewise, is there for the
13 cross-examiner if he be so advised to inquire into
14 both differences and lack of concrete knowledge on
15 specific points. He laid some of that foundation
16 this morning, Mr. Oddo.

17 Those are questions that go, as I have said
18 and as Mr. Cranwell said, to weight and not to
19 admissibility. I am satisfied having revisited the
20 question for myself last night that the case law
21 will allow this testimony.

22 Mr. Cranwell's objections to my ruling on his
23 objection to Mr. Oddo's objection are preserved.
24 Mr. Oddo's objections to my ruling on Mr. Oddo's

1 objections are preserved. The jury is out. We have
2 been in the courtroom about an hour and a quarter.
3 Would you like to take a break at this point?

4 MR. ODDO: It is up to you.

5 MR. CRANWELL: No, let's go. I am ready to
6 roll.

7 THE COURT: All right. Bring the jury in,
8 please.

9
10 (The jury returned to the courtroom.)

11
12 THE COURT: Thank you, sheriff. We are again
13 in session. Mr. Cranwell, would you continue,
14 please.

15
16 BY MR. CRANWELL:

17 Q Mr. Campanella, my last question was if you
18 would outline the information that you gathered in your
19 analysis in this case.

20 A I read Mr. Puryear's deposition.

21 Q All right.

22 A From that, I identified noisy types of
23 equipment that he worked on, noisy from my basis of my
24 knowledge of previous tests of similar nature.

1 Q Okay.

2 A I used my data which matched that of Kilmer
3 of the National Bureau of Standards and that of Stusnick of
4 N&W.

5 Q And did you have access to some testing that
6 the N&W themselves had done that was furnished to you through
7 discovery?

8 A Yes.

9 Q Did you also do a work history with
10 Mr. Puryear?

11 A Yes.

12 Q I am going to ask you what is identified as
13 Plaintiff's Exhibit Number 6 and ask you if you would
14 briefly take a look at that and see if that corresponds with
15 the work history that you understand from Mr. Puryear.

16 A Yes, it does.

17 Q Now, Mr. Campanella, tell the jury the items
18 that -- based on your background, education, training and
19 experience that you felt were noise problems for
20 Mr. Puryear's work history.

21 A His duties as a fireman to go back through
22 the -- to go back outdoors or indoors as the case may be
23 through the consist, a consist being a series of locomotives
24 hooked together to provide enough power to move the train,

1 to inspect those diesel engines while they are operating as
2 to whether they are producing power, they are not having any
3 over heat difficulties, and then return to his cab location,
4 and this he told me he did on more than one occasion during
5 each of the trips. I asked him how much time he spent on
6 that, and he estimated --

7 Q Let me ask you this: Have you developed a
8 chart that would indicate the times that you had
9 discussed --

10 A Yes.

11 Q -- with Mr. Puryear as to the exposure on the
12 various engines?

13 A Yes.

14 Q I will ask you if you would look at this
15 chart.

16 A Yes. This is the chart.

17 Q Do you recognize that?

18 A Yes.

19 MR. CRANWELL: Your Honor, I was going to
20 move to put a number on this for identification and
21 will then let him take us through it, and then I
22 will move for introduction at the appropriate time.

23 THE COURT: That will be Plaintiff's Exhibit
24 12 for identification.

1 (A chart was marked Plaintiff's Exhibit
2 Number 12 for identification.)
3

4 BY MR. CRANWELL:

5 Q Doctor Campanella, would it help if I put
6 this on an easel for you or --

7 A I am okay here.

8 Q Would you take the jurors through this chart
9 and tell them what it shows and the information that you had
10 gathered in your analysis of Mr. Puryear's work history and
11 noise exposure?

12 A First of all, there is three different
13 locomotives, and there is three columns of numbers.

14 Q Let's take them from the top. What are the
15 three locomotives?

16 A The EMD F-7, the locomotive division of
17 General Motors which they produced in the '50s and '60s
18 known as the model F-7 --

19 Q Do you know what the power plant on that was?

20 A That is a 1,500 horsepower V-12 or V-16
21 diesel engine.

22 Q Okay.

23 A What is the next question?

24 Q What is the other engine?

1 A This is a GP -- this is also an EMD,
2 Electromotive Division of General Motors GP-9, which has a
3 similar engine except that it is 1,750 horsepower.

4 The third is the GEC 636-7, and that is built
5 by the General Electric Company. The 36 means it is a 3,600
6 horsepower diesel engine.

7 Q Now what are the columns on here?

8 A The first column is the level that would
9 apply to the environment described on the left. It would be
10 -- and the environments described on the left are in the cab
11 as you would be sitting in an automobile.

12 When in that seated position --

13 Q Let me make a suggestion here. I am not sure
14 everybody can see. I might put this on an easel and let you
15 move over here where everybody can see.

16 MR. CRANWELL: Your Honor, can I borrow your
17 pointer again?

18 THE COURT: Yes, sir.

19 THE WITNESS: Okay. These are the three
20 columns with sound levels. The second column is
21 numbers of minutes for which that sound level
22 endured, and the third column is the percent of a
23 dose allowable, where 100 percent is equal to 90 dB
24 for eight hours. Obviously, if it went for 12 hours

1 it would take less than 90 dB to tally up to the
2 same exposure and percent.

3 In each case, the bottommost two numbers are
4 that sum total which is according to the FRA formula
5 for calculating dose of summing these percentages to
6 a final figure.

7 And then, finally, it is possible
8 mathematically to convert this to a decibel value
9 otherwise known as the time weighted average
10 represented on an eight-hour basis.

11 So, for instance, down here if I have 142
12 percent, I know it is going to be above 90 by a
13 couple, and the mathematics is 92.5. So that is how
14 this chart works.

15

16 BY MR. CRANWELL:

17 Q Okay. Would you go through and explain,
18 then, the numbers that you get, sir?

19 A Yes. In the case of the F-7, I used my data
20 taken in 1975 for -- this had to be a representative
21 condition for the average conditions in the cab. And in the
22 cab, there were two variables. One is that the engine room
23 door could be open or not open. It was in the center of the
24 cab, because it was a fully enclosed locomotive, and it

1 would be open for ventilation as often as not. And then
2 with the -- that is the first average.

3 And the second average is everybody knows
4 that the power for average is doing the trip and that the
5 eighth notch is interesting and that it is the maximum you
6 will find of the engine. But they are not always in the
7 eighth notch, so I took a schedule which was represented in
8 Kilmer's report that at least half the time the throttle
9 position could be in the eighth notch and the other half of
10 the time it is spread among the other notches.

11 Performing that, those two averages, I came
12 from, as I recall, about 103 to 104 decibels for engine room
13 door open in the eighth notch to various others. It
14 averaged down to 99 decibels on an equivalent steady sound
15 level basis.

16 I then used the amount of time that
17 Mr. Puryear spent on the trip for this specific locomotive
18 type. It was a so-called streamliner, it was a passenger
19 service, he would do the trip in three and a half hours,
20 which is 210 --

21 Q Well, let's stop right there, and let me ask
22 you a question. What is the assumption with respect to the
23 eighth notch; that is, the power on this vehicle on this
24 210-minute trip, theoretical trip you have here?

1 A It is on half the time.

2 Q I want you to assume that Mr. Puryear has
3 testified in this case that on his trips that they averaged
4 better than 80 percent of the time at the eighth notch.
5 What would that do to the numbers that we have here?

6 A My averaging of the first type I described
7 reduced the eighth notch value by two decibels. If he was
8 at the eighth notch 80 percent of the time, it would be
9 somewhere between zero and one decibel deduction; probably a
10 half a decibel.

11 Q Up or down?

12 A Down. Down from the top but up one and a
13 half from this.

14 Q Okay. Down from --

15 A A hundred and --

16 Q Fifteen?

17 A No, 103 or thereabouts, 102.

18 Q Okay. That was your maximum measure.

19 A Yes. I would have to refer to my notes to
20 get the exact figure.

21 Q And how about the other locations?

22 A Well, the second item was in that seated
23 position when the whistle was sounded, or the horn -- I call
24 it both -- the sound level was much greater than the engine

1 sound levels. And while it was sounding, it was 103
2 decibels.

3 Q What was the time on that?

4 A That is computed from the number of grade
5 crossings that locomotive line -- train line crossed, and
6 they are in excess of 60 crossings.

7 At each crossing, the whistle is sounded for
8 a certain period of time which is to be determined by
9 Stusnick doing the work for Norfolk & Western for that route
10 to be on the order of 38 seconds, I believe the number is.
11 And of that 38 seconds, of course, there are certain pauses
12 which are common to distinguish the four signals it
13 provides, the four toots, and that brings that time down to
14 30.4 seconds, I recall.

15 Since he was out of his seat for some periods
16 of time, and, in this case, in this enclosed locomotive
17 shielded from the horn sound, then that horn sound time is
18 deducted from the 30.4 and brings it down to 27.5 minutes of
19 exposure, which at 103 decibels according to that chart we
20 saw before gives us 35 percent noise dose.

21 Q How about the engine walkway?

22 A In his duties as a firemen -- not as an
23 engineer, but as a firemen -- he had to go back and inspect
24 the engine and accessories periodically during the trip to

1 make sure that they are producing the maximum amount of
2 power and that there is no trouble back there.

3 I measured in the walkway alongside that
4 enclosed diesel engine noise levels that ranged from 102
5 idled at one end of it up to 122 alongside the engine at
6 full power, which is over 115.

7 I then made the scenario of the 115. Again,
8 it was 117, which is the actual eighth notch figure, reduced
9 by two decibels to show the 50 percent reduction, and if it
10 were, the 80 percent power would be more like less than one
11 decibel off of 117 making this 116.5 as the walkway itself
12 that he would be spending his time in.

13 And during certain instances he would dwell
14 at the engine, which I determined with discussions with
15 Mr. Puryear we agreed that this is a reasonable figure to
16 provide in this case of 20 seconds for that specific engine.
17 And at that engine center, again, averaging over the eighth
18 notch is 120 decibels, but if it is 80 percent of the time,
19 it is 121 to 121.5.

20 But on that original basis, the doses become
21 47 percent for the walkway itself and four percent for the
22 engine center. This then sums out to a sum total of 225
23 percent exposure. Normalized or recalculated out to the
24 eight-hour T time weighted average, that is 95.9 decibels of

1 exposure, and with the note that 115 exposure was exceeded,
2 which is not allowed.

3 Q How about on the GP-9, sir?

4 A On the GP-9, I had other data to compare with
5 mine, and I chose to use what is Mr. Kilmer's results from
6 his tests on 16 locomotives by The National Bureau of
7 Standards in 1979 to 1980. There he found that the average
8 cab level, the average sound level that existed in the cab
9 for a trip, was 89.3 decibels.

10 Now that cab noise included the engine
11 through its notches for a trip, the horn when it was sounded
12 under average conditions, trip conditions, and also all the
13 brake blowoffs. That is when the brake valve is -- the
14 brakes are applied on trains by releasing the air pressure
15 that holds them off, and all of the air that is released
16 from the brakes so that they will apply passes through the
17 lever stand that is by his left hand out of a port. Some
18 modern engines have that vented to the floor, but the
19 engines I looked at didn't have that feature yet.

20 This includes all of those sounds, so that is
21 an average -- that is an average level. It is an eight-hour
22 TWA value, which I can use in here at face value.

23 Then I apply that in this case for 600
24 minutes at ten hours, because that was the length of the

1 trip that Mr. Puryear made. This was a freight train. It
2 was a lot of cars. It was doing the job. They had the
3 maximum number of cars and probably just enough power to
4 make the trip in time. 600 minutes, 89.3, gives 113 percent
5 FRA dose. The brakes are not -- the whistle and horn at the
6 seat is not necessary, because it is already in this time
7 weighted average.

8 Then in his firemen's duties external to the
9 cab, climb on the engine walkway. This time it was 20
10 minutes, because it was a longer trip in time. And my
11 measurements indicate for the average over the eighth notch
12 of 103 decibels around the walkway and at the center of the
13 engine would be 112 decibels. I measured 114 in one unit,
14 and that, then, through the eighth notch averaging sequence
15 brings the dB down to 112. And, again, if the 80 percent
16 factor applies to the eighth notch on the GP-9 because of
17 their heavily-loaded condition, then this would be up to
18 113, 114.

19 The time here, again, I used a half a minute,
20 a bit longer than this, through discussions with Mr. Puryear
21 as to the time that applied, which provides a two percent
22 dose. So this then sums out to 142 percent FRA allowable
23 dose or 92.5 decibels.

24 And in this case -- well, the 150 not allowed

1 -- there was one condition, which is applicable in here. I
2 don't show it on this draft, but I have a measurement of the
3 original GP-9 that I measured where we did open the engine
4 hatch, and the person that was doing -- demonstrating to me
5 how he would inspect the oil and the water put his head
6 there and put the microphone next to his head and measured
7 the sound while there and received 115 decibels at that
8 point.

9 So that is why that comment is here, but it
10 doesn't show on this chart.

11 Q Let me be sure I understand that the
12 assumption on these decibel levels is that you are running
13 in the eighth notch at 50 percent of the time.

14 A Yes.

15 Q Let me repeat the question. I want you to
16 assume that Mr. Puryear has testified it was 80 to 90
17 percent of the time on these runs. Would that mean that he
18 was exposed to more noise or less noise levels than you show
19 on this chart?

20 A More noise.

21 Q All right. Go on to the GE.

22 A The GEC 36-7, his duty was a road foreman. A
23 road foreman's responsibility is to see to it that the
24 engineer and the firemen do their job correctly.

1 Q The source of the data that you relied on to
2 do your calculations for the GEC 36-7 came from where,
3 Doctor Campanella?

4 A This was from Stusnick's trip that he
5 provided dosimeter information for.

6 Q Was that information that was furnished by
7 the N&W through discovery through which you utilized?

8 A Yes.

9 Q Calculations are based on N&W's numbers?

10 A Yes.

11 Q Take us through them and tell us what they
12 show you.

13 A Okay. This 88 is on a trip that their expert
14 Stusnick accompanied using a dosimeter mounted on the
15 engineer, and that specific trip was with a 36-7 -- I
16 believe he said three of them together in a consist -- two
17 36s and a 30 totaling 10,200 horsepower hauling 50 cars.

18 Q Well, we are going to get to his test in a
19 minute, but let's just use his data first. Go ahead take us
20 through and tell us what you get.

21 A 88 decibels on the average for the TWA for
22 the cap, 600 minutes of transit time, trip time, which gives
23 a 95 percent FRA dose. That would include the horn
24 soundings as heard in the cab; the brake blowoffs as heard

1 in the cab.

2 Then since Mr. Puryear was a road foreman, he
3 had to accompany the brakeman on his routes in order, again,
4 as part of his inspection procedure to ascertain that the
5 brakeman was doing his duties properly.

6 And in that case, he spent slightly less time
7 on the walkway, because he may not have been out there every
8 trip with the firemen. And then there was a half a minute
9 at the engine at the center of the engine in this case.

10 The sound levels I ascertained here are from
11 -- first of all, Mr. Puryear's deposition sort of revealed
12 this to me that when he sat in the fireman's seat, sometimes
13 called the brakeman's seat on the left-hand side of the cab,
14 when the engineer would sound the horn, it was so intense at
15 that seat that he had to duck his head and stick his fingers
16 in his ears. And that says to me that that is truly an
17 intense sound when an experienced man of that sort has to
18 duck sounds.

19 Q Did you have measurements on those sounds?

20 A I did not have measurements on those sounds.

21 Q Did the N&W furnish us with information on
22 that? What is it? It is right there on the chart. Tell us
23 what it is.

24 A They tested three horns. I averaged the

1 three -- there may have been any one of the three on any
2 diesel at any given time -- at the position of interest,
3 which was over the center of the cab, and the average is
4 116.8 decibels for that seated position.

5 Q And on a trip, how much would he be exposed
6 to? How many minutes?

7 A 29.9 minutes.

8 Q And that is what percent of the allowed?

9 A 256 percent.

10 Q How about the whistles when he was on the
11 walkway?

12 A He related that he -- in making the trips
13 with the firemen out on the consists and back, when they
14 arrive just at the cab and if the engineer was obliged to
15 sound the horn, he would be blasted with more intense sound.

16 N&W's measurements of the sound level --
17 again, for three different horn types at that specific
18 position -- averaged 127.5 decibels for the steady sound of
19 the horn.

20 Q What is the time exposure on that?

21 A Half a minute. And that gives us 19 percent
22 of FRA allowable exposure, and it is over 115, so it should
23 not have been allowed.

24 Summing up all of these percentages -- I will

1 finish the last two. The engine walkway, I have no data on
2 that. N&W has no data on it that they have shown me. So I
3 said, What is a reasonable figure to use out there.

4 Well, I inspected their cab data and also
5 Kilmer's cab data for the 33 and 36 -- there is a 33 which
6 is similar -- and I simply took the highest cab figure I
7 could find and say, well, likely, the walkway is as much as
8 that or greater, for the engine sound, and I applied that to
9 the 15 minutes on the walkway. And at the engine center, it
10 might be well the case maybe GE learned how to cover the
11 engine, so I will give the 91 also there, so there was less
12 than a percent on account of that and four percent on
13 account of the engine walkway.

14 Q What is the horsepower on this diesel engine,
15 the GP-9?

16 A 1,750.

17 Q And on this one?

18 A 3,600.

19 Q Am I correct that that is twice the
20 horsepower of this one?

21 A Yes.

22 Q These are actual measurements out here,
23 aren't they?

24 A Yes.

1 Q The engine walkway?

2 A Yes.

3 Q What is it on the GP-9?

4 A 103 decibels.

5 Q And what did you say it was that you assumed
6 down here?

7 A 91.

8 Q Would you say that is a conservative
9 estimate?

10 A Yes. I don't want to exaggerate.

11 Q Let me ask you this: Does the greater of a
12 horsepower of the engine have anything to do with the noise
13 it generates?

14 A Generally, it is more.

15 Q Now, Doctor Campanella, I want you to assume
16 for me that the work history that Mr. Puryear gave you and
17 as is reflected in Plaintiff's Exhibit Number 6 --

18 MR. CRANWELL: Your Honor, I will go ahead
19 and move the introduction of that chart now.

20 THE COURT: The chart, Plaintiff's Exhibit
21 12, is admitted in evidence. Prior objections are
22 preserved.

23 MR. ODDO: There may be subsequent objections
24 after cross-examination, also.

1 THE COURT: All right. Accepted in evidence.

2

3 (Plaintiff's Exhibit Number 12 was entered
4 into the Record.)

5

6 MR. CRANWELL: You can have a seat back on
7 the stand.

8

9 BY MR. CRANWELL:

10 Q Doctor Campanella, I want you to assume that
11 Mr. Puryear worked for the work history that he has given
12 you based on what is on Plaintiff's Exhibit Number 6, and
13 that is: From '55 to '59 he was a firemen, worked an
14 average of 12 travel hours per trip, maximum allowed hours
15 per day, 16, was off four days a month, that he was
16 furloughed from '59 to -- October of '59 to May of '61, he
17 went back to work in May of '61 and worked until '75 as a
18 fireman and engineer, 98 percent of the work as a firemen.
19 He worked on an average of over ten travel hours per trip.
20 Maximum hours allowed per day for most of this period was 12
21 hours. He was off an average of four days a week.

22 THE COURT: A month.

23 THE WITNESS: A month.

24

1 BY MR. CRANWELL:

2 Q Did I say days?

3 A Week.

4 Q Four days a month.

5 A Month.

6 Q It is hard to average four days a week off,
7 isn't it.

8 A Nice.

9 Q I apologize to everybody. I know I am a poor
10 reader, Your Honor, but I am dyslexic, and I am doing the
11 best I can.

12 Model of engines worked on, worked over 50
13 percent of time in the engine model EDM GP-9. That is the
14 General Motors --

15 A Electromotive Division.

16 Q Worked ten percent of the time in the Alco
17 engine. Worked in passenger train Model ED 7-A, covered
18 wagon type from '72 to '75 approximately 60 trips. From '75
19 to '87, he was a road foreman of engines for the Shenandoah
20 Division, worked an average of three days per week on
21 engines on the road trips. A road trip would last on
22 average of over ten travel hours per road trip. Model
23 engine was a GEC 36-7 model locomotive. Worked at least one
24 road trip per week in that model. Got that work history?

1 A The F-7A was a smaller number of trips on the
2 F-7A and a larger number of trips on similar locomotives.

3 Q Now say that to me again?

4 A The 60 trip value really consists of two
5 components. One is approximately six trips for the F-7A of
6 the type that I actually measured.

7 Q Okay.

8 A And the remainder -- or probably, really, 60
9 trips -- on a similar so-called enclosed or covered wagon
10 diesel locomotive, which has similar acoustical geometry.

11 Q Okay. Also, I would like for you to assume
12 for me that the exposure on the EMD F-7 on the normal run in
13 the cab on average power, and that is 50 percent --

14 A Yes.

15 Q -- at eighth notch, was 99. That the time
16 exposed is 210 minutes, okay? That the whistle horn seat is
17 a dBA of 103 at 27 and a half minutes time exposure. The
18 engine walkway is 115 decibels with seven minutes exposure,
19 and the engine center, 120 decibels with 20 seconds exposure
20 on an average trip.

21 A Yes.

22 Q Okay. Now let's stop right there. Given the
23 work history on the EMD F-7, do you have an opinion based on
24 your background, training, education and experience whether

1 or not Mr. Puryear would have been exposed to excessive
2 noise above FRA limits on one of these runs?

3 A Yes.

4 Q And what is that opinion?

5 A He was exposed to excess noise.

6 Q Let's go to the GP-9. I want you to assume
7 the same work history we have been through, cab power is
8 89.3, 600 minutes, the whistle horn on walkway, 109 for 30
9 seconds, the engine walkway exposure, 112 for 30 seconds.

10 A Engine center.

11 Q Engine center, excuse me, 112 for 30 seconds.

12 A Yes.

13 Q Based on your background, training, education
14 and experience, when he was making his runs on the GP-9, was
15 he exposed to excessive noise?

16 A Yes.

17 Q Do you have an opinion of whether the
18 exposure on both of those exceeded FRA standards?

19 A Yes.

20 Q And what is that opinion?

21 A It exceeded FRA standards.

22 Q Now let's talk about the GEC 36-7. I want
23 you to assume that in the cab he was exposed to 88 decibels
24 for 600 minutes.

1 A Yes.

2 Q Whistle, horn, when he was in the firemen's
3 seat, 116.8 decibels for 29.9 minutes.

4 A Yes.

5 Q Whistle horn on the walkway, 127.5 decibels
6 for 30 seconds.

7 A Yes.

8 Q The engine walkway, 90 decibels for 15
9 minutes.

10 A Ninety-one.

11 Q Ninety-one. And the engine center 91
12 decibels for 30 seconds.

13 A Yes.

14 Q Do you have an opinion based on your
15 background, training, education and experience as to whether
16 or not when he was making runs on the GEC 36 he was exposed
17 to excessive noise?

18 A Yes.

19 Q And what is that opinion?

20 A He was exposed to excessive noise.

21 Q And do you have an opinion as to whether or
22 not that noise exposure exceeded the FRA limits?

23 A Yes.

24 Q What is that opinion?

1 A It exceeded FRA limits.

2 Q Now, Doctor Campanella, let's you and I focus
3 on the horn on the GEC 36-7 and nothing else. Only in the
4 seated position. Have you performed a calculation as to the
5 total overexposure that Mr. Puryear would have been subject
6 to just on the horn alone or whistle alone on the --

7 A Yes. I should need to refer to my chart, one
8 of the entries in it.

9 Q Okay. Which chart do you want to refer to?

10 A The three locomotive numbers. That is it,
11 good.

12 THE COURT: Exhibit 12.

13 THE WITNESS: Exhibit 12.

14 MR. CRANWELL: Exhibit Number 12. Thank you,
15 Your Honor.

16 THE WITNESS: That is the third item from --
17 fourth item from the bottom. Whistle and horn at
18 the seat of 116.8 decibels is 256 percent, which is
19 two and a half times over.

20

21 BY MR. CRANWELL:

22 Q Now did you do a calculation as to the amount
23 of overexposure Mr. Puryear would have been subject to for
24 the six years that he made the runs on that engine?

1 A Yes.

2 Q Would you tell the jurors how you did that
3 calculation?

4 A It was based on the number of horn blasts,
5 where each crossing would provide four horn blasts. These
6 horn blasts exceeded a half a second in duration, so they
7 constitute steady sound, and are at a level of 116.8
8 decibels on the average.

9 Q When you did the final calibration, what was
10 the total overexposure for a six-year period?

11 A Well, each half second it amounts to an
12 overexposure since it is over 116.8, for one thing, over
13 115. And if we count out the half seconds, the bottom line
14 is 1,033,344 overexposures.

15 Q Doctor Campanella, based on your background,
16 education, training and experience, do you have an opinion
17 as to whether or not that exposure alone is the type of
18 noise exposure that could cause high frequency hearing loss?

19 MR. ODDO: Objection, Your Honor. That is
20 medical testimony. This witness is not qualified to
21 give that testimony.

22 THE COURT: Overrule the objection based upon
23 the prior testimony.

24 THE WITNESS: Such overexposures cause

1 hearing loss at high frequencies.

2

3 BY MR. CRANWELL:

4 Q Okay. Doctor Campanella, let's move on, if
5 we could. Did you review documents for the testing of noise
6 levels of locomotives from the railroad that we furnished to
7 you in discovery?

8 A Yes.

9 Q Did you find any that were conducted in the
10 1960s?

11 A No.

12 Q Did you find any that were conducted in the
13 1970s?

14 A There was one by Aurelis, I believe, that did
15 it on the Alco engines. Reference to that. Not a study,
16 but a reference to the study.

17 Q Did you find any indications during the '70s
18 that the railroad had done any testing of the noise levels
19 in any of their engines?

20 A No.

21 Q Doctor Campanella, the Kilmer study has been
22 cited here in the courtroom from time to time. Would you
23 tell the jurors what the Kilmer study is?

24 A It is my opinion that after --

1 Q No. I don't want your opinion, I want you to
2 tell me what it is first.

3 A Mr. Kilmer at National Bureau of Standards
4 under contract with the FRA performed cab noise measurements
5 on 16 locomotives on road trips.

6 Q When you say "cab measurements," was his
7 measurements limited to the cab?

8 A His reported measurements were limited to the
9 cab.

10 Q Were there any walkway or engine center
11 measurements taken?

12 A There were none reported.

13 Q Does any of your data appear in the Kilmer
14 study?

15 A Yes.

16 Q Some of the noise measurements that you have
17 talked about here in the courtroom today?

18 A Yes.

19 Q Now I think there is some difference of
20 opinion between you and Mr. Kilmer as to the efficacy of his
21 testing procedures; is there not?

22 A I have no objection to what he does, and he
23 has no objection to what I do.

24 Q As a matter of fact, you are a little

1 concerned he didn't check outside the --

2 MR. ODDO: Objection.

3 THE COURT: Mr. Cranwell.

4 MR. CRANWELL: It is leading. Absolutely
5 leading. I apologize.

6 THE COURT: Let Mr. Cranwell ask you a
7 different question, Doctor Campanella.

8
9 BY MR. CRANWELL:

10 Q Was there a difference in the methodology in
11 terms of the areas to which sound measurements were taken as
12 opposed to the Kilmer test and your test?

13 A Yes.

14 Q What were those differences?

15 A Well, he only took measurements in the cab.
16 I took measurements along the engine walkway and exterior to
17 the cab, because that is what plaintiffs -- that is what
18 others told me they did. That was part of the job
19 description.

20 Q If they were firemen; is that right?

21 A Yes.

22 Q Do you have an opinion as to which testing
23 methodology would most accurately reflect the work
24 environment of a fireman working on these engines?

1 A Measurements outside the cab in his normal
2 tour of duty.

3 Q And once you have the cab measurements inside
4 and outside, what do you do, Doctor Campanella?

5 A I construct a projected dose or flag areas
6 that are in excessive noise areas.

7 Q And if you only have measurements from inside
8 of the cab, how do you construct a dosage for the complete
9 exposure that a firemen would be experiencing?

10 A In my GE engine, I show you what the expert
11 can only do. He can only say that this is a lower volume
12 and it is at least this much.

13 Q Did Kilmer even do that?

14 A No.

15 Q Doctor Campanella, do you have an opinion as
16 to whether or not the use of hearing protection inside the
17 engine cab or around the engines would impede the ability of
18 the crew to communicate by normal conversation?

19 A Yes.

20 MR. ODDO: Objection, Judge. There has been
21 no foundation laid for that.

22 THE COURT: Do you want to go back and see
23 whether you can lay a foundation for whether such an
24 opinion is within Doctor Campanella's field?

1 BY MR. CRANWELL:

2 Q Doctor Campanella, within -- let's come back
3 to within the areas of acoustical engineering and when you
4 do a hearing conservation program.

5 A Yes.

6 Q Do you recommend hearing protection?

7 A Yes.

8 Q And what kind of hearing protection do you
9 recommend?

10 A Either earplugs or earmuffs.

11 Q And will you tell us, the members of the
12 jury, what impact that will have on the overall decibel
13 level that one might be exposed to?

14 A It reduces the exposure level to the eardrum,
15 to the middle and inner ear, proportional to the so-called
16 noise reduction of the earplugs.

17 Q And do the noise reduction of earplugs vary?

18 A Yes.

19 Q What do they vary between, the number of
20 decibels?

21 A Properly fitted, they wouldn't be less than
22 15. They could be as high as 30.

23 Q So I could put earplugs in my ears, if I
24 understand this correct -- where are they?

1 MR. PURYEAR: I haven't seen them.

2

3 BY MR. CRANWELL:

4 Q If I put them in, I could reduce the sound,
5 the decibel levels of the sound I was exposed to, anywhere
6 from 15 to 30 decibels?

7 A These earplugs?

8 Q There we go. Doctor Campanella, also, have
9 you had occasion to review literature in this area?

10 A Yes.

11 Q What does the literature say with respect to
12 the impact of hearing protection on communications by voice?

13 A In 1946, Carl Kryter reported that above a
14 certain level they improved intelligibility in noisy
15 situations.

16 Q You can say the decibel level on this.

17 A About 85 decibels they improve
18 intelligibility.

19 Q When you say they improve intelligibility,
20 what does that mean?

21 A Can I use an example?

22 Q Yes.

23 A In 1971, in my previous experiences, I knew
24 about hearing protection because of my early training, and I

1 was in a plant in Neenah, Wisconsin -- Green Bay, Wisconsin
2 -- and while I was doing my duties there, I saw on the
3 counter, "Hearing protectors available." They were called
4 stopples at that time, and they were wax impregnated cotton,
5 as it were.

6 I have my own aircraft, and I was always a
7 little concerned about it, because I knew it was over 90
8 decibels, and so I put the ear stopples in. And to my
9 amazement, the music that I would listen to became clear and
10 intelligibility was good.

11 Q Why is that? Why does that occur? Based on
12 your background, education and training, tell us why that
13 occurs.

14 A Well, between the eardrum and the inner ear,
15 and the inner ear is where all the nerves are, there is a
16 mechanical coupling. The eardrum is a wishbone shaped bone
17 called the stapes bone, and that is actually a force
18 amplifier or a movement reduction. If you drive it hard
19 with noise, the loud sound, the thrashing of the engine,
20 would mess up the high frequencies where all the
21 intelligibility is.

22 By inserting the earplugs, you shield the
23 eardrum from those intense sounds. There is a lesser sound
24 coming through it. But our ear is a wonderful device. It

1 can hear those lesser sounds quite well, and now the
2 scrambling disappears, and the fidelity is great.

3 MR. CRANWELL: Have I laid enough foundation
4 now, Your Honor?

5 THE COURT: Keep going. If there is an
6 objection --

7
8 BY MR. CRANWELL:

9 Q Now I will come back and ask my question now.
10 Do you have an opinion based on your background, training
11 education and experience as to whether or not the use of
12 hearing protection in noise exposure situations like you
13 have identified here for Mr. Puryear would actually improve
14 conversational communication?

15 A Yes.

16 Q And what is that opinion?

17 A It improves intelligibility of speech.

18 Q Has this piece of information you have just
19 imparted to us been some great secret in the United States
20 of America?

21 A No.

22 Q Is it common knowledge in your field?

23 A Yes.

24 Q And how far back is that knowledge traced?

1 Can you trace it back to us?

2 A 1946.

3 MR. ODDO: Objection, Judge. We have been
4 through this.

5 THE COURT: Overruled.

6 THE WITNESS: 1946.

7

8 BY MR. CRANWELL:

9 Q I didn't hear you.

10 A 1946.

11 Q Are you familiar with the Clark Pelica study?

12 A Yes.

13 Q Would you tell us what that is?

14 A Two audiologists, scientists, in St. Louis, I
15 think at the Central Institute for the Deaf, performed under
16 contract with the FRA a study of hearing loss in certain
17 populations.

18 Q Do you have an opinion on the reliability of
19 the methodology used in that study?

20 A It is --

21 MR. ODDO: Judge, I object. We haven't even
22 heard what the conclusions are. I think he has got
23 to tell us what the conclusions are before he
24 expresses his opinion.

1 THE COURT: Overrule the objection based on
2 the language of Code Section 8.01-401.1.

3 THE WITNESS: There is questionable
4 procedures in it.
5

6 BY MR. CRANWELL:

7 Q Would you tell us what they were?

8 A Well, the most prominent one is he only
9 reported the hearing of the better ear of each person as if
10 to say the other ear didn't count.

11 Q That would be like running the test on me who
12 is blind in one eye and can't see on the other --

13 MR. ODDO: Objection, judge.
14

15 BY MR. CRANWELL:

16 Q -- the good eye.

17 A Yes.

18 Q What other problems do you find -- I will
19 withdraw that question. You can strike that last question
20 and answer from the Record.

21 THE COURT: Just go ahead, Mr. Cranwell.
22

23 BY MR. CRANWELL:

24 Q What other problems do you find with it?

1 A He used a portable audiometric booth, and
2 that is a little isolation chamber you sit in while your
3 hearing is tested, and he claimed -- in the first place, he
4 tells about the booth and he said it met ANSI standard
5 requirements for background sound level. That is, the sound
6 level was never above a level that could disturb the test.

7 In the next paragraph, he said because it was
8 a field test and field test conditions are known to be
9 noisy, he subtracted three decibels from the hearing loss
10 values for all his field tests.

11 Q Where do people work in the field or booth?

12 A Well, a field test means you are in a van
13 near the building, near the plant or near the yard. Persons
14 work in the area -- the van was located in the area that the
15 persons worked.

16 Q In the workplace; right?

17 A Yes. There is one more objection I have to
18 Popelka's study.

19 Q What is that, sir?

20 A He only reported frequencies out to six
21 kilohertz, whereas it is common in audiometry to take data
22 out to eight kilohertz because noise-induced hearing loss
23 provides a characteristic signature in all audiograms of a
24 V-shaped notch by eye, you see, where the four kilohertz is

1 the lowest point and then there is a regain at eight
2 kilohertz. This distinguishes that hearing loss from what
3 is called presbycusis, or old-age hearing loss. One can
4 distinguish between presbycusis and noise-induced hearing
5 loss by seeing the eight kilohertz data. Pepelka eliminated
6 it.

7 Q Okay. Now also I am going to ask you a
8 question about Mr. Stusnick, the expert.

9 THE COURT: Are you moving from one study to
10 the next? Somewhere along in here we are going to
11 take a recess, Mr. Cranwell.

12 MR. CRANWELL: Your Honor, I am just about
13 through with him on direct.

14 THE COURT: Okay.

15
16 BY MR. CRANWELL:

17 Q We are going to move now to the test done by
18 Mr. Stusnick for the N&W.

19 A Yes.

20 Q Since you are not going to be here in a
21 couple of days after he testifies, I am going to ask you,
22 have you had a copy of Mr. Stusnick's report on the study
23 that he conducted --

24 A Yes.

1 Q -- for N&W?

2 A Yes.

3 Q And tell the jurors -- that was a study of
4 doing a run up Shenandoah; Shenandoah, Virginia?

5 A Yes, Roanoke to Shenandoah, Virginia.

6 Q Doctor Campanella, do you agree with the
7 methodology utilized in the test that -- not necessarily the
8 methodology. Do you agree with the testing results as being
9 accurately reflecting the working conditions of Mr. Puryear?

10 A I don't agree with that.

11 Q And would you tell the ladies and gentlemen
12 of the jury why.

13 A Two counts. The first is he is using a meter
14 which reports whether it has ever been overloaded, which
15 like the ear distorting would then make the results of the
16 test in question, and the printout here states that there
17 were 13 overloads that occurred during the test.

18 Q Now what does that mean?

19 A It means that the sound level was so high as
20 to make the circuitry not report the full value of the dose.

21 Q What else?

22 A The second is the consist and string of cars
23 of train was highly powered. That is, they are at 10,200
24 horsepower total applied to a train with a string of 50

1 cars.

2 Mr. Puryear says that in his experience it
3 was more common on that run to use three GP-9s of 9,000
4 horsepower total -- or, sorry. To make the 9,000 horsepower
5 to pull 100 to 150 cars, which is less power and almost at
6 least double the load, which would then cause the eighth
7 notch to be used, as he commented, almost continuously.

8 Mr. Stusnick's data indicates eighth notch a
9 percent of time, as the most highly used notch was actually
10 the sixth notch, and he was in idle or notch one.

11 Q How much percent of time did they use the
12 sixth notch?

13 A It was a high percentage. It will take me a
14 while to find it here. The sixth notch was used seven
15 percent of the time and the eighth notch was used ten
16 percent of the time and the idle was 24 percent of the time.
17 No power.

18 Q Do you know where the whistle or horn was
19 located on the GEC 36-7s that the tests were conducted on?

20 A This one had the horn placed where the N&W's
21 1984 studies indicated it would be quieter with respect to
22 the cab walkway. The walkway and entrance to the cab.

23 MR. CRANWELL: Your witness.

24 THE COURT: All right. Ladies and gentlemen,

1 we will take a recess now. Go with the sheriff.

2
3 (A recess was taken. Following the
4 recess, the parties returned to the courtroom
5 and the following took place before the
6 Court.)

7
8 THE COURT: We are again in session.
9 Sheriff, would you bring the jurors in, please.

10
11 (The jury returned to the courtroom.)

12
13 THE COURT: Ladies and gentlemen of the jury,
14 I have discussed with the lawyers the progression of
15 witnesses, including the cross-examination that we
16 would undergo from here. And especially considering
17 that one of you, I know, needs to eat meals
18 regularly, I would like to take our lunch break now.

19 What I want to try to do is ask you to be
20 back at 12:30 or as close to 12:30 as you can make
21 it. Does anybody think that is going to impose too
22 much of a burden?

23 All right. I will remind you again not to
24 discuss the case among yourselves or with anyone

1 else, not to remain in the hearing distance of
2 anyone discussing the case, not to have any contact
3 with anyone involved with the case as party,
4 witness, attorney or spectator and not to undertake
5 any independent investigation or inquiry into
6 anything about this case. If you will go with the
7 sheriff, we will get started again at 12:30.

8
9 (The jury was excused from the courtroom.)

10
11 THE COURT: Anything else you want to take
12 up, Mr. Oddo?

13 MR. ODDO: I will just hand this to the
14 deputy.

15 THE COURT: We are in recess until 12:30.

16
17 (A luncheon recess was taken. Following
18 the recess, the parties returned to the
19 courtroom and the following took place before
20 the Court.)

21
22 THE COURT: We are again in session. The
23 parties and counsel are present. Ready for the
24 jury?

1 MR. ODDO: Yes, sir.

2 MR. CRANWELL: Ready.

3 THE COURT: Bring the jury in, please,
4 sheriff.

5

6 (The jury returned to the courtroom.)

7

8 THE COURT: Thank you, sheriff. Did we rush
9 you too much, ladies and gentlemen of the jury?

10 A JUROR: Yes, sir.

11 MR. BROWN: They would not have answered so
12 honestly the first day, Judge.

13 THE COURT: Thank you very much. We will now
14 proceed to the cross-examination of Doctor
15 Campanella. Mr. Oddo.

16 MR. ODDO: Thank you, judge.

17

18 CROSS-EXAMINATION

19

20 BY MR. ODDO:

21 Q Doctor Campanella, let me understand what you
22 have done here with your 1975 tests. Those tests were done
23 on B&O locomotives, is that right, or a B&O locomotive?

24 A Yes. Two B&O locomotives.

1 Q Baltimore & Ohio Railroad?

2 A Also known as Chesapeake & Ohio, also known
3 as Chessie Systems.

4 Q Not Norfolk & Western locomotives.

5 A That's correct.

6 Q And I believe that you also factored in
7 somehow some tests you did on the Main Central for the GP-9;
8 is that correct?

9 A That's correct.

10 Q Do you know, Doctor, the year that any of
11 those locomotives that you tested were manufactured?

12 A Before 1975 and before 1988 respectively,
13 yes.

14 Q With particularity do you know the year that
15 any of those locomotives were tested? Or were manufactured,
16 I am sorry.

17 A I don't know that.

18 Q Do you know, Doctor Campanella, whether any
19 of those locomotives that you tested had the same horn and
20 break exhaust setup as the locomotives that Mr. Puryear
21 worked on?

22 A The 24-L was used on one of the 1988
23 locomotives that I tested. The 1975 unit, I am not so sure,
24 so I didn't use that data.

1 Q Well, I guess my question is do you know
2 whether the brake and horn setups on the ones you tested
3 were the same as the ones that Mr. Puryear worked on?

4 A I can't say that.

5 Q You don't know?

6 A I don't know.

7 Q Would it also be true, Doctor Campanella,
8 that you have no basis for knowledge about the similarity or
9 the differences between the locomotives you tested and the
10 locomotives that the Norfolk & Western operated in 1975?

11 A Well, General Motors built these. They built
12 them on a production basis. There is 5,000 GP-9s in the
13 United States, according to Kilmer, in 1980.

14 Q But you don't know whether the ones you
15 tested were the same as the ones Mr. Puryear worked on.

16 A I believe them to be substantially the same.

17 Q But you don't know that. You don't have any
18 bases for saying that.

19 A I have Mr. Puryear's comments about his
20 knowledge of the universality of the locomotives. I have
21 the Diesel Spotter's Guide, which shows the GP-9s that look
22 just like the ones I tested.

23 Q You are assuming that the GP-9s you tested
24 were the same as the ones he worked on.

1 A That's correct. Substantially the same from
2 the standpoint of noise.

3 Q That is an assumption you have made in
4 formulating your opinions.

5 A Yes.

6 Q If I might see one of the exhibits.

7 MR. CRANWELL: Which one are you looking for?

8 MR. ODDO: One of the blowups.

9
10 BY MR. ODDO:

11 Q Doctor Campanella, let me show you
12 Plaintiff's Exhibit 11. There is a mistake on this, is
13 there not, Doctor Campanella? This number right here that
14 corresponds to 102 decibels that says a half an hour, that
15 really should be one and a half hours; right?

16 A I believe so, yes.

17 Q Okay. So can we correct that mistake with
18 your permission?

19 MR. CRANWELL: Yeah. I don't like that
20 "one." I am just kidding you. Go ahead.

21
22 BY MR. ODDO:

23 Q All right. So we know that there was an
24 error there. Doctor, let's talk in a little bit more detail

1 about the tests you did in 1975 on the B&O locomotives.
2 Those tests were not over-the-road tests; is that right?

3 A That's correct.

4 Q And so the jury understands, when I say
5 "over-the-road," I mean from one point to another point. Is
6 that your understanding of over the road?

7 A That's correct.

8 Q They were done in a stationary location
9 hooked up to what is called a load cell?

10 A That's correct.

11 Q And you did not come up with what we have
12 heard today as known as a dose or a time weighted average in
13 1975. You came up with what is called maximum levels; is
14 that right?

15 A That's not the maximum level. That is the
16 average level for the throttle setting.

17 Q The numbers you came up with in your tests in
18 1975 were maximum levels. That is what your --

19 A They were not maximum levels. They were
20 average levels for the settings represented.

21 THE COURT: Doctor Campanella, please allow
22 the questioner to finish his question before you
23 begin your answer.

24

1 BY MR. ODDO:

2 Q Well, Doctor, let's talk about it in this
3 context, Doctor. The tests that you did in 1975, for
4 example, I think you said you came up with a decibel level
5 of 105 in the eighth notch. Now that is insufficient in and
6 of itself to tell you whether the individual who is working
7 in that cab has been exposed to noise in excess of
8 government limits; isn't that right?

9 A That in itself is simply a data point of the
10 average level over a short period of time.

11 Q But that in and of itself is insufficient to
12 tell you whether the individual working in that environment
13 has been exposed to noise in excess of government limits;
14 isn't that correct?

15 A That's correct.

16 Q Thank you. The measurements you did in
17 Maryland, Doctor Campanella, you used what is called a sound
18 level meter?

19 A Yes. It was more than a sound level meter.
20 It was sound level meter and a strip shot recorder
21 calibrated as a unit.

22 Q You did use a sound level meter.

23 A That is simply the detector, the sensor. The
24 front end of a missile, so to speak.

1 Q Just so the jury understands, Doctor, did you
2 or did you not have a sound level meter at the time?

3 A As part of the apparatus, I had the sound
4 level meter; that's correct.

5 Q Now that sound level meter was set on fast
6 response; was it not?

7 A The readings that were provided were a total
8 dose calculating procedure which included the sound level
9 meter. The meter happened to be on a fast indication,
10 because that is the way you feed a data processing system.
11 In later years, they were called dosimeters.

12 Q The sounds level meters are supposed to be
13 set on slow response, according to the American National
14 Standards Institute and the Federal Railroad Administration;
15 is that correct?

16 A The FRA has an alternative method. The word
17 "or" is included in it. Do we have that?

18 Q Let's break it up, Doctor Campanella. I
19 asked you two questions. The American National Standards
20 Institute states that the sound level reader should be on
21 slow response.

22 A Or.

23 Q Does it state that it should be on slow
24 response?

1 A Or. The sentence is not complete until you
2 hit a period.

3 Q Well, do you want to finish the sentence for
4 us?

5 A "With an audio dosimeter of equivalent
6 accuracy and precision."

7 Q Didn't Kilmer call into question the fact --

8 A He did not call into the question. He stated
9 a fact.

10 Q Let's look at Kilmer.

11 MR. ODDO: May I approach the witness, Judge?

12 THE COURT: Yes, sir.

13
14 BY MR. ODDO:

15 Q Do you recognize this document to be what has
16 been called the Kilmer study? Is that right?

17 A That's correct. On Page 15, he shows my
18 data. Now why would he show my data if it wasn't accurate?

19 MR. ODDO: Judge, if I can ask the witness
20 questions without having gratuitous responses, I
21 would appreciate it.

22 MR. CRANWELL: Your Honor, if I may help --

23 THE COURT: Mr. Cranwell, no, you can't.

24 Doctor Campanella. The jury will disregard the

1 witness's last response, which the cross-examiner
2 has a right to. Your job as a witness, sir, is to
3 answer the questions propounded to you by counsel.
4 Please do not volunteer additional observations.

5 Mr. Oddo?

6 MR. ODDO: Thank you, Judge.

7
8 BY MR. ODDO:

9 Q Okay. This is the Kilmer study, and I
10 believe this document here is your 1975 test that you have
11 been talking about today; is that correct?

12 A Yes.

13 Q Now let's talk a little bit about the Kilmer
14 study. Isn't it true, Doctor Campanella, that the Kilmer
15 data on the GP-9 locomotive was gathered under atypical
16 conditions?

17 A Nontypical?

18 Q Atypical. Unusual conditions.

19 A The Kilmer study?

20 Q Yes, sir.

21 A I don't see whether his -- I don't understand
22 that.

23 Q You don't know whether that is true or not?

24 A You would have to be more specific.

1 Q Well, let's be more specific, Doctor
2 Campanella. Didn't Kilmer say that the testing that he did
3 on the GP-9 on which you relied was atypical? The data he
4 gathered and the circumstances surrounding that test was
5 atypical?

6 A That in itself does not let me judge what the
7 atypical nature was. Which direction was it not typical?

8 Q Well, you are not even aware whether it was
9 atypical. Didn't you tell me that in your deposition?

10 A He tested 16 locomotives, over-the-road
11 trips, and I believe that the road trip is the better
12 measure than the stationary measure.

13 Q It is a better measure than what you did.

14 A Yes.

15 Q And you don't know whether the testing that
16 he did for the GP-9 in particular was atypical.

17 A We must determine what nature the atypical
18 factor was.

19 Q Well, do you know of any nature of atypical
20 factors in his tests of the GP-9?

21 A Only that he didn't measure out in the
22 walkway. That is one that I detected.

23 Q All right. But you are not aware of any
24 concerns that Kilmer expressed about the data he got for the

1 GP-9; isn't that right?

2 A If he presented it, I presume it to be valid.

3 Q All right. Well, let's take a look at that,
4 Doctor. I am referring now, Doctor, to Page 91 of the
5 Kilmer study. Do you have a copy of the Kilmer study,
6 Doctor?

7 A I do.

8 Q Do you have Page 91?

9 A Yes.

10 Q Do you see there is a Footnote 10 on Page 91?

11 A Yes.

12 Q Just so we are straight, the GP-9 data that
13 you have offered as your opinion of the noise that
14 Mr. Puryear has been exposed to, you got that from Kilmer.

15 A Yes.

16 Q Doesn't Mr. Kilmer say in Footnote 10 on Page
17 91 that the GP-9 locomotive that he used had low horsepower,
18 was manufactured in 1957, which was 20-some years before the
19 test was done?

20 A Uh-huh.

21 Q That the unit wasn't normally used for
22 over-the-road runs? Doesn't he say that?

23 A Well, yes. I see that.

24 Q Doesn't it say that during the trip the

1 second unit in the consist developed electrical problems and
2 was shut down?

3 A Okay.

4 Q He says that; right?

5 A Uh-huh.

6 Q And that the tests represented the case of a
7 relatively heavy train, which after losing the second unit
8 was underpowered? He says that.

9 A Yes.

10 Q And that as a result the locomotive was
11 forced to operate under adverse conditions for which it
12 would not normally be used; correct?

13 A I would expect that to be the case, yes.

14 Q And despite the fact that he was using a
15 locomotive that was too old, too small and had its helper
16 locomotive break down, you relied on that data in this case;
17 isn't that right?

18 A That is true.

19 Q Now let's talk about the -- and,
20 incidentally, Doctor Campanella, Kilmer did, what, 18 --
21 tested 18 different runs? I think 16 different locomotives
22 and 18 different runs; right?

23 A Yes.

24 Q And he found of the 18 different runs, one

1 time he got a number that was over the limit; correct?

2 A Under a limit, yes.

3 Q In fact, I will refer you to Page -- over the
4 FRA limit; right?

5 A That is for the engineer, not the firemen.
6 That doesn't apply here.

7 Q That's correct. What Mr. Kilmer tested was
8 the locomotive cab noise; correct?

9 A Which is the engineer's responsibility, yes.

10 Q Now let's look at Page 92, Doctor, of
11 Mr. Kilmer's study. If you will just turn to Page 92. Are
12 you with me there?

13 A Yes.

14 Q Now this is a table showing the 16 -- or I
15 guess it is 18 different runs, because he has got a 14A and
16 a 3A and B; correct?

17 A That would be 18, yes.

18 Q Okay. And just so the jury understands these
19 numbers, what Kilmer is using is 1.00 as the FRA limit, and
20 you were using 100 percent. That is just a different way of
21 expressing the same thing.

22 A It is the same concept with a variable in
23 there being the cutoff at which the dosimeter ceases to
24 record anything at all.

1 Q But so the jury understands what we are
2 doing, when we are looking at numbers that are -- 1 under
3 Kilmer's test is 100 percent under your test; right? That
4 is the FRA limit?

5 A What I don't know from Table 31 is what
6 dosimeter cutoff was used or the calculation which is
7 equivalent to dosimeter cutoff used. He gave four different
8 cutoffs that were feasible; A, B, C and D.

9 In condition A, everything below 90 dB was
10 disregarded, which was an old OSHA standard, not an FRA
11 standard. Condition B is everything below 87 dB's thrown
12 away. Condition C --

13 Q That is the FRA standard; right?

14 A I don't know that. Condition C is everything
15 below 85 is thrown away, and Condition D is everything below
16 80 is thrown away.

17 Q Doctor, look at that chart. Isn't it true
18 that there is only one number, and it is Number 2 under the
19 engineer right side that is over 1.0?

20 A That's correct. He also makes a comment in
21 his --

22 Q Well --

23 A Okay, go ahead.

24 Q Let me just ask you the question, Doctor.

1 Number 2 is the GP-9; correct?

2 A Yes.

3 Q And that is the one that you relied on.

4 A No.

5 Q Kilmer's GP-9.

6 A Negative.

7 Q You didn't rely on Kilmer's GP-9?

8 A I did.

9 Q Is there another GP-9 on here you relied on?

10 Didn't you tell me in your deposition you relied on Number
11 2?

12 A I used the E B R S B L S, because this
13 gentleman was not an engineer at the time, he was a fireman,
14 so I used the right-hand side of the chart. It doesn't make
15 sense to use the left-hand side of the chart, because that
16 is for the engineer. He was serving as a fireman.

17 Q But you used locomotive number two; right?
18 So the jury understands which of those 18 you used, you used
19 number two.

20 A That's correct.

21 Q That is Kilmer's GP-9.

22 A Yes.

23 Q Now you had to make certain assumptions
24 because you didn't do over-the-road tests about how long the

1 engine was in various notches; correct?

2 A Yes.

3 Q And you assumed, as you have told us here
4 this morning, that you used 50 percent in notch eight;
5 correct?

6 A Yes.

7 Q And you told us, as you told me in your
8 deposition, that you base that on what Kilmer did; correct?

9 A Yes.

10 Q Now isn't it true, Doctor, that Kilmer
11 actually reported that the engines are in the eighth notch
12 only 40 percent of the time? Not 50 percent of the time?
13 And I will refer you, sir, to --

14 A I combined that with what Mr. Puryear told
15 me, that it was 80 or 90 percent of the time.

16 Q Well, you didn't tell me that in your
17 deposition, did you, sir. Didn't you tell me in your
18 deposition that you based your assumption of 50 percent on
19 what Mr. Kilmer did? And, incidentally, this deposition was
20 taken two weeks ago on September 26; was it not?

21 A That's correct.

22 Q It was a telephone deposition; right?

23 A Yes. I then saw what you are just
24 describing, that Kilmer included a lot of idling time in

1 there. Then I talked to Puryear again, and he says it is
2 more like 80 or 90 percent. I said I will keep it the same
3 at 50 percent. I don't want to exaggerate.

4 Q Well, Doctor, let's get back to the question.
5 Kilmer says that the engine is in notch eight 40 percent of
6 the time, not 50 percent, which is what you used.

7 A I will have to go back and look at what he --
8 can you show me the page on which Kilmer's information was
9 located?

10 Q Certainly. Let's look at Page Roman Numeral
11 13, Doctor.

12 A Toward the end?

13 Q No, that is right in the beginning. It is
14 the second point right there. Does that not say that, While
15 the train is underway approximately 40 percent of the time
16 is spent in notch eight, 25 percent at idle, notch one, and
17 the remaining 35 percent distributed about equally among
18 notches two through seven? That is what Kilmer said; right?

19 A He has a --

20 Q Is that what he says, first of all?

21 A That is what he said. And, also, that
22 includes a fair amount of idling time, and Mr. Puryear said
23 they didn't spend any time idling on his trips, because it
24 was a long straight through freight. That is where the 50

1 percent came from.

2 Q Are you aware that Mr. Puryear said that he
3 can do that trip from Crewe to Norfolk in three and a half
4 hours?

5 A In the passenger train, yes, that's right.

6 Q Three and a half hours. So if it took ten
7 hours to make that same 134 miles, you know, don't you,
8 Doctor, that it is not in notch eight all the time? And you
9 know that there is idling time? You know that for a fact,
10 don't you.

11 A Well, I haven't been on a road trip.

12 Q That's right. You've never been on a road
13 trip.

14 A So I am going to have to go on what other
15 people report in the literature and what Mr. Puryear tells
16 me.

17 Q And if what Mr. Puryear is telling you is
18 wrong, then your numbers are wrong.

19 A To that extent.

20 Q That's correct. And let's get back again to
21 this 50 percent business about being in notch eight. That
22 is what you told me in your deposition that you used, and
23 you told me you used it based on Kilmer, not based on
24 Mr. Puryear.

1 A Yes. Based on Kilmer with his active notch
2 figures with the idling time taken out.

3 Q All right. Let's go to the next point on
4 that same page. Doesn't Mr. Kilmer also say that when you
5 include the time that the train is standing and not
6 operating that actually idle notch one is 62 percent of the
7 time and notch eight is only 20 percent of the time?

8 A I didn't see that.

9 Q That is in the very next point after the one
10 I just referred you to on Page Roman Numeral 13. You are
11 not familiar with that one.

12 A That's right, I am not.

13 Q Okay. Do you have any doubt that that is
14 what it says? Would you like to check me on that?

15 A Show me the page.

16 Q Roman Numeral 13. It is the same page we
17 just looked at of the Kilmer test on which you relied.

18 A Okay.

19 Q Do you see that third point there, starts
20 with the word "inclusion"? Mr. Kilmer says that on the 18
21 tests that he did under all different circumstances,
22 locomotives, runs, that he found that the idle notch one at
23 62 percent of the time when you factor in the time that the
24 train is standing, and the time that the train is in notch

1 eight is actually 20 percent, not the 50 percent that you
2 used. Is that what he says?

3 A Yes. That's correct.

4 Q All right. So, again, if we factor that in
5 there, your numbers are off even more than they were if you
6 had used 40 percent instead of 50 percent.

7 A If that were included, that would be the
8 case.

9 Q Okay. Let's go back, Doctor Campanella, to
10 the numbers that you got when you did your testing in 1975,
11 if I might write something down for you.

12 Let's read off some of the numbers you got
13 when you did the tests, Doctor. Let's start with the F-7.
14 You got readings -- and tell me if I am wrong. You got
15 readings of 75, 78, 81, 85, 88, 89, 90.5, 90.5 --

16 A Did you see what Kilmer got in those?

17 Q I am asking you what you got on your F-7s.

18 A That's correct.

19 Q I am right so far, okay. Let's label that.
20 Now we will go over here on the GP-9, and you did that as
21 well. You have got 71, 74, 80, 81, 84, 85, 88, 87. Do I
22 have that right so far?

23 A They look familiar, yes.

24 Q All right. And then you got 99 average on

1 the F-7, I think; right? And then you say you got, what,
2 ninety -- what did you get, 92 on the GP-9? 92.3? Is that
3 what you got?

4 A Say that again.

5 Q What did you get on your average on the GP-9?
6 89.3? Is that what it was?

7 A I don't follow you.

8 Q Your average when you did the GP-9, it is on
9 one of these exhibits, it was 89.3; right?

10 A That comes from Kilmer's data, my number two.

11 Q You were using your data, too, as you came up
12 with these numbers; were you not?

13 A No. That is Kilmer's data.

14 Q So you didn't use your data on the GP-9, you
15 used your data on the F-7. Is that what you are telling me?

16 A That's correct.

17 Q And you ignored, did you not, Doctor, all of
18 the other numbers from Mr. Kilmer as expressed on Page 92
19 that show the dose ranging from .02 -- actually, .01.

20 A That is based on the FRA cutoff.

21 Q All right. You didn't use those.

22 A I didn't use that.

23 Q They were under the limit. Isn't that what
24 Kilmer concluded?

1 A Based on a 90 dB cutoff, they would be under
2 the limit.

3 Q All right. Now, Doctor, since we talked on
4 September 26, you changed some of your conclusions in this
5 case; did you not?

6 A I don't recall.

7 Q Well, let's look at the part, Doctor, that
8 talks about Mr. Puryear's work summary. You are familiar
9 with Exhibit 6 here; right?

10 A Yes.

11 Q Do you have a smaller copy there so that you
12 don't have to step down?

13 A Let me see the front. I just want to see the
14 front page.

15 MR. CRANWELL: Wait a minute. We will get
16 you one.

17 THE WITNESS: Yes.

18
19 BY MR. ODDO:

20 Q You know what we are talking about here;
21 right?

22 A Yes.

23 Q Fifty percent on GP-9; 10 percent on Alco.
24 You know there is another 40 percent in here. And you know

1 what it is, isn't it? It is the SD-40?

2 A Yes.

3 Q That was in your initial opinions; right?

4 A Yes.

5 Q And you took it out on this one.

6 A Yes.

7 Q And you know the SD-40 was within limits,
8 don't you.

9 A Yes.

10 Q It was within the permissible limits. But
11 when I deposed you, you expressed the opinion that the SD-40
12 was excessively loud; right?

13 A I don't recall.

14 Q Well, do you want to see your initial chart?

15 A It was included in there.

16 Q It was included on your initial chart?

17 A Right.

18 Q And your initial chart had the SD-40 as being
19 in excess of permissible limits; right?

20 A Yes.

21 Q Okay.

22 A That was a preliminary calculation that -- in
23 going through it weeding out the items which wouldn't be
24 appropriate that I simply said it is not worth quibbling

1 over this one.

2 Q It was a preliminary calculation that after I
3 took your deposition you changed; right?

4 A Yes.

5 Q And you know from 1961 to '75, because
6 Mr. Puryear told you himself, he was on that engine 40
7 percent of the time.

8 A Yes.

9 Q So we know right there that 40 percent of the
10 time he is okay; right? And, in fact, Kilmer tested SD-40s
11 and came to the same conclusion; right?

12 A Yes.

13 Q Okay. Isn't it also true, Doctor, that on
14 your initial set of opinions in this case that you told me
15 that you relied on something that a man named Kuhn did;
16 correct?

17 A Kuhn, yes. That was SD-40, also.

18 Q That was SD-40, also.

19 A Yes.

20 Q And that was some tests that were done,
21 where, Doctor? On Burlington Northern; is that right?

22 A Yes.

23 Q And I believe you even were kind enough to
24 send that to me; right?

1 A Yes.

2 Q That is what you are looking at right there?

3 A That's correct.

4 Q And this was what you relied on or part of
5 what you relied on initially in forming your opinions in
6 this case; right?

7 A Yes.

8 MR. ODDO: Judge, I move this into evidence
9 as the defendant's first exhibit.

10 THE WITNESS: The problem is I have no
11 walkway information.

12 MR. CRANWELL: Just everybody relax a minute.
13 Everybody relax a minute. I have got an objection
14 to state.

15 THE COURT: Ladies and gentlemen of the jury,
16 would you go with the sheriff to the jury room,
17 please.

18

19 (The jury was excused from the courtroom.)

20

21 THE COURT: Do you know what got my goat,
22 Mr. Cranwell?

23 MR. CRANWELL: I have no idea, Your Honor.

24 THE COURT: I realize that it is -- and I

1 teach this when I teach it that it is the essence of
2 trial advocacy to demonstrate to the jury that the
3 advocate is in control of the courtroom, that when
4 they believe in your personal ethos, they believe in
5 your case. But the way to make an objection is not
6 to stand up and hold your hand out in a stop signal
7 and say everybody, Relax a minute. It is to stand
8 up and in some way indicate that you have an
9 evidentiary objection, as Mr. Oddo did, and excuse
10 me or something of that sort. Just as earlier when
11 Mr. Oddo was asking, as he had the right to, to have
12 the witness directed by the Court, he has the right
13 to have the witness directed by the Court and not by
14 counsel that called him, and I would appreciate
15 adherence to those lines, which I think are the
16 lines.

17 MR. CRANWELL: Okay.

18 THE COURT: Which is not to say you shouldn't
19 or couldn't make your objection.

20 MR. CRANWELL: Well, Judge, I don't know how
21 I can make an objection when I said I want to object
22 and everybody keeps talking.

23 THE COURT: No, you didn't say --

24 MR. CRANWELL: Yes, I certainly did. When I

1 first stood up, I said I have got an objection I am
2 going to make, and everybody keeps talking, and I
3 said, Wait a minute.

4 THE COURT: This is called revisionist
5 history, Mr. Cranwell.

6 MR. CRANWELL: No. Judge, you can review it
7 however you like. You can find me in contempt; you
8 can do whatever you want to me. That is my
9 recollection of what happened. Now you tell me how
10 you want me to conduct myself, and I will do it,
11 sir.

12 THE COURT: If you had said that, I would
13 have no problem. Now make your objection.

14 MR. CRANWELL: My objection is simply this:
15 Mr. Oddo is fixing to try to put into evidence a
16 report that he can use -- a report into evidence
17 that he can use for cross-examination purposes. He
18 cannot introduce it as an exhibit, because he does
19 not have the foundation to put it in as an exhibit.

20 Under the law, he is entitled to
21 cross-examination on acceptable literature. He has
22 not given the notice under the statute that he is
23 going to rely on to read it to the jury or to
24 introduce it as an exhibit, and it is inappropriate,

1 and he knows it is inappropriate.

2 THE COURT: Mr. Oddo, would you like to
3 respond to the objection?

4 MR. ODDO: Yes, sir. Doctor Campanella
5 testified that he relied on that study or report in
6 formulating his opinions in this case, and, as such,
7 he relied on it. It is admissible.

8 THE COURT: What is your authority for that?

9 MR. ODDO: Well, Judge, under the -- Judge,
10 my understanding of 8.01-401.1 talks about that the
11 -- well, okay.

12 THE COURT: I don't -- what is the name of
13 the --

14 MR. ODDO: All right, Judge, I --

15 THE COURT: I am trying to think of the name
16 of a case that there have been two cases, and in the
17 second one Eddie Williams was a defendant, and it
18 goes back to the first one.

19 Specifically excluding this sort of evidence
20 8.01-401.1 contains a sentence that limits hearsay
21 exclusion, but that's not the same as saying, as the
22 general assembly knows how to do, shall be
23 admissible.

24 Now you may be able to make it admissible

1 through Doctor Campanella, but I don't think you
2 have done so yet.

3 MR. ODDO: I think under 8.01-401.1 I am
4 allowed to read it, but it can't be received,
5 assuming that I can establish it is reliable, and I
6 would submit that the fact that he relied on it
7 means it is reliable.

8 THE COURT: Mr. Cranwell already granted, as
9 I understand it, that you can examine from it.

10 MR. CRANWELL: Yes, Your Honor. Again, I
11 want to be sure that we focus in and not lose sight
12 of the fact that he is talking about a different
13 engine, the SD-40, which is not in any way a basis
14 of any of the opinions that have been introduced
15 here in court.

16 Now I assume what he is trying to do is to
17 show a prior inconsistent statement and to use that
18 to kind of impeach this guy's credibility, but to
19 try to put that report in when it is not a basis of
20 his opinion as expressed before the jury is clearly
21 inappropriate.

22 And, again, I don't think the report is
23 admissible, because it has to do with treatises and
24 documents that you go through and establish

1 that --

2 THE COURT: Doctor Campanella has testified
3 that he relied upon this data; right?

4 MR. CRANWELL: But for the -- yes, sir, for
5 the previous engine that has been excised from
6 our --

7 THE COURT: Mr. Oddo having gotten from
8 Doctor Campanella that statement, Mr. Puryear having
9 testified about his service on that engine, Doctor
10 Campanella having testified about his knowledge
11 about Mr. Puryear's service on that engine, the
12 cross-examiner is entitled to elicit information
13 about how that might factor in in order to use
14 effectively or not in arguing to the jury about the
15 effect of Doctor Campanella's test and data.

16 MR. CRANWELL: I don't object to that, Your
17 Honor. I object to the introduction of the --

18 THE COURT: Mr. Oddo has not now said he is
19 not going to try to introduce it. He is going to
20 call the witness's attention to context and ask him
21 to read or read portions of it to him to get his
22 confirmation or not; right?

23 MR. CRANWELL: Can we sort through where we
24 are at for just a moment now, Your Honor? I don't

1 know why Mr. Oddo wanted to introduce this as an
2 exhibit. It was clearly improper.

3 Now it put me in a position where I had to
4 object. It has put me in a position now to where
5 the jury thinks the Court has reprimanded me. And I
6 think it puts me in a bad position, because he
7 tendered an objection that he should have --
8 tendered something as an exhibit he should have
9 known that he couldn't do, yet it has put me in a
10 bad spot with the Court and probably with the jury.
11 Now how do we get out of that?

12 THE COURT: I don't -- Mr. Oddo, you look
13 like you want to say something.

14 MR. ODDO: Well, I probably shouldn't, but if
15 anything has put Mr. Cranwell in a bad light it was
16 the manner of his objection. He had the right to
17 object and object in a way that would not have
18 produced the situation we are in. It had nothing to
19 do with the fact that I intended to introduce this
20 into evidence.

21 THE COURT: I think the fact that I sent the
22 jury out keeps you from being in a bad light with
23 the jury. I think the jury doesn't know what is
24 going on. They figure that the Judge has been

1 curmudgeonly toward Doctor Campanella, which I
2 presume redounds to the plaintiff's benefit.

3 I have sustained your objection, and I think
4 anything more said would not help either party. Do
5 you want to say anything else or suggest anything
6 else, Mr. Cranwell?

7 MR. CRANWELL: No, sir.

8 THE COURT: Do you, Mr. Oddo?

9 MR. ODDO: No, sir.

10 THE COURT: Do we want to go on with the jury
11 or does anyone want a break?

12 MR. ODDO: No, I am ready.

13 MR. CRANWELL: Let's go.

14 THE COURT: Bring the jury in, please,
15 sheriff.

16
17 (The jury returned to the courtroom.)

18
19 THE COURT: Ladies and gentlemen, I think we
20 have figured out where we are under the law of
21 evidence, and Mr. Oddo you may continue to question
22 Doctor Campanella.

23 MR. ODDO: Thank you, Judge.
24

1 BY MR. ODDO:

2 Q Doctor Campanella, we were talking about the
3 study done by George Kuhn in September of 1993 for the
4 Burlington Northern, and you had said that you had initially
5 relied on this in forming your previous opinions on the
6 SD-40; is that true?

7 A That was part of my work at that time.

8 Q Okay. And you know, do you not, that
9 Mr. Kuhn concluded on the very test that you relied on that
10 the noise levels and noise exposures measured are
11 insufficient to produce a noise-induced permanent hearing
12 loss, don't you?

13 A I have seen that, yes.

14 Q And you also have seen, I presume, Doctor,
15 that the results of the measurements that Doctor Kuhn did
16 showed that the noise regulations of the FRA were not
17 violated at any time and that the measured noise doses on
18 any day were less than one half of the permissible exposure;
19 isn't that correct?

20 A Yes, but I would like to make a comment.

21 Q I am sure Mr. Cranwell will ask you for your
22 comments, Doctor. Isn't it also true, Doctor Campanella,
23 that you relied on certain data --

24 THE COURT: Mr. Cranwell?

1 MR. CRANWELL: Your Honor, I want to object
2 to that, because Mr. Oddo does not need to be
3 lecturing this witness about what I will and will
4 not do and what will not happen.

5 If he doesn't want an answer to a question,
6 he just can turn to the Court and say, Your Honor,
7 instruct the witness to just answer my questions.
8 But I do not think that it is appropriate for him to
9 be telling this gentleman anything other than asking
10 him questions and getting answers.

11 THE COURT: Mr. Oddo?

12 MR. ODDO: I apologize, Judge.

13 THE COURT: Go on and question.

14 MR. ODDO: Thank you.

15
16 BY MR. ODDO:

17 Q Isn't it true, Doctor Campanella, that you
18 relied on certain data that Mr. Kilmer did that is
19 referenced on Page 71 of his report?

20 A I don't recall using this data.

21 Q I am sorry?

22 A I have not used this data.

23 Q You did not -- did you not cite that data to
24 me during your deposition?

1 A Did I read Page 71?

2 Q I am asking if you cited that data to me.

3 A I did not cite that data, to my recollection.

4 I don't recall using data on Page 71.

5 Q Well, Doctor Campanella, let's go back to
6 your deposition, and I am at Page 45, Line 15. I asked you
7 the following series of questions, and you gave me the
8 following answers: "You say you relied on Kilmer and what
9 you had done in Kilmer's tests and your tests." Your answer
10 was, "Yes. Also a person by the name of Kuhn. Yes,
11 Kilmer's test, primarily." Question, "What in particular
12 from Kilmer's test? Any particular part of it or just the
13 whole thing?" Answer, "Well, he tested 16 locomotives."
14 Question, "Right." Answer, "In certain of them, one was the
15 GP-9." Question, "So you took his data from the GP-9."
16 Answer, "Yes." "And do you recall what that was?" Answer,
17 "I am looking that up at the moment. It was in the 90s. It
18 agrees with one of my measurements. Of Kilmer's 16
19 locomotives, this is locomotive number two." We have seen
20 that on the chart. And here is, "In Kilmer's Page 71 -- do
21 you have Kilmer's report?" Question, "Yes, I have got it
22 right here." Answer, "Look at Page 71." Do you remember
23 that now?

24 A If I said it, then that this is what I was

1 looking at.

2 Q Okay. Now you know, do you not, Doctor
3 Campanella, that the data on Page 71 of Mr. Kilmer's report
4 is expressed in terms of what is known as LEQ?

5 A Yes.

6 Q And LEQ has got nothing to do with the FRA;
7 right?

8 A It is a three dB bases doubling.

9 Q It is a different standard from what is used
10 under the FRA; isn't that right?

11 A That's correct.

12 Q Thank you. Doctor, let's talk about the
13 horns on the GE locomotives.

14 A Yes.

15 Q You assumed, did you not, sir, and I am
16 referring again to Exhibit 6, Plaintiff's Exhibit 6, which
17 is on the board right here, that Mr. Puryear worked on these
18 locomotives with those horns that you have commented on from
19 a period of 1975 to 1987; correct?

20 A That is not the implication here.

21 Q You did not assume that the GE locomotives
22 were being ridden by Mr. Puryear from 1975 to 1987?

23 A '75 it didn't exist, I don't believe. It
24 wasn't obtained -- it existed, but it may not have been

1 obtained by them until the early '80s.

2 Q That was going to be my point. Just so that
3 the jury is clear, you know that Mr. Puryear wasn't on GE
4 locomotives until the early 1980s. The GE 3,600s, I am
5 sorry.

6 A These are broken up into three time periods.
7 That is all those numbers indicate. He worked on many
8 things during those time periods. I simply picked out in
9 that time frame that noise exposure which I considered to be
10 excessive.

11 Q To be accurate, for the GEC 36-7, we really
12 should be talking about, roughly, 1980, '81, '82 as the
13 beginning point and not 1975; correct?

14 A That's correct. He was a road foreman for a
15 long period of time.

16 Q Now, Doctor Campanella, let's talk about
17 hearing protection, sir. You have told the jury here that
18 it was common knowledge, and I think you cited something
19 done by a man named Kryter in 1946, that hearing protection
20 would help improve the ability to understand speech in the
21 presence of background noise?

22 A At high background. The word "high" is
23 important.

24 Q Okay. And you referred, as I said, to

1 Kryter?

2 A Yes.

3 Q Now when I took your deposition, isn't it
4 true, sir, that you didn't know of any such published study,
5 other than the one that was commissioned by the railroad,
6 the Norfolk & Western Railroad in the 1980s?

7 A And my own experience in 1971.

8 Q That's right, but you didn't know about
9 Kryter at that time, did you? Or at least if you did, you
10 didn't tell me about it.

11 A I didn't. When I saw Stusnick's report, I
12 said, Well, this is common knowledge. I guess he verified
13 it for the railroad, which is helpful.

14 Q But it was so common that you didn't know
15 that this Kryter report existed on September 26, 1994.

16 A That's correct.

17 Q And, in fact, I think you used in your
18 testimony on your own personal experience that you were
19 surprised to find that out; isn't that right?

20 A That is true.

21 Q You were asked some questions about the Clark
22 and Pepelka study?

23 A Yes.

24 Q Isn't it true that that study concluded that

1 railroad trainmen suffered no more hearing loss due to noise
2 exposure than the average population?

3 A An average ISO population.

4 Q That was the conclusion.

5 A Which included hearing loss persons that were
6 in industrial -- it was a cross-the-board population.

7 Q That's right. What the Clark and Pepelka did
8 was compare a group of railroad trainmen with another group
9 of nonrailroad trainmen; is that fair?

10 A Yes.

11 Q And they concluded that the two groups did
12 not exhibit any significant difference in hearing loss; is
13 that true?

14 A Well, I would not say not significant. It
15 depends on how you interpret his data. There is perceptible
16 values of hearing loss there.

17 Q The conclusion of the texts -- we have heard
18 your criticisms, but just so the jury understands what the
19 conclusion of the authors was is that that study
20 concluded --

21 MR. CRANWELL: Can I interpose an objection
22 here?

23 THE COURT: Yes, sir.

24 MR. CRANWELL: Maybe he will let him see the

1 report or see the conclusion, rather than him
2 stating what the conclusion is, and ask him if he
3 will read it and ask him if he agrees or disagrees
4 with it might be the appropriate line of questioning
5 on cross-examination.

6 THE COURT: I think the cross-examiner can
7 choose his weapons, one which is the leading
8 question that he can ask the witness whether he
9 agrees or disagrees with. I think what you have
10 suggested is another appropriate alternative, but
11 not the only one.

12 MR. CRANWELL: Your Honor, he can certainly
13 ask if he agrees or disagrees, and he can say,
14 "Isn't it true that the report concludes so and so."
15 He can't say, "The report concluded so and so,
16 doesn't it, Doctor.

17 THE COURT: I think he can, and I overrule
18 the objection.

19 MR. CRANWELL: Okay.

20
21 BY MR. ODDO:

22 Q Doctor, the report concludes, doesn't it,
23 that a group of railroad trainmen did not exhibit any more
24 hearing loss than the other group of nonrailroad trainmen?

1 A That's not what he concluded.

2 Q He did not conclude that.

3 A That's correct. He concluded that there was
4 a small perceptible difference notable at four kilohertz,
5 which we all know is noise-induced hearing loss source.

6 Q Okay. Well, we will take that up with
7 someone else.

8 MR. CRANWELL: Your Honor --

9 THE COURT: I sustain the objection,

10 Mr. Oddo.

11

12 BY MR. ODDO:

13 Q You know that the Norfolk & Western moved
14 those GE horns, don't you, sir?

15 A I do not know that they moved the horns. I
16 have a document which says they were planning to move the
17 horns around 1985.

18 Q And you know that they did some tests to
19 determine to move the horns. You have seen that in the
20 documents.

21 A I used their test results that led to the
22 conclusion that they should move it.

23 Q And the testing that they did in determining
24 to move the horns, in your opinion, was a good engineering

1 test, wasn't it?

2 A Yes.

3 MR. ODDO: No further questions, Your Honor.

4 THE COURT: Mr. Cranwell.

5 MR. CRANWELL: Just real brief.

6

7 REDIRECT EXAMINATION

8

9 BY MR. CRANWELL:

10 Q Doctor Campanella, do you recall being
11 questioned by Mr. Oddo about the test that you conducted in
12 1975 on the EMD F-7?

13 A Yes.

14 Q And that was the load bank test?

15 A Yes.

16 Q Do you remember him asking you if you had
17 ever done a road test?

18 A Yes.

19 Q Did you request to do a road test on that
20 vehicle?

21 A Yes.

22 Q And when you made that request to the
23 railroad, what happened?

24 A They denied it.

1 Q And did you offer an alternative?

2 MR. ODDO: Judge, I object. This is not
3 anything to do with the Norfolk & Western instance.

4 THE COURT: But it is responsive to
5 cross-examination. I overrule the objection. When
6 you say "the railroad," Mr. Cranwell, go ahead and
7 clarify which railroad.

8

9 BY MR. CRANWELL:

10 Q Which railroad denied you the right to do a
11 road test, Doctor?

12 A The B&O.

13 Q Do you know of any reason why they wouldn't
14 want you to ride so you could get a real test?

15 MR. ODDO: Objection. Objection. Calls for
16 speculation.

17 THE COURT: No, he asked do you know. I
18 overrule the objection.

19 THE WITNESS: They gave me the reason that it
20 was unsafe. It was a safety issue for me. My
21 response is, "I fly airplanes."

22

23 BY MR. CRANWELL:

24 Q Do you know that the N&W put Mr. Stusnick on

1 a train to do a test?

2 A I see that now.

3 Q Did you get invited to ride with Mr. Stusnick
4 so you could do some measurements on the N&W's trains while
5 it was in motion?

6 A No.

7 Q Now let's come back and ask a couple other
8 questions about the SD-40s.

9 A Yes.

10 Q That is not included in any of your exhibits
11 anywhere, anywhere shape or form, and does not have anything
12 to do with any of the opinions you have rendered in this
13 case, does it, Doctor.

14 A That's correct.

15 MR. CRANWELL: That is all I have for him.

16 THE COURT: Go ahead.

17 MR. ODDO: May I please? Thank you, Judge.

18

19 RE CROSS EXAMINATION

20

21 BY MR. ODDO:

22 Q Doctor Campanella, I want to follow up on
23 this issue of your testing in 1975 with the C&O and B&O.
24 You at that time didn't ask the Norfolk & Western to do

1 testing, you were asking the B&O or C&O, whichever one it
2 was; right?

3 A Yes.

4 Q And, in fact, Doctor Campanella, you have
5 tested several things at the Norfolk & Western; right? You
6 have tested in the shops and you have tested in the yards
7 and you have tested equipment; isn't that true?

8 A Yes.

9 Q They never stopped you from doing that, did
10 they?

11 A No.

12 Q And you never asked the Norfolk & Western to
13 test any locomotives in this case, did you, sir?

14 A No.

15 MR. ODDO: Thank you.

16 THE COURT: Mr. Cranwell, any further
17 questions?

18 MR. CRANWELL: No further questions.

19 THE COURT: May Doctor Campanella be excused?

20 MR. CRANWELL: He sure might, and we will
21 call Dr. Jeffrey Powell.

22 THE COURT: Doctor Campanella, you are
23 excused. Members of the jury, does anybody need a
24 break before we start the next witness? Okay.

1 Doctor Powell, please.

2

3 (The witness was excused from the witness
4 stand.)

5

6 MR. ODDO: Judge, might I move this?

7

8 MR. CRANWELL: Did I move the -- did I ever
9 move the introduction of that? Has this gone in
10 yet?

11 THE COURT: What is this?

12 MR. CRANWELL: Your Honor, I can't remember
13 whether I moved Plaintiff's Exhibit Number 13 or
14 not.

15 THE COURT: Did not.

16 MR. CRANWELL: Can I move the introduction of
17 it?

18 THE COURT: Show it to Mr. Oddo.

19 MR. CRANWELL: He has seen it. Got a copy of
20 it.

21 MR. ODDO: No objection, Judge.

22 THE COURT: Plaintiff's Exhibit 13 is in
23 evidence.

24

(A chart indicating horn exposure