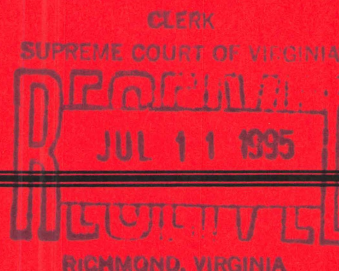


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IN THE

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**Supreme Court of Virginia**

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RECORD NO. 950210

---

**NORFOLK AND WESTERN RAILWAY COMPANY,**

*Appellant,*

**v.**

**ROBERT E. PURYEAR,**

*Appellee.*

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**JOINT APPENDIX**  
**Volume II**

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1                   was marked Plaintiff's Exhibit Number 13 for  
2                   identification and was entered into the  
3                   Record.)

4  
5                   THE COURT: Madam reporter, would you please  
6                   swear Doctor Powell.

7  
8                   JEFFREY P. POWELL, M.D.

9  
10                  was called as a witness and after having first been duly  
11                  sworn to tell the truth, the whole truth and nothing but the  
12                  truth, was examined and testified as follows:

13  
14                                  DIRECT EXAMINATION

15  
16                  BY MR. CRANWELL:

17                   Q           Would you state your name and give us your  
18                   business address, please.

19                   A           It is Jeffrey Peter Powell. Suite 303, 200  
20                   Medical Parkway, Chesapeake, Virginia.

21                   Q           And what is your profession?

22                   A           I am an otolaryngologist. That is an ear,  
23                   nose and throat surgeon.

24                   Q           And would you tell us a little bit your



1 educational background, please, Doctor.

2 A After college I went to the University of  
3 South Carolina, received a Master's degree in physiology. I  
4 thought I wanted to be a Ph.D. and teach but ended up in  
5 dental school and received a dental degree and then  
6 specialized in oral surgery, which is a specialty of the  
7 dental profession.

8 At that point, I got interested in head and  
9 neck cancer and went back to medical school and received my  
10 medical degree and then did residencies in general surgery  
11 and otolaryngology.

12 Q And are you Board certified?

13 A Yes, sir, I am.

14 Q And what are you Board certified in?

15 A I am Board certified in otolaryngology and  
16 head and neck surgery, and I have a subcertification through  
17 a subacademy in allergy.

18 Q Doctor, could you tell us some of the  
19 professional societies that you belong to?

20 A American Medical Association, American Dental  
21 Association, American Academy of Otolaryngology and Head and  
22 Neck Surgery, American Academy of Otolaryngic Allergy,  
23 American Academy of Facial Plastic and Reconstructive  
24 Surgery, American Bronchoesophagology Association. Should I



1 keep going on?

2 THE COURT: Would you like to spell the last  
3 one?

4 THE WITNESS: Yes, Your Honor.

5 B-R-O-N-C-H-O-E-S-O-P-H-A-G-O-L-O-G-Y.

6 THE COURT: Thank you. The poor court  
7 reporter has to sit at home at night and --

8 THE WITNESS: Yes, sir.

9

10 BY MR. CRANWELL:

11 Q Do you have any academic appointments?

12 A Yes, I do. I am an assistant professor at  
13 the Eastern Virginia Medical School in Norfolk, Virginia,  
14 and I am also an assistant professor at the Medical College  
15 of Virginia in Richmond.

16 Q And what do you teach at the two medical  
17 colleges?

18 A Otolaryngology and head and neck surgery and  
19 allergy.

20 Q Do you have a private medical practice?

21 A Yes, I do. I have a group practice that  
22 specializes in otolaryngology, and we have four office  
23 locations; one in Chesapeake, one in Norfolk, one in  
24 Virginia Beach, and one in Kitty Hawk, North Carolina.

1 Q And, Doctor Powell, do you specialize in your  
2 practice?

3 A I do all phases of otolaryngology, which is a  
4 general specialty, but I concentrate in ear, head and neck  
5 cancer and what is called rhinology, nasal and sinus  
6 diseases and allergy.

7 Q Doctor, in your course of practice, do you  
8 have occasion to treat people with hearing loss?

9 A Yes, I do.

10 Q How frequently or what percentage of your  
11 practice would that be?

12 A Including the senior citizen population in my  
13 office location specifically, not counting the other  
14 three offices, approximately 32 to 35 percent of my practice  
15 is evaluating patients for a complaint of hearing loss.

16 Q And, Doctor Powell, have you had occasion to  
17 -- well, have you been in the military?

18 A Yes, I have.

19 Q What did you do in the military?

20 A I was the chief of ear, nose and throat  
21 service at Camp Lejeune Naval Hospital for two tours, and  
22 then I was at Portsmouth Naval Hospital in the department of  
23 otolaryngology.

24 Q Have you ever done any hearing conservation



1 programs?

2           A       Yes, sir, I have done them in the Navy. In  
3 fact, at Camp LeJuene, my audiologist, Dr. Victor Barrett  
4 and I set up the hearing conservation program for Camp  
5 LeJuene, a Marine Corps complex, and then we were also  
6 consultants to what I call the network for the military that  
7 would include Atlantic Coast coast guard base up in north of  
8 Camp LeJuene, Seamore Johnson Air Force Base and Cherry  
9 Point Marine Corps Air Station since they had no ear, nose  
10 and throat physician there in any of those locations.

11           Q       And, Doctor Powell, are you in the business  
12 to advise industry about hearing conservation programs?

13           A       Yes, I am. I am part of the National  
14 Seaman's Hearing Conservation Group, and we have a local  
15 company that is -- that I have that goes out and does  
16 hearing screening and industrial noise evaluation, sounds  
17 levels, et cetera.

18                   MR. CRANWELL: Your Honor, I would move to  
19 have Doctor Powell declared an expert in his field  
20 and practice.

21                   THE COURT: Do you have any voir dire  
22 questions or any objection?

23                   MR. ODDO: I assume his field and practice is  
24 otolaryngolgy. With that statement, I have no

1 objection.

2 THE COURT: I find that Doctor Powell is  
3 qualified to offer opinion testimony in the field of  
4 otolaryngolgy, including hearing loss and hearing  
5 protection.

6

7 BY MR. CRANWELL:

8 Q Doctor Powell, before we focus in on  
9 Mr. Puryear, could you take the pad and the power of the  
10 pencil and try to outline for the jury how the ear works,  
11 how the frequencies of hearing are measured or handled in  
12 the ear, and then would you explain to them how high noise  
13 exposure causes injury in the certain kilohertz cycles, I  
14 guess? Is that the right term?

15 A Hertz.

16 Q Kilohertz in the ear. Is there an anatomical  
17 reason for that?

18 A Yes, there is.

19 Q And can you -- okay.

20 A I would like to apologize to the Court and  
21 the jury. I had a set of slides, but my partner took them  
22 for a medical school lecture that was an emergency lecture  
23 at the last minute. One of the faculty got sick. And so I  
24 do apologize. My drawing is not the greatest.



1           The human ear is divided into three phases,  
2 and we will just take an example of a right ear. There is  
3 the outer ear, which, of course, is the auricle, and then  
4 you have as part of the outer ear the opening, which they  
5 call the meatus, and then you have the canal. So this is  
6 the external or outer ear.

7           Then you have an eardrum, which is a  
8 three-layered structure; three separate tissue layers in it.  
9 This is where you would hit the hole in the eardrum, you  
10 know, from a slap on you. The various problems with an  
11 eardrum would be in this area of your ear. So we have the  
12 external ear.

13          The middle ear comprises the eardrum and the  
14 three little ear bones that are in the middle ear space.  
15 There is the malleus, the incus and the stapes. They have  
16 in the lay literature the hammer, anvil and the stirrup.

17          The good Lord has kind of put a rather  
18 phenomenal situation here as far as how you hear. There is  
19 a little window at this third ear bone that goes into the  
20 third division, which is the inner ear. And the inner ear  
21 has two parts to it; the cochlea, which looks like a snail  
22 shell, and the balance canal, which looks like three little  
23 rings. So you have hearing and balance in the inner ear.

24          The way the ear works is sound comes into the

1 outer ear. And what is sound? It is changes in air  
2 pressure. You know the old adage if a tree falls in the  
3 forest and you are not there, is there sound? Yes, there  
4 is. It is the change in air pressure from the tree falling.  
5 So the sound waves come in and are funneled by our outer  
6 ear. It collects the sound and focuses it into your ear  
7 canal.

8 Recent research over the past ten years shows  
9 that the ear canal itself acts like a resonator and also  
10 modifies the sound that comes in. That is why a lot of the  
11 new hearing aides coming on the market now take into account  
12 an effect of the external canal, whereas heretofore they  
13 just said, Well, it is a channel to the eardrum.

14 Then the sound waves make the eardrum  
15 vibrate. So you have the soft tissue which has the bones  
16 attached and some muscles. And I won't belabor you with the  
17 minor details, but suffice it to say the eardrum will  
18 vibrate. It then sets these three ear bones into motion.

19 This third ear bone, the stapes or stirrup,  
20 sits in this oval window which leads directly to the organ  
21 of hearing. The organ of hearing has a fluid-filled channel  
22 all the way through it. In that fluid-filled channel are  
23 little cells with hairs on them, okay? Called hair cells.

24 And the remarkable function of the ear is



1 this: Sound energy or air pressure energy is translated  
2 into mechanical energy, which is then translated into  
3 hydraulic or fluid energy, and then the nerve that comes out  
4 to the brain -- as the fluid passes over this little hair,  
5 it sets up an electric current in this cell. A nerve, a  
6 microscopic nerve, comes out of that hair cell and joins the  
7 millions of others in this snail shell and forms one big  
8 nerve called the cochlear nerve or nerve of hearing. That  
9 goes to the brain, and you hear. So there has been a  
10 transformation of sound energy through; to mechanical, to  
11 hydraulic, to electrical, to your conscious brain where you  
12 hear.

13 Various disease states affect hearing. There  
14 can be disease states that affect the outer ear, and the  
15 most common you-all probably know is the swimmer's ear. In  
16 the summer, you swim, and you get a very painful ear. Well,  
17 you get a lot of fungus built up in here, and your hearing  
18 gets muffled.

19 Or you can get a middle ear infection. All  
20 the children that have needed tubes or go to the  
21 pediatrician and get put on antibiotics because they get an  
22 infection in here. Sometimes the infection can be very  
23 severe and may perforate the eardrum and they get that stuff  
24 draining out of their ear that doesn't look very nice or

1 smell very good. Antibiotic, the disease resolves, the  
2 eardrum reheals itself, and the hearing comes back up to  
3 normal in most cases.

4 People can also as they get older --  
5 especially females more than males -- get ear bone problems,  
6 and, specifically, the third ear bone. They get like an  
7 arthritis-type process where this third bone goes into the  
8 inner ear. And the treatment for that is either a hearing  
9 aid or surgery by replacing this ear bone with a man-made  
10 ear bone.

11 So you have got outer ear disease, middle ear  
12 disease. Now what could affect the inner ear? Well, first  
13 of all, a person can have very severe high blood pressure,  
14 have a stroke and possibly rupture blood vessels in the ear.  
15 Very rare. More likely, that they were put on certain  
16 antibiotics for various serious diseases. In the hospital,  
17 those antibiotics can destroy a lot of those hair cells and  
18 they get a hearing loss. They can have a thing called  
19 Meniere's disease, chronic dizziness, where there is too  
20 much production of fluid in the inner ear.

21 Now the cochlea communicates with the balance  
22 mechanisms. So many people who have ringing with Meniere's  
23 disease, the dizziness disease, have it because the fluid  
24 buildup was in the balance canals, which has the same fluid



1 as the cochlea, and that fluid goes up in here.

2 So there are many things that can affect the  
3 inner ear. Noise is another one. Chronic loud noise  
4 exposure destroys these outer hair cells. How does it do  
5 it? The theory is -- and I say "theory" because, as you  
6 would understand, you can't take a bunch of normally hearing  
7 humans and say, "We want to experiment on you here; does it  
8 make you deaf." That won't go over very big, and I doubt  
9 the FDA would take a very positive view of that.

10 What they have been able to do on chinchilla  
11 ears, which is a close human model -- a lot of studies in  
12 our journals about chinchillas -- is this little hair that  
13 sits in this hair cell called the stereocilium gets stiff  
14 with loud noise exposure. Almost like it scars down. Then  
15 the second step is the enzymes, and the chemical reactions  
16 that occur in this hair cell degenerate. Then, thirdly,  
17 this nerve degenerates. And, fourthly, the blood supply to  
18 this microscopic world also becomes affected.

19 There is a whole series of metabolic  
20 biochemical and structural events that occur that are  
21 well-known with noise exposure to explain why you get a  
22 nerve hearing loss.

23 But the basic unit, if you were -- like that  
24 movie years ago, Fantastic Voyage, and they shrunk you down

1 and put you in the inner ear, those long brown rods that  
2 were waving in the air that the lady got caught in were the  
3 stereocilia, and then antibodies came up and wrapped around.  
4 That is what they were using. That is why the movie was so  
5 anatomically correct. She was caught in the stereocilia of  
6 the hair cell. So this is where the damage starts, and it  
7 progresses up to the nerve of hearing.

8 Q Doctor --

9 A I will just finish that last point you asked.  
10 If you take the cochlea, which is a snail shell, the low  
11 frequencies, talking very low, will be coded here right at  
12 the apex, the deep part of the snail shell. The very high  
13 frequencies are out here as what is called the basil turn,  
14 which corresponds, interesting enough, to where the third  
15 ear bone goes in.

16 If you stretch this out in a ribbon fashion,  
17 you will have about 12,000 hertz, which is the high high  
18 frequency end at the basil turn all the way to the apex  
19 right here, which might be down to 500 or 250 hertz.

20 The reason why you lose high frequencies in  
21 noise damage is that is where that part of the cochlea is in  
22 relation to the transmission, sound transmission mechanism  
23 of the middle ear. Right here.

24 This window opens into that part of the

1 cochlea that corresponds to about 3 to 4,000 to 6,000 hertz,  
2 that window. It is given a certain measurement in the  
3 literature, you know, so many tenths of a millimeter,  
4 whatever. But the anatomical basis for noise hearing loss  
5 starting in the high frequencies is those frequencies are  
6 directly opposite the oval window.

7 And if you imagine loud noise really moving  
8 this chain of bones, it is exceeding the normal limits that  
9 this inner ear wants to tolerate. It says, "Hold off. That  
10 is too much." Well, if it happens only intermittently, you  
11 will get a TTS, temporary threshold shift. In other words,  
12 a temporary loss of hearing. You get away from the noise  
13 for eight or twelve hours, your hearing comes back up, you  
14 are okay. Your inner ear says fine.

15 But do this a lot or go over 85 decibels for  
16 eight hours, you get a permanent threshold shift, and then  
17 the inner ear does not recover from that. Then you have  
18 recordable permanent irreversible damage to the inner ear.

19 MR. CRANWELL: Your Honor, maybe I will put  
20 this in as an exhibit. I am not sure it wouldn't be  
21 good to have this introduced as an exhibit.

22 THE COURT: Do you have any objection?

23 MR. ODDO: Yes, Judge. I mean, we have heard  
24 the explanation. To have this admitted and bring it



1 back to the jury room --

2 THE COURT: I will admit this as Plaintiff's  
3 Exhibit 14 over objection. He drew it, he referred  
4 to it, I will let it in for whatever existence it  
5 may or may not be. Take a second, Ms. Butenschoen,  
6 and mark that.

7  
8 (The drawing was marked Plaintiff's  
9 Exhibit Number 14 for identification and was  
10 entered into the Record.)  
11

12 THE COURT: All right. Mr. Cranwell?  
13

14 BY MR. CRANWELL:

15 Q Doctor Powell, does the problem that you have  
16 just described where the noise continues to insult through  
17 the window opening, does that create any uniqueness on an  
18 audiogram for these type of people?

19 A Yes, it does. It gives you a characteristic  
20 drop at those frequencies, and, in most cases, if not all, a  
21 precipitous drop if you are limiting yourself to noise  
22 exposure with permanent damage.

23 Q Do you have the audiograms that you-all  
24 performed on Mr. Puryear?

1           A       Yes, I do.

2           Q       Do you want to step over there and show it to  
3 the jury?

4           A       This is an audiogram or a hearing test that  
5 we do in our office. And I wouldn't worry about all these  
6 symbols, but red is for the right ear; blue is for the left.  
7 That is an audiologists conventional way they do that done  
8 nationally.

9                    You can see that you have numbers across the  
10 top. These are frequencies, 125 up to 12,000. The  
11 frequency of the sound. Low sounds here; very high sounds  
12 here. It is that type of thing.

13                   Down here is a list of intensity of sound or  
14 decibels. The level of sound. Ignore the minus figure.  
15 Some people do record up in this zone, but if you see zero,  
16 as you go down the scale it is more intense sound.

17                   So, in other words, 20 decibels is a certain  
18 level of sound; 40 decibels would be much louder and on  
19 down. And you can see that across the board in these speech  
20 frequencies it is basically what we call the normal  
21 audiologic range, which is zero to 20 decibels. By  
22 convention, audiologists say that if you have a hearing  
23 level in that range it is an audiometrically normal  
24 audiogram.

1           Then you can see he gets here to about 25,  
2   2,000 and drops off precipitously down into the higher  
3   frequencies. This is the area of the cochlea that is coded  
4   for those frequencies, and it is right under that stapes and  
5   oval window, and that is where you see the drop initially.

6           Now as time goes on, this can get even worse  
7   and go that way, but that is something I guess they will get  
8   into later. But that is an audiogram. Red is right; blue  
9   is left. And what you are seeing is in both ears there has  
10  been a drop way down at the 2,000 to 6,000 hertz, and  
11  especially at 4,000. There is this notch, this  
12  characteristic notch, they call it in the audiogram that is  
13  associated with a high frequency noise-induced hearing loss.

14           Q       Now, Doctor Powell, does a high frequency  
15  hearing loss impact one's ability to discern conversation?

16           A       Yes, it does, most definitely.

17           Q       Would you explain to the jurors how and why.

18           A       If I am sitting in a room with one person,  
19  say one of you on the jury, just you and I are talking, this  
20  hearing loss is immaterial, because we are talking in a  
21  relatively quiet room without background noise and on a  
22  one-to-one discussion. So as you saw from his hearing test,  
23  in the speech frequencies, he has a perfectly normal  
24  audiogram.



1           If we test him in a soundproof booth, which  
2 we do, there is no competing noise, no background noise,  
3 and, therefore, those speech frequencies are true tested,  
4 means very reliable, and very normal.

5           When you lose hearing for any reason in the  
6 higher frequencies, especially 3,000 and 4,000 hertz, what  
7 science tells you is the majority of information your brain  
8 receives is encoded in the cochlea, the organ of hearing, at  
9 those critical frequencies. Vowels for most people are  
10 below 1,000 hertz; A, E, I, O, U. Consonants are above  
11 1,000 hertz, the hertz being the frequencies on that  
12 audiogram.

13          Again, most information processing is at the  
14 3,000 hertz level. So you may hear well in a one-on-one  
15 relationship in a quiet room, but when there is competing  
16 background noise, a neurosensory hearing loss in the high  
17 frequencies causes you difficulty to understand what you are  
18 hearing, because the cochlea can't process that input  
19 correctly.

20          For example, if you are sitting at the mall  
21 and there is a lot of noise, a lot of background noise, and  
22 two or three people are talking with you, you will hear  
23 them, but you will have difficulty understanding in many  
24 instances a particular individual.

1           A high frequency loss for any reason will  
2 give you difficulty on the telephone, difficulty with  
3 feminine voices and difficulty with the television. Again,  
4 many high frequency type of sounds.

5           If a person is talking to you and walking  
6 away from you, you will have trouble. If they are around  
7 the corner and they are talking to you. Say you are  
8 painting your house and your wife or husband is around the  
9 corner doing something else and talks to you, you will have  
10 trouble understanding what you are hearing. You will hear,  
11 but you will hear parts.

12           And, again, most of what I say is dependent  
13 on the severity of the hearing loss. I mean, if it is a  
14 very, very minimal nerve hearing loss, there may be minimal  
15 symptoms as far as trouble hearing. The worse the hearing  
16 loss, the more symptomatic the patient is.

17       Q       Doctor, could you put that in terms of --  
18 compare it to sight so we could understand what you are  
19 saying?

20       A       I wear glasses. If I take the glasses off, I  
21 will still have the same amount of light coming into my eye,  
22 but the retina will not process what I am seeing clearly so  
23 that my brain interprets that I am seeing you-all on the  
24 jury clearly.

1                   It is the same thing with the ear. The same  
2 amount of sound is coming into the ear, but with that damage  
3 to those outer hair cells in the cochlea, the information of  
4 that sound can't be coded correctly and sent up the hearing  
5 nerve to the brain.

6           Q       Doctor Powell, did you have an occasion to  
7 see and examine Mr. Robert Puryear?

8           A       Yes, I did.

9           Q       And did you take a history from him?

10          A       Yes, I did, if I may refer to my office file.

11          Q       Sure. Why do you take a history, Doctor?

12          A       Well, we take a complete history on every  
13 patient, first of all, to find out why they are there. And,  
14 secondly, we do not do what is called a patient focused  
15 exam. That means if somebody comes in with an ear  
16 complaint, we don't just see them for the ear complaint.  
17 They get a full head and neck exam, history and everything.  
18 You can miss cancers and other problems if you just get  
19 tunnel vision on a patient.

20                   So any, basically, competent otolaryngologist  
21 is going to take a full exam and take a full history for  
22 anything that could be related to the head and neck.

23                   Plus, we also supplement it with a general  
24 medical history, because many general medical problems or



1 even surgeries they have had other than the head and neck  
2 can impact on our findings and our recommendations.

3 I saw Mr. Puryear on October 20, 1993. We do  
4 our history and physical in this sense. Patient is seated.  
5 He fills out a clinical complaint form, why he is there,  
6 histories, what medications he is on, any allergies, stuff  
7 like that -- and I believe both counsel have all that --  
8 where he works if he works, biographical data, and he also  
9 signs a release form that if I need to send his medical  
10 records to his doctor or the insurance company requests it  
11 for some reason I have legal permission to release his  
12 records.

13 My nurse, who is with me all the time in the  
14 operating room as well as the office, takes initial history,  
15 and then I take a supplemental history to focus on things I  
16 may want to amplify.

17 Also, our audiologist if it is hearing loss,  
18 and, specifically, if there is a complaint that it is  
19 work-related, will take what is called an occupational  
20 hearing loss history.

21 So there are actually three levels of history  
22 taking being done on the patient. It is kind of a check and  
23 balance system to make sure we don't miss something that  
24 would be important in evaluating the patient appropriately.

1                   In any event, we saw him on the 20th. A  
2   61-year-old white male complaining of hearing loss, and I  
3   think -- if I may refer to the letter that is a typewritten  
4   letter that sums up my visit. "Complains of hearing -- mild  
5   hearing loss and severe constant tinnitus, which is ringing  
6   in the ears, for the past several years. He says he has  
7   difficulty understanding feminine voices on the television  
8   or telephone. He has trouble understanding people when  
9   there is background noise. More specifically, he has a  
10  constant bilateral, meaning both ears, tinnitus which keeps  
11  him awake and causes sleep disturbance.

12                   "He worked for Norfolk & Western from 1959 to  
13  1987. He had loud noise exposure and started wearing  
14  hearing protection in January of 1987 when he saw  
15  Dr. Brantley Sydnor, an otolaryngologist in Roanoke,  
16  Virginia. At that time, hearing loss was confirmed, and it  
17  was recommended that he wear hearing protection.

18                   "Mr. Puryear has worked as a railroad worker  
19  fireman and engineer, and in 1975 was promoted to road  
20  foreman and was in charge of the engineers and firemen. He  
21  served in the United States Air Force as a mat maker from  
22  September 1951 to September 1955 and had no loud noise  
23  exposure according to him. He was with the Petersburg  
24  Virginia Police, but had only minor exposure to pistol fire

1 without hearing protection by firing 12 rounds through a  
2 pistol on one occasion.

3 "He has no noisy hobbies. There is no  
4 history of head trauma or loss of consciousness, and there  
5 is no history of ear surgery or ear disease. His work  
6 location was on the engines themselves while with the  
7 railroad. He was exposed anywhere from six to sixteen hours  
8 per day to loud noise. He wore hearing protection once he  
9 received it and wore it consistently. They were of the  
10 earplug type." Again, this was in January of 1987. "These  
11 were not furnished by the employer. The patient states he  
12 purchased his own. According to the patient, the Hearing  
13 Conservation Program had not yet started in his locality.

14 "The only other conceivable noise exposure  
15 was in high school in a shop class where he had some machine  
16 noise, but it was felt that this was insignificant.

17 "Patient states he first noticed the tinnitus  
18 about 1986. He felt the causative agent for his hearing  
19 loss was the engine whistles and the general noise in the  
20 area of his employment. He felt his hearing has gradually  
21 decreased over several years. He has also noticed when he  
22 is stressed the tinnitus seems to be worse. He describes it  
23 as a high-pitched and constant ringing.

24 "Back in 1987 he had a momentary spell of



1 vertigo, or dizziness, which resolved in a couple of minutes  
2 and has had no problems of that nature since. He has no  
3 allergies to medications. He is currently on Vasotec, which  
4 is an antihypertensive medication, one half a tablet a day.  
5 Past medical history includes hypertension. Past surgical  
6 history includes adenotonsillectomy." Tonsils and adenoids  
7 were removed.

8 "He quit smoking eight years ago but used to  
9 smoke about three packs per day. He quit drinking about two  
10 and a half years ago and has been a mild social drinker.  
11 There is no family history of ear disease or hearing loss."

12 His ear exam was clinically normal.  
13 Tympanogram tracings -- that is this little graph. And what  
14 we do here is we put a probe in the ear and induce positive  
15 and negative pressure to see if the eardrum moves correctly.  
16 Both ears were perfectly normal on tympanogram, meaning both  
17 eardrums were intact and moved normally.

18 The audiogram, which I have gone over with  
19 you, was done, and this showed a classic high frequency  
20 hearing loss in both ears, which is consistent with a noise-  
21 induced etiology or cause.

22 His speech reception threshold was five  
23 decibels bilaterally. Speech discrimination scores were 100  
24 percent bilaterally. Those were totally normal values.

1                   His nasal septum -- that is the partition of  
2     cartilage and bone in the nose -- was mildly deviated to the  
3     right without obstruction, without blocking his airway.  
4     Secretions in the nose were normal. The lining of his nose  
5     or mucosa, as we call it, was normal. The inferior  
6     turbيناتes -- these are little structures in the nose that  
7     swell up to warm and humidify the air you breathe in, were  
8     mildly increased or hypertrophy.

9                   The nasopharynx -- that is the area behind  
10    the nose where your adenoids were as a child -- was normal.  
11    The oropharyngeal exam -- mouth and back of the throat,  
12    tongue and everything -- was all normal, as was his larynx  
13    and hypopharynx, except he had multiple bony exostoses.  
14    What are those? They are little excesses of bone on his  
15    upper jaw. Little bumps of bone. They are benign, they are  
16    not a tumor, and they need no therapy. People who have them  
17    on the lower jaw, especially on the inside, the tongue side,  
18    if they were going to have a partial or a full denture made,  
19    those little bone humps need to be ground down because the  
20    denture won't fit. But this is on the upper jaw, and he  
21    needed no treatment, and they weren't viewed as abnormal.  
22    I explained to the patient that these were totally benign  
23    deposits of normal bone.

24                   The tonsils were surgically absent. The neck

1 exam was totally normal. Our impression is that of a high  
2 frequency sensor neural hearing loss bilaterally compatible  
3 with a noise-induced etiology and constant high-pitched  
4 tinnitus secondary to that hearing loss.

5 I have recommended yearly hearing tests or  
6 audiograms, the use of hearing protection devices and  
7 consultation with the appropriate audiologist for possible  
8 hearing aid evaluation which may offer him some reduction in  
9 the level of his tinnitus. I have also recommended that he  
10 stay in close contact with his family physician at home for  
11 his general medical needs.

12 Q Doctor Powell, I would like for you to assume  
13 for me that between 1955 and 1959 that he was a fireman on a  
14 N&W steam engine. He worked an average of 12 hours per  
15 trip. Maximum allowed per day, 16 hours. Off four days a  
16 month, excluding vacations. That he was furloughed between  
17 October '59 and May of '61.

18 In May '61 through 1975 he was a fireman and  
19 engineer on the N&W Division in Crewe to Norfolk. He spent  
20 98 percent of his time, duties, as a fireman. He worked on  
21 an average of over ten travel hours per trip. Maximum  
22 allowable period of time of 12 hours. He was off an average  
23 of four days per month, excluding vacation.

24 The model engines worked on 50 percent of the



1 time, the engine model EMD GP-9, worked ten percent of time  
2 on the Alco and worked on passenger train engine EMD-4,  
3 covered wagon type, from '72 to '75, for approximately 760  
4 trips.

5 From 1975 to 1987, he was the foreman of the  
6 road of engines for the Shenandoah Division. He worked on  
7 an average of three days per week on engines on road trips,  
8 and, again, that was mostly as a firemen. The road trips  
9 would last on an average of over ten hours per trip.

10 From 1981 through 1987, he worked on model  
11 engines GEC 36-7 model locomotive and worked at least one  
12 trip per week on this model. Got that?

13 I also would like for you to assume that his  
14 exposure on the EMD F-7 on his three-and-a-half hour run in  
15 the cab was 99 decibels, the horn and whistle at the seat  
16 was 103 decibels, the engine walkway was 115 decibels and  
17 the engine center 120 decibels with 210 average exposure in  
18 the cab, 27.5, 27 and a half minutes exposure to the horn,  
19 seven minutes exposure to the walkway, and 20 seconds  
20 exposure to the engine center. I want you to assume that  
21 the time weighted dBA average is 95.9.

22 Doctor Powell, before I move on -- well, let  
23 me go on through the rest of it. That he also worked on the  
24 GP-9 and that the run there was ten hours, cab was 89.3, the

1 whistle and horn in the seat -- or on the walk, we don't  
2 have the seat, at 109 for 30 seconds. The engine walkway is  
3 103 for 20 minutes and the engine center is 112 for 30  
4 seconds. Total dBA time weighted of 92.5.

5 I want you to also assume on the GEC 36-7  
6 that he was exposed on these trips to cab noises of 88  
7 decibels for 600 minutes, the whistle horn in seat is 116.8  
8 decibels for 29.9 minutes, the whistle and horn on the walk  
9 is 27.5 decibels for 30 seconds, and the engine walkway 90  
10 decibels for 15 minutes -- 91, excuse me -- and the engine  
11 center 91 for 30 seconds for an average dBA of 99.5.

12 Given that assumption, Doctor Powell, and  
13 given your background, training and education and  
14 experience, do you have an opinion as to the cause of the  
15 neurosensory high frequency hearing loss that you diagnosed  
16 to Mr. Powell?

17 A Mr. Puryear.

18 Q Mr. Puryear. Excuse me, Doctor. You are  
19 hearing pretty good.

20 A Yes. In the absence of any evidence to the  
21 contrary, my conclusion was that since his only source of  
22 loud noise as best as I could determine of a chronic nature  
23 and exceeding the standard of 85 decibels was through his  
24 employment that it was an occupationally-related high

1 frequency noise-induced hearing loss.

2 Q Doctor Powell, I want to show you what is  
3 listed at Plaintiff's Exhibit Number 13. That is focused in  
4 on the GEC 36-7 and focuses only on the exposure to the  
5 whistle. That is 116.8 decibels for 29.9 minutes?

6 A Correct.

7 Q Per run?

8 A Uh-huh.

9 Q And I want you to assume that as is pointed  
10 out in Plaintiff's Exhibit Number 13 that there were 240  
11 blasts per trip at 29.9 minutes. Between 1981 and 1987, the  
12 total number of horn blasts would be 69,120 for a total of  
13 8,611 minutes.

14 With that assumption, based on your  
15 background, training, education and experience, would that  
16 exposure alone be sufficient to cause the type of hearing  
17 loss that Mr. Puryear is experiencing?

18 A Yes, it would, most definitely.

19 Q Now, Doctor Powell, on the audiograms that  
20 you-all performed on Mr. Puryear, in the conversation ranges  
21 he scores very well, doesn't he?

22 A Yes, he does. As I testified, his speech  
23 discrimination score and a term called SRT, speech reception  
24 threshold, the level at which he can first detect the spoken



1 word during a hearing test, were perfectly normal.

2 Q Doctor Powell, explain to the jurors the  
3 environment that he is in when that test is conducted.

4 A This is a eight-foot square soundproof  
5 hearing booth that is totally soundproof and is connected  
6 between the audiologist and the patient by electronic wires  
7 to earphones.

8 Q Doctor Powell, does the AMA have standards to  
9 rate disability, hearing disabilities?

10 A It does. I don't think that they are  
11 complete, but, yes, the AMA and the American Academy of  
12 Otolaryngology have a disability percentage calculation.

13 Q And what range is that confined to?

14 A It covers 1,000 through 3,000 hertz. It does  
15 not go into the higher frequencies, anything above 3,000.

16 Q Doctor, is there currently some work going on  
17 to change that disability rating system?

18 A Yes, there is. I should correct -- 500 to  
19 3,000 hertz. Yes, there is. A colleague in California,  
20 Doctor Glorig, who has some significant degree of expertise  
21 in this area, is working on a new classification system,  
22 because as knowledge increases one is finding out that there  
23 are several types of disabilities that can be associated  
24 with different types of hearing loss, and the old standard

1 that we have from the AMA just doesn't address the other  
2 types of disabilities that you can have with higher  
3 frequency type of hearing losses.

4 Q Doctor Powell, based on your background,  
5 training, education and experience, do you have an opinion  
6 as to whether an individual who has the kind of hearing loss  
7 that Mr. Puryear does has a disability?

8 A He most definitely has a disability. He does  
9 not have a disability if you strictly look at the old AMA  
10 criteria, but if you look at it in what I call the real  
11 world setting, he has a definite disability.

12 Q Would you say it is a modest, mild or a major  
13 disability?

14 A I would say it is moderately severe.

15 Q Would the situation he would be in impact the  
16 disability?

17 A I am not sure I understand it, the situation  
18 he would be in.

19 Q Well, let me ask you this: Let's suppose  
20 that he wants to play poker with seven of his friends and  
21 maybe watch a football game at the same time while they are  
22 all sitting around the card table playing cards and watching  
23 the football game. How is he going to fare?

24 A If only one poker player talked at a time and

1 the volume was extremely low on the TV, he would probably do  
2 just fine listening to the individual poker player. But,  
3 again, that's not the real world. The TV would probably be  
4 up, in fact, maybe a little loud, and everyone will be  
5 competing verbally, as far as talking, about the poker game  
6 that is going on. So he will have competing messages coming  
7 into his ear.

8                   Going back to my earlier testimony, that is  
9 the major problem with high frequency loss in these  
10 frequencies. The ear can't process correctly because of its  
11 loss of ability to do that and because of its competing  
12 messages that it receives. It can't sort it out.

13               Q       Doctor Powell, are you familiar with the  
14 Clark-Pepelka study?

15               A       Yes, I am.

16               Q       Would you tell the jurors what the  
17 Clark-Pepelka study is?

18               A       Several years ago, a study was published in a  
19 journal called Laryngoscope -- it is one of several major  
20 journals that we have in our specialty -- and they evaluated  
21 about 9,400, I think it is 9,427 railroad workers and  
22 compared them to a segment of the general population that  
23 had their hearing tested years earlier.

24               Q       Who had tested their hearing years earlier?



1           A           Doctor Glorig, the gentleman I referred to  
2 earlier that is now developing a new system for rating the  
3 disability for hearing impaired.

4           THE COURT: Let me stop you here. Would you  
5 give the court reporter Glorig and Laryngoscope?

6           THE WITNESS: Laryngoscope is  
7 L-A-R-Y-N-G-O-S-C-O-P-E, and Doctor Glorig is  
8 G-L-O-R-I-G.

9           THE COURT: Thank you.

10          THE WITNESS: And they were trying to  
11 determine if there was a difference in hearing  
12 between the railroad workers with their noise  
13 exposure and the general population.

14          They came to the conclusion that there was no  
15 statistical difference between the two groups of  
16 people. It is felt by people in their editorial  
17 responses to this journal article and by Doctor  
18 Glorig specifically who had tested one group of the  
19 people --

20          MR. ODDO: Excuse me. First of all, I am not  
21 sure that he asked a question to call for this  
22 response, and I am going to object to the testimony  
23 about Doctor Glorig.

24          THE COURT: Mr. Cranwell, do you intend that

1 Doctor Powell can testify about Doctor Glorig's  
2 response to the article?

3 MR. CRANWELL: Not if Mr. Oddo objects, but  
4 if he doesn't object he can.

5 THE COURT: Well, since Mr. Oddo has  
6 objected, I sustain the objection.

7

8 BY MR. CRANWELL:

9 Q Don't tell us what Doctor Glorig said.

10 A Okay. In any event, the study was comparing  
11 the two population groups, and it is felt by people to be  
12 flawed.

13 Q How about by you, Doctor?

14 A Well, by me. I am one of those people who  
15 feel it is flawed.

16 Q Would you explain why you feel it is flawed.

17 A The reason is on these counts: The  
18 statistical analysis they did -- without putting everybody  
19 to sleep getting into heavy mathematics, and I am not a  
20 biostatistician -- it compared apples and oranges, not  
21 apples and apples. It also only took the better hearing ear  
22 in the civilian nonrailroad population.

23 Also, two different types of audiometers were  
24 used. The people that Doctor Glorig examined were done with

1 a manual audiometer where the audiologist dials in the  
2 frequencies and specifically checks. The railroad workers  
3 were done with an automatic or automated audiometer. It is  
4 felt by audiologists that there is --

5 THE COURT: Doctor Powell, would you confine  
6 the feelings to what Jeffrey Powell perceives.

7 THE WITNESS: Okay. Well, they are my  
8 feelings, too. I have four audiologists that work  
9 for me, and we all use manual audiometers. And the  
10 reason why I use them is there is a statistical  
11 difference between an automated audiometer and a  
12 manual audiometer as far as accuracy.

13 And when you look at their study, the way  
14 they did their statistics, they tried to take that  
15 into account, but I think they went in the wrong  
16 direction in their statistical analysis in trying to  
17 correct that. So I think the study was a noble  
18 study, but it is not accurate.

19 The big point in the study that I feel was  
20 neglected is they assume that the general population  
21 that were tested earlier by Doctor Glorig had no  
22 occupational noise exposure, in other words, had  
23 perfectly normal ears, and that was not true.

24 So there are some statistical flaws in the



1 study where I think generalizations were made that  
2 really can't be supported even mathematically by the  
3 study.

4  
5 BY MR. CRANWELL:

6 Q Doctor Powell, do you know Doctor Lambert up  
7 at the University of Virginia?

8 A Very well.

9 Q How is it that you know him very well?

10 A I am a member of the Virginia Society of  
11 Otolaryngology, I am one of its past board members, and he  
12 and I are frequently together at meetings and are  
13 colleagues.

14 Q Does your practice and his practice differ?

15 A Yes. Doctor Lambert confines himself to  
16 otology; mainly, ear surgery. He is in the academic setting  
17 full-time at the University of Virginia. An outstanding  
18 otolaryngologist. I will say that for the Record.

19 I, of course, do all phases of otolaryngology  
20 and have a significant part devoted to hearing loss and  
21 occupational hearing loss, which Doctor Lambert, by virtue  
22 of his position in an academic center, would not be that  
23 involved in.

24 MR. CRANWELL: Your witness.

1 THE COURT: Members of the jury, before  
2 cross-examination, does any of you want a break?  
3 Okay. Mr. Oddo?

4 MR. ODDO: Thank you, Judge.  
5

6 CROSS-EXAMINATION  
7

8 BY MR. ODDO:

9 Q Good afternoon, Doctor Powell. It is true,  
10 is it not, that millions of people in the United States have  
11 a hearing loss?

12 A That's correct.

13 Q And millions of people in the United States  
14 have tinnitus?

15 A That's correct.

16 Q And I think as you were drawing on that chart  
17 right there you told us that there are many causes of both  
18 of those problems.

19 A Correct.

20 Q And it is also true, is it not, that many  
21 people who have tinnitus or ringing in the ears learn to  
22 adapt to it and live with it?

23 A I don't think I could make that general  
24 statement. In my experience, I have some patients that say

1 it is not a problem for them, others say it is, but I  
2 couldn't quantify that with a statistical number.

3 Q Well, certainly, many people who have these  
4 types of problems lead very successful lives.

5 A Correct. And it is related to the degree of  
6 tinnitus and also to their life-style, too, I would imagine.

7 Q I think we all just found out -- I guess it  
8 was last month -- Miss America is deaf. Are you aware of  
9 that?

10 A Well, she has a neurosensory loss. She is  
11 not totally deaf.

12 Q She has certainly got a hearing loss, doesn't  
13 she.

14 A Correct. Correct.

15 Q Now hearing loss, in your line of work, you  
16 generally classify it into four general categories; right?  
17 Mild being the least severe, moderate next, severe next, and  
18 then the worst being profound.

19 A Profound.

20 Q We can agree, can we not, that Mr. Puryear's  
21 hearing loss is not profound.

22 A Correct.

23 Q It is not severe.

24 A Correct.



1           Q       It is something that you have seen in other  
2 patients you have treated.

3           A       Correct.

4           Q       And, in fact, you have seen much worse  
5 hearing loss in the people you have treated.

6           A       Correct.

7           Q       His hearing loss is also, if I understand you  
8 correctly, limited to the higher frequencies.

9           A       Correct.

10          Q       And it is perfectly normal in what you call  
11 the speech frequencies.

12          A       Uh-huh.

13          Q       And, in Mr. Puryear's case, he should have no  
14 problem hearing in a quiet environment?

15          A       None whatsoever.

16          Q       And assuming he plays golf three times a  
17 week, he should have no problems playing golf?

18          A       I wouldn't -- I assume there would be no  
19 problem.

20          Q       Now you used an example of playing poker.  
21 That was just an example. You don't know whether he is ever  
22 in that environment.

23          A       No, I don't.

24          Q       And as far as having problems with watching

1 television and going to the shopping mall or restaurants,  
2 again, you don't know how often he might be in those  
3 environments, either.

4 A No, but in the history he volunteered that.  
5 When we asked him what his clinical complaints were, that  
6 was something he volunteered on his own.

7 Q But, again, you don't know exactly --

8 A The frequency, no, I don't.

9 Q Thank you. Now is it true, Doctor Lambert,  
10 that doctors --

11 A Doctor Powell.

12 Q Excuse me, Doctor Powell. We had just talked  
13 about Doctor Lambert, I am sorry. Doctor Powell, is it true  
14 that the people in your profession know more today than they  
15 did 30 or 40 years ago about the effects of noise on  
16 hearing?

17 A Very much so.

18 Q And you were shown some charts, I think, that  
19 talk about decibel levels. There has been some evidence  
20 about 115 decibels being some sort of limit here. You would  
21 agree, would you not, that exposure to noise in excess of  
22 115 decibels will not necessarily cause a hearing loss?  
23 Isn't that true?

24 A It would depend on the amount of time of

1 exposure and other factors.

2 Q You mentioned --

3 A Let me qualify that statement, I guess, if I  
4 may, counselor. Could you just repeat that question one  
5 more time? I am not sure I answered it fully for you.

6 Q Well, I asked you whether -- isn't it true  
7 that exposure to noise in excess of 115 decibels will not  
8 necessarily cause a hearing loss?

9 A No. I need to qualify that statement. If  
10 you were standing next to, say, a Marine Corps howitzer,  
11 something like a 170 decibel gunshot, yes, you would in  
12 about 100 percent of the cases get some permanent damage.

13 Q We are talking about --

14 A Excessive noise.

15 Q -- really loud noise.

16 A Correct.

17 Q And we are not -- as far as you know, we  
18 haven't had any noise like that in this case.

19 A No.

20 Q Okay. Now you have talked about  
21 Laryngoscope, and you subscribe to that.

22 A Yes, I do.

23 Q Certainly, it is a well-respected and  
24 reliable journal in your field.



1 A Yes, it is.

2 Q And you talked about the Clark and Pepelka  
3 study being published in Laryngoscope. It is true, is it  
4 not, that in order to get an article into Laryngoscope it  
5 has got to pass muster with the people in your profession?

6 A Correct.

7 Q I guess what you call a peer review group?

8 A Correct.

9 Q And the purpose of that group is to make sure  
10 that the authors aren't submitting something completely  
11 outlandish or that has no basis at all; isn't that right?

12 A That's correct.

13 Q Doctor Powell, it is true, is it not, that as  
14 people age their hearing gets worse, generally?

15 A Not in all cases. Many cases they do, and it  
16 is called presbycusis, a gradual decrease in your higher  
17 frequencies to begin with as you age.

18 Q Again, generally, what you would expect to be  
19 normal hearing for somebody 62 years old as Mr. Puryear  
20 would be something different from what you would expect to  
21 be normal hearing for, say, a 22 year old?

22 A In most cases, yes.

23 Q And it is true, also, is it not, that  
24 generally presbycusis accounts for about a 5 to 15 decibel

1 loss in hearing?

2 A Roughly. And there are some published tables  
3 that would give you specific decibel numbers for that.

4 Q Just so the jury understands, you had your  
5 test there and I have got a copy of it, when we say 5 to 15  
6 decibels, we are talking about the numbers that go on the  
7 left-hand side there?

8 A Correct.

9 Q Okay. Doctor, let me ask you to take a look  
10 at something. I will get you the small copy, and then I  
11 will put it on the board so that the jury can take a look at  
12 it.

13 Doctor, I have handed you two audiograms, and  
14 let me put those up on the board. Now you did your test in  
15 1993; did you not?

16 A Correct.

17 Q Let's look, Doctor Powell, if we could, at  
18 these two tests, and I will just hold the one next to this.  
19 Looking at those two audiograms, can we agree that --

20 THE COURT: You are blocking out half the  
21 jury.

22 MR. ODDO: I apologize, Judge.

23 MR. BROWN: Can we bring the other thing  
24 around? And maybe we can put it together.

1 MR. ODDO: I am sorry.

2

3 BY MR. ODDO:

4 Q Doctor Powell, can we agree that these two  
5 audiograms show essentially the same configuration?

6 A Correct.

7 Q Let's talk about the one that is dated March  
8 1, 1989, that was done on Mr. Puryear when he was 57. You  
9 recognize Gill Memorial Ear Nose and Throat Clinic as being  
10 a facility here in Roanoke?

11 A I do.

12 Q Certainly, a reputable facility; correct?

13 A Correct.

14 Q If we can compare that one with the one --  
15 and this is Doctor Sydnor, who I think you mentioned earlier  
16 who you were familiar with, which was done in 1987, and  
17 Mr. Puryear has told us about this earlier. Can we agree,  
18 Doctor, that in the speech frequencies, that is the lower  
19 frequencies starting at 250 going to 5 and then 1,000 and  
20 2,000 -- and then we will talk about the others later. But  
21 just going from 250 to 2,000, on both of these audiograms,  
22 he is within normal range.

23 A Correct.

24 Q Now as we hit 3,000 hertz on both of these



1 audiograms, Doctor Powell --

2 THE COURT: No. Excuse me, yes. Now I can't  
3 keep up.

4  
5 BY MR. ODDO:

6 Q Doctor, as we hit 3,000 hertz on both of  
7 these audiograms, can we agree that we are roughly in the  
8 same ballpark on both of them?

9 A Correct.

10 Q And I believe --

11 A It is around 30 decibels is what I see on  
12 both of these.

13 Q It looks like to be completely accurate that  
14 one year is at 25 and one year is at 30 on each one; isn't  
15 that right?

16 A Correct.

17 Q And it is true, sir, is it not, that the  
18 hearing loss at which you recall 25 decibels is something  
19 that is not a serious hearing loss?

20 A Correct.

21 Q In fact, some people in your profession would  
22 consider 25 to be within normal range?

23 A I would strongly doubt that. Anything over  
24 20 raises suspicion.

1 Q Well, 25, in your opinion --

2 A I am sorry. If you are talking an older  
3 person with some presbycusis, in a gradual slope, yes, they  
4 would interpret that as normal hearing for age.

5 Q Well, anything under 30 at 3,000 is probably  
6 not going to present any sort of problems to the person in  
7 terms of processing information; isn't that right?

8 A That's correct.

9 Q Okay. So that is where Mr. Puryear was in  
10 1987 and '89. Do you have yours right there?

11 A Yes, I do.

12 Q Can you look at yours and tell us -- it is  
13 true, is it not, that his hearing at 3,000 when you tested  
14 him in '93 is lower than it was or worse than it was when  
15 these other audiograms were done?

16 A Correct. One ear went down 10 decibels, and  
17 the other ear went down 15 decibels.

18 Q And it is true that that continued loss is  
19 caused by one of two things: either noise or presbycusis;  
20 right?

21 A In general, yes.

22 Q And I will ask you to assume that Mr. Puryear  
23 has testified, and I think this is what he told you in his  
24 history, that he has had no other noise exposure. So if we

1 rule out noise, we are left with presbycusis; correct?

2 A Correct.

3 Q And that would be consistent, again, with the  
4 presbycusis being a 5 to 15 dropoff?

5 A Correct.

6 Q And isn't it true, Doctor, that in the case  
7 of a hearing loss caused by exposure to noise that once you  
8 are removed from the noise your hearing doesn't get any  
9 worse because of that noise?

10 A That's correct.

11 Q And, again, Mr. Puryear, it is your  
12 understanding, retired in 1987; correct?

13 A That's correct.

14 Q And he is now 62?

15 A Yes.

16 Q And it would be your opinion, therefore, that  
17 the continued loss at 3,000 would be caused by presbycusis.

18 A Most likely be consistent with that.

19 Q Okay. And it has nothing to do with his  
20 employment at the railroad.

21 A Correct.

22 Q Now, Doctor Powell, I believe you mentioned  
23 -- and we went through that letter you wrote. Incidentally,  
24 that letter was written to Mr. Cranwell.



1           A           That's correct.

2           Q           And in that letter you told Mr. Cranwell that  
3           you had recommended to Mr. Puryear that he see a qualified  
4           audiologist about getting a hearing aid?

5           A           That's correct.

6           Q           And just so the jury understands, you believe  
7           that the hearing aid actually is going to help reduce his  
8           tinnitus as -- not merely affect or improve his hearing.

9           A           In some cases, people who have severe  
10          tinnitus, there are two ways -- well, there are three ways  
11          you can treat it. One is do nothing, which is, of course,  
12          not the compassionate thing to do.

13                    Another is to try hearing aids. In many  
14          instances, and I can't give you a statistical number,  
15          because, frankly, there is no study published that really  
16          narrows that down, but in many cases people with severe  
17          tinnitus get some of relief by having a hearing aid. And  
18          the reason it does is their hearing improves somewhat, so  
19          they concentrate more on what they are hearing than the  
20          tinnitus. Unfortunately, they don't sleep at night with  
21          their hearing aid, so they are still faced with the problem.

22                    The other treatment or modality is what is  
23          called a tinnitus masker, which is -- I call it for lack of  
24          a better term -- a nonhearing aid hearing aid. It is a

1 little hearing aid device that puts a competing noise in  
2 your ear so that you don't concentrate on your own tinnitus.  
3 And it is akin to the little wave machines and ocean  
4 machines you hear advertised like in airplane magazines.  
5 You put it on your nightstand, and it is what is called  
6 white broad ban noise. Broad ban noise, not a specifically  
7 focused frequency, and that helps you allegedly fall asleep  
8 and not concentrate on the ringing.

9 Q And you can have these tinnitus maskers be  
10 quite basic. I think you said that you can set your radio  
11 kind of in between stations, and that might even --

12 A Correct. A very cost-effective way is to  
13 just turn your radio off the station, and you will get that  
14 Sh-h-h-h type of noise. That is defined as white broad ban  
15 noise. I am not sure where the term "white" comes in as  
16 opposed to blue, green, like the ultraviolet spectrum, but  
17 that is for audiologic convention what it is termed, and it  
18 is used as a masking noise. You are masking the tinnitus,  
19 which is the same principle used in doing an audiogram.

20 If the patient has a severe enough hearing  
21 loss, you will mask the other ear so that he doesn't get a  
22 crossover effect, and then, unfortunately, they would have  
23 an invalid audiogram.

24 Q Now in your meeting with Mr. Puryear last

1 October, I believe he mentioned that he saw Doctor Sydnor in  
2 January of 1987?

3 A Correct.

4 Q And he also told you that he first noticed  
5 the tinnitus in 1986.

6 A Correct.

7 Q And he thought that that was caused by the  
8 railroad.

9 A Correct. Noise. He felt loud noise  
10 exposure.

11 Q Now, Doctor Powell, Mr. Cranwell asked you  
12 some questions about the AMA guidelines. The guidelines  
13 that are currently in place under the American Medical  
14 Association and the American Academy of Otolaryngology and  
15 Head and Neck Surgery would show that Mr. Puryear's percent  
16 of hearing impairment is zero percent; is that right?

17 A That's correct.

18 Q And it is also true that -- I think you were  
19 asked to categorize his disability, and you said moderate to  
20 severe. Isn't it actually true that you think he has really  
21 got a limited disability?

22 A Well, limited in that he has a high frequency  
23 hearing loss, and it is a limited physical disability. You  
24 know, it is not a full generalized disability, no. I don't



1 think anybody that would be ethical and honest in evaluating  
2 him could say he has a total disability.

3 MR. ODDO: Thank you, sir.

4 THE COURT: Mr. Cranwell?

5  
6 REDIRECT EXAMINATION

7  
8 BY MR. CRANWELL:

9 Q Doctor Powell, I want to come back to the  
10 Pepelka study. Do you remember Mr. Oddo asking you about  
11 the peer review group for that study to get published?

12 A Correct.

13 Q Isn't it true that once you go through the  
14 peer review --

15 THE COURT: Do you have an objection,  
16 Mr. Oddo?

17 MR. ODDO: I will wait until he finishes his  
18 question, Judge.

19  
20 BY MR. CRANWELL:

21 Q Isn't it true that after they go through the  
22 peer review and publish those that the medical community has  
23 reactions to those studies, don't they, sir.

24 MR. ODDO: I object to the form, Judge. That

1 is leading.

2 THE COURT: Overrule the objection. You may  
3 answer that question yes or no or whatever the  
4 answer is.

5  
6 (Brief interruption.)

7  
8 THE COURT: Do you remember the question,  
9 Doctor Powell?

10 THE WITNESS: Yes, Your Honor, I do. All of  
11 the major journals in our specialty are peer review  
12 journals, and for the sake of the jury let me just  
13 explain, if I may, what that means.

14 If I submit an article, if I write up an  
15 original article and want to have it published in  
16 one of my journals, there is an editorial board in  
17 every journal, and they look at that article for  
18 basic scientific correctness.

19 Now does that mean what is in that article is  
20 100 percent correct, no. It is, as Mr. Oddo pointed  
21 out, defense counsel, they need to make sure that I  
22 am not trying to promulgate something in a published  
23 journal that is off the wall scientifically and then  
24 may be taken as gospel truth and cited in the

1 future.

2 So the editorial board receives a copy and  
3 looks at the article and passes on it whether they  
4 see any glaring errors or not. The people that  
5 wrote this article are not otolaryngologists, they  
6 are audiologists.

7 There are some audiologists on the medical  
8 review board; however, if you look at the inside  
9 cover of Laryngoscope, 98 percent to 99 percent are  
10 physicians. And that is not impugning the article  
11 or the authors, but it is a superficial review. And  
12 it is done that way because if it passes the initial  
13 muster, it then gets published. And like any  
14 medical journal or any journal, for that matter, in  
15 the United States, when you get your journal you  
16 then can write in editorial comments whether you  
17 agree or not agree with the scientific position  
18 taken by the author.

19  
20 BY MR. CRANWELL:

21 Q Now, Doctor, isn't it true that once these  
22 things get published there is a general reaction from the  
23 medical community as to whether or not it gains acceptance  
24 or rejection?



1 A Correct.

2 Q And what is the status in the medical  
3 community of Clark-Pepelka?

4 A It is felt to be flawed.

5 Q Thank you, sir. Now do you remember Mr. Oddo  
6 asking you about millions of Americans having hearing loss  
7 and millions of Americans having tinnitus?

8 A Correct.

9 Q Do you treat a lot of railroad workers?

10 A I have been evaluating railroad workers for  
11 nine years.

12 Q What has been your experience with respect to  
13 hearing loss and tinnitus to that population as compared to  
14 your other patients?

15 A I see a much higher statistical incidence of  
16 tinnitus in -- nerve induced -- excuse me. A higher  
17 incidence of tinnitus and nerve hearing loss than in the  
18 general population of my practice in my area.

19 Q Do you remember him asking you if in the last  
20 30 to 40 years the knowledge in the medical community has  
21 increased about hearing loss?

22 A Correct.

23 Q Thirty or 40 years ago, Doctor Powell, are  
24 you familiar with what the state of knowledge in the medical

1 field was as a result of your medical education?

2 A Somewhat I am, yes.

3 Q What was the state of medical knowledge with  
4 respect to exposure to noise and hearing loss 30 or 40 years  
5 ago?

6 A It was well-known that excessive noise  
7 exposure would give you permanent damage. To amplify that  
8 statement for the jury, when the era of the rock bands came  
9 out in the early '60s, there was great concern being  
10 expressed by the ear, nose and throat community as well as  
11 others, occupational medicine physicians, for example, that  
12 the amount of decibels that the speakers on the stage was  
13 exceeding 115 to 130 decibels. If you stood 25 meters back,  
14 that was your exposure, and that we were going to spawn a  
15 generation of young adults in their 30s with high frequency  
16 nerve hearing loss. And in point of fact, that has come to  
17 be true.

18 I know in our group which covers 1.4 million  
19 people in Tidewater, we see a larger number now of  
20 35-year-old adults, 40-year-old adults with much more high  
21 frequency nerve hearing loss ruling out any other cause than  
22 we expected to see.

23 Q Doctor Powell, do you remember Mr. Oddo  
24 asking you about the difference in the audiograms done in

1 '87 and '89 and your most recent audiogram?

2 A Yes, sir.

3 Q Does the fact that Mr. Puryear has an  
4 underlying noise-induced hearing loss create any problems  
5 for that additional add-on?

6 A No, because if you look at those three  
7 audiograms, including mine, and you look at the 4,000 hertz  
8 frequency at 60 decibels, it has remained constant. That  
9 hasn't changed.

10 MR. CRANWELL: That is all, Doctor Powell.

11 THE COURT: Anything further for Doctor  
12 Powell?

13 MR. ODDO: May I follow up, Judge?

14  
15 RECCROSS EXAMINATION

16  
17 BY MR. ODDO:

18 Q Doctor Powell, the fact of the matter is that  
19 at 3,000, which in your opinion is the critical information  
20 processing frequency, his hearing loss has gotten worse.

21 A Well, it is 3 to 6,000. Three and 4,000 are  
22 the two most critical frequencies. When you determine, for  
23 example, if a patient is going to need hearing aid  
24 amplification, the most of the two would be looking at



1 3,000. And as you eluded to earlier, anything greater than  
2 30 decibels would prompt the doctor to possibly recommend a  
3 hearing aid evaluation.

4 Q So in that sense 3,000 is the more important  
5 frequency.

6 A Correct.

7 Q And these railroad employees that you talked  
8 about, am I correct in saying that you have seen people who  
9 work in shops and work on different equipment that somebody  
10 like Mr. Puryear wouldn't work on?

11 A Correct. People from various shipyards and  
12 large machine shops.

13 MR. ODDO: Thank you.

14 THE COURT: Mr. Cranwell?

15

16 REDIRECT EXAMINATION

17

18 BY MR. CRANWELL:

19 Q Doctor, what percent of the information that  
20 we get processed in the brain through sound passes through  
21 that 3,000 to 6,000 kilohertz cycle?

22 A The majority of your information. I can't  
23 give you a percentage.

24 Q Would it be over 50 percent, then?

1           A           It would be correct, because as I said  
2           earlier most of the information you hear is in the consonant  
3           sounds, not the vowels. That carries the most information,  
4           and that is above 1,000 hertz. And as best as determined by  
5           the audiologic studies out there, the majority of the  
6           information, the majority, does that mean 55, 85 percent, I  
7           can't give you a number. I can't quote you a reliable study  
8           that could, because there would be some subjectivity to  
9           interpreting that, but it is generally accepted that the  
10          vast majority of hearing information is processed at 3,000.

11                   MR. CRANWELL: That is all.

12                   THE COURT: Doctor Powell, thank you very  
13          much. You are now excused.

14                   MR. CRANWELL: Your Honor, could we take  
15          about five?

16                   THE COURT: Let's take a 10- or 15-minute  
17          recess now.

18  
19                   (The witness was excused from the witness  
20          stand.)

21  
22                   (A recess was taken.)

23  
24                   THE COURT: We are again in session. Are we

1 ready for the next witness?

2 MR. CRANWELL: Call Mr. Ostrum.

3 THE COURT: Bring the jury in, please,  
4 sheriff.

5

6 (The jury returned to the courtroom.)

7

8 DONALD E. OSTRUM

9

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

13

14 THE COURT: Members of the jury, the  
15 plaintiff has called his next witness who has been  
16 sworn by the reporter. Mr. Cranwell, would you  
17 proceed.

18

19 DIRECT EXAMINATION

20

21 BY MR. CRANWELL:

22 Q Would you give us your name and your business  
23 address, please.

24 A My name is Donald E. Ostrum, and I live at



1 12226 Unity Street Northwest in Coon Rapids, Minnesota.

2 Q How old are you, Mr. Ostrum?

3 A I am 58 years old.

4 Q And would you tell us what your -- I hope I  
5 make it to that. Tell us what your profession is, sir.

6 A I am an independent consultant in the area of  
7 industrial safety and industrial hygiene.

8 Q Would you take the jury through your  
9 educational background, please, sir.

10 A I have a Bachelor's degree in industrial  
11 safety -- occupational safety and health, actually -- and a  
12 Master's degree in environmental health with a major area of  
13 study being in industrial hygiene. Both of those are from  
14 the University of Minnesota.

15 I have also attended numerous -- probably  
16 well in excess of 35 to 40 -- seminars in safety industrial  
17 hygiene and so on like that over the past 30 years.

18 Q Over the past how many years?

19 A Thirty years.

20 Q Do you belong to professional organizations?

21 A Yes, I do.

22 Q Would you tell us some of the professional  
23 organizations that you belong to?

24 A I am a professional member of the American

1 Society of Safety Engineers. I am a full member of the  
2 Industrial Hygiene Association, American Industrial Hygiene  
3 Association, I am a member of the National Fire Protection  
4 Association and also a member of the National Safety  
5 Council.

6 Q Would you tell us what you have to do to be  
7 members of those organizations?

8 A The memberships actually include just paying  
9 your dues and receiving their publications and so on like  
10 that.

11 Q Are there any of them you have to take a test  
12 for?

13 A That would be certifications. I am also a  
14 certified safety professional, a certified hazard control  
15 manager, and I received the advanced safety certificate from  
16 The National Safety Council.

17 Q And would you tell us what you have to do to  
18 get those certifications, sir?

19 A The certification for the Certified Safety  
20 Professional requires passing of a test, comprehensive test  
21 in the area of industrial safety and industrial hygiene, and  
22 then every five years during this period of time completing  
23 course work so that you can be recertified. If you don't  
24 complete the course work and the requirements, then they

1 will no longer certify you.

2 Q And how about with The National Safety  
3 Council?

4 A National Safety Council is just an  
5 organization that anybody can join.

6 Q And do you have any academic appointments,  
7 sir, or have you done any teaching?

8 A I have done teaching. I started out with a  
9 one-year appointment with the Department of Labor's  
10 Occupational Safety and Health Administration Training  
11 Institute in Chicago, Illinois, in the early '70s.  
12 I then began teaching at Inver Hills  
13 Community College in their safety program. They had a  
14 two-year associate degree program. I then taught at the  
15 University of Minnesota for approximately three years during  
16 the day school on a safe -- in a safety program for the  
17 medical profession, nurses, doctors, industrial hygienists  
18 and so on like that in regards to safety.

19 I also taught at the Midwest Center for  
20 Occupational Safety and Health, which is NIOSH, National  
21 Institute of Occupational Safety and Health resource center  
22 in the upper Midwest, and I taught safety-related courses  
23 there.

24 Q Who were you teaching there?



1           A           I was teaching doctors, nurses, other safety  
2 professionals trying to keep their certification, industrial  
3 hygienists and so on like that.

4           Q           And were you an adjunct instructor at the  
5 Midwest Center for Occupational Health and Safety?

6           A           Yes.

7           Q           And what were your duties as an instructor  
8 there?

9           A           The Midwest Center had programs that they  
10 would make available to the community, and I would be the  
11 instructor in the safety -- basic safety -- I think it was  
12 called basic elements of safety or something like that.

13                   I also taught in their Right to Know Law,  
14 their Hazard Communication Law, which requires that  
15 employers must provide information to their employees in  
16 regards to the chemicals and physical hazards that they work  
17 with.

18           Q           And were you an instructor at the OSHA  
19 Training Institute in Chicago, Illinois?

20           A           Yes. That was in the early '70s, and I  
21 taught, primarily, fire prevention in regards to flammable  
22 liquids and storage tanks.

23           Q           Could you give the jury a synopsis or summary  
24 of your work experience, Mr. Ostrum, if you would, and if

1 you would start with 1959 when you were with the Fire  
2 Insurance Rating Bureau.

3 A In 1959 after getting out of the Air Force, I  
4 went with the Fire Insurance Rating Bureau as one of their  
5 inspectors, and I inspected buildings throughout the state  
6 of Wisconsin and established their fire insurance rates and  
7 extended coverage rates and allied line insurance rates.

8 I drew town maps, did water tests in regards  
9 to the amount of water coming out of a fire hydrant and  
10 sprinkler system and that type of thing.

11 Then I went with the Area Service Office  
12 Incorporated, which was a company that represented four  
13 insurance companies. And for them I did inspections, I did  
14 claims adjustment, I did agency visits where I visited  
15 insurance agencies. I appointed insurance agents. I closed  
16 agents when they wouldn't pay their bill. I settled claims,  
17 also, for the four companies. Then I went with the --

18 Q Would it be Marsh & McClennan?

19 A Marsh & McClennan, which is the world largest  
20 insurance brokerage firm, and I was a loss prevention  
21 specialist for them out of Minneapolis, and I had local,  
22 national and international accounts. I did fire and safety  
23 inspections. I consulted with them in the area of insurance  
24 premiums and reducing their insurance premiums by doing

1 certain things and making improvements in their property.

2 I then went with the --

3 Q Would that be the Grain Terminal Association?

4 A Yes. I am going back a number of years.

5 Q That would be 1972?

6 A Right. The Grain Terminal Association as  
7 their corporate safety director. This was right after the  
8 Occupational Safety and Health Act came into being, and I  
9 was responsible for the implementation and development of  
10 safety programs for reducing injuries, reducing the severity  
11 of the injury, reducing insurance costs, which included  
12 respiratory protection programs, employee training, such as  
13 forklift truck operator, supervisory training, management  
14 training, personal protective equipment program, record  
15 keeping program, hearing conservation programs, fire  
16 extinguisher program training them how to use fire  
17 extinguishers and that type of thing.

18 Q Tell us how big this grain coop was.

19 A The Grain Terminal Association was  
20 approximately 4,000 -- 3,500 to 4,000 employees, and they  
21 had operations throughout the upper Midwest from Washington  
22 over to Wisconsin and down as far south as Alabama.

23 They had about 120 country grain elevators,  
24 they had 120 lumber yards, they had large shipping ports at



1 St. Paul and at Superior, Wisconsin, where they shipped  
2 grain out by barge or by ocean going vessel.

3 They had malt manufacturing plants, they had  
4 flour mills, they had over 20 animal feed manufacturing  
5 plants. They had people food plants, too. Oleo and other  
6 type of plants that made food for people.

7 Q And how many people did you set up a hearing  
8 conservation program for?

9 A At the Grain Terminal Association it was  
10 throughout the entire -- all ten divisions there a hearing  
11 conservation program was put in.

12 Q Mr. Ostrum, when was that?

13 A That was in the early 1970s.

14 Q '72, '73?

15 A '72 it started; '72 to '73, yes.

16 Q After you left the grain association, where  
17 did you work, sir?

18 A I went with Sunstar Foods as their safety  
19 director, and that was a company that was involved in food  
20 processing, slaughter houses. They also manufactured a farm  
21 oyl, and the oyl was spelled O-Y-L, which was used in  
22 tractors and so on like that in the rural community in the  
23 upper Midwest.

24 And at that place I developed and implemented

1 programs to reduce the frequency and severity of their  
2 injuries that they were having with substantial savings in  
3 worker's compensation.

4 Q Now in 1979, did you take a position with the  
5 Soo Line Railroad?

6 A Yes, I did.

7 Q How do you spell that?

8 A S-O-O.

9 Q Where is that railroad?

10 A That railroad is headquartered out of  
11 Minneapolis, and it is part of the Canadian Pacific System.

12 Q What position did you take with Soo Line  
13 Railroad?

14 A I was the chief safety officer, the manager  
15 of safety, for the Soo Line Railroad.

16 Q And as the chief safety officer, could you  
17 tell us what some of your responsibilities and some of the  
18 programs that you undertook, sir?

19 A I was responsible for the development and  
20 implementation of programs that would reduce the frequency  
21 and severity of accidents that were happening on the Soo  
22 Line.

23 I had top management training, middle  
24 management training, supervisory training, specialized

1 employee training, such as first aid, forklift truck  
2 operators training, fire extinguisher training and so on  
3 like that.

4 I also was responsible for the personal  
5 protective equipment program, the record keeping  
6 responsibilities, the respiratory protection program and the  
7 hearing conservation program.

8 I made inspections of the property with  
9 recommendations to improve the conditions and observed the  
10 employees working and offered suggestions to the foremen to  
11 improve the working habits so that they were safer.

12 Q When did you leave the Soo Line Railroad?

13 A I left in 1985, in the summer of 1985.

14 Q And what have you been doing since the summer  
15 of 1985?

16 A I am an independent consultant in the area of  
17 industrial safety and industrial hygiene.

18 Q During that course of time, have you had the  
19 occasion to consult with businesses and companies?

20 A Yes, I have.

21 Q And have you had occasion during your work  
22 experience to conduct noise level tests?

23 A As a matter of fact, I just completed one  
24 last week with a company that had moved into a new facility,



1 and we had to determine whether they needed a hearing  
2 conservation program.

3 Q Could you give us an idea of the number of  
4 hearing or noise level tests or examinations or measurements  
5 you may have conducted in your career, sir?

6 A Oh, boy. I never even thought of that. It  
7 has to be definitely over 1,000, and maybe even 2,000.  
8 Probably in the area of one to 2,000 noise measurements or  
9 -- yeah, noise measurements.

10 Q How about audiograms? During your work, have  
11 you done audiograms?

12 A No, I have not done any audiograms. I have  
13 reviewed audiograms, but not --

14 Q How many audiograms have you reviewed?

15 A Probably a couple hundred or so.

16 Q And have you supervised the administering of  
17 audiogram tests?

18 A I at one time was certified as a hearing  
19 conservationist, which is an audiometric technician, and  
20 that certification expired in 1992, because I didn't go back  
21 and complete my work to complete it because of traveling.  
22 I am hoping to get that again, but -- pardon? What was the  
23 question?

24 Q My next question is going to be how many

1 conservation -- hearing conservation programs do you think  
2 you have organized in your career?

3 A Well, I put one in for ten divisions with the  
4 grain terminal association. I put one in at the Soo Line  
5 Railroad. I have put them in in some of my clients that I  
6 have right now, which is probably 15 or 20 of them, and I  
7 guess that is about it.

8 Q Does a hearing program have specific elements  
9 or a hearing conservation program have specific elements?

10 A Yes, it does.

11 Q What are those elements?

12 A The elements of a hearing conservation  
13 program are that the monitoring has to be done to determine  
14 where you have the high noise levels and so on like that.  
15 You have to identify the employees that are being exposed to  
16 high levels. You have engineering controls, which you put  
17 into attempt to reduce the noise at the source. You have a  
18 mandatory hearing protection program while the engineering  
19 controls are being completed. You have employee training  
20 and education.

21 An employee has to be trained on how to use  
22 the hearing protectors when they are to be used and so on  
23 like that and also knowledge of the effects of hearing loss  
24 and so on like that.

1                   And, finally, you have to have audiometric  
2 measurements of the employees to determine if there is any  
3 hearing loss as a result of high levels of noise.

4                   Q       Have these elements changed any since 1972  
5 when you set the first program up for -- or the first one  
6 you set up for the grain --

7                   A       No. Actually, they were in existence prior  
8 to 1972.

9                   Q       How long prior to 1972?

10                  A       Back to the '50s when Doctors Sataloff and  
11 Glorig acquainted industry with the noise situation, and  
12 they and other people assisted industries in establishing  
13 hearing conservation programs.

14                  MR. CRANWELL: Your Honor, I would move to  
15 have Mr. Ostrum declared an expert in the area of  
16 industrial hygiene and safety.

17                  THE COURT: Any voir dire questions or any  
18 objection, Mr. Oddo?

19                  MR. ODDO: No, sir.

20                  THE COURT: I find that Mr. Ostrum is  
21 qualified to offer opinion testimony in these areas.

22

23 BY MR. CRANWELL:

24                  Q       Mr. Ostrum, in the United States of America,



1 have there been some governmental enactments with respect to  
2 permissible noise level exposures in the workplace?

3 A Yes, sir, there have.

4 Q Can you tell us what the history of those  
5 enactments have been?

6 A The Walsh-Healey Public Contracts Act, of  
7 course, had requirements for noise limits in the workplace  
8 for companies doing business with the government. The  
9 Occupational Safety and Health --

10 Q When was that?

11 A The Walsh-Healey Act came into effect in the  
12 '30s, and I believe in '69 or in the '60s or so they added  
13 the noise limits.

14 Q Do you know whether or not any of the  
15 railroads would have been doing government contracts that  
16 would have been covered by the Walsh-Healey Act?

17 A I would have no knowledge of it, but I would  
18 assume that, yes, if they were shipping something they would  
19 be.

20 MR. ODDO: I object to the assumptions. He  
21 said he has no knowledge.

22 THE COURT: The jury heard the answer. He  
23 has no knowledge.

24

1 BY MR. CRANWELL:

2 Q What other enactments?

3 A There was the Occupational Safety and Health  
4 Act of 1970. The Federal Railroad Administration came out  
5 with their noise standards I believe it was about 1980 or  
6 so.

7 Q Mr. Ostrum, I am going to show you what has  
8 been identified as Plaintiff's Exhibit Number 11. Could you  
9 tell us what that is, sir.

10 A That is the Federal Railroad Administration  
11 noise exposure limits.

12 Q And do these limitations appear in any of the  
13 other enactments that we just talked about?

14 A There are in The Occupational Safety and  
15 Health Act, and they are also in Walsh-Healey. The thing is  
16 is that The Occupational Safety and Health Act goes up to 16  
17 hours, and this goes up to 12 hours.

18 Q Okay. Mr. Ostrum, how long has the safety  
19 industry known that excessive noise on the job can cause  
20 permanent hearing loss?

21 A Oh, boy, that goes back to the 1940s and '50s  
22 when it was known in industry that excessive noise causes  
23 hearing loss.

24 Q Were there some pioneers in the area of

1 hearing loss?

2 A Yes. That was Doctor Sataloff and Doctor  
3 Glorig who acquainted the industry with the noise losses  
4 that were occurring in industry, and, also, they were  
5 responsible for establishing hearing conservation programs  
6 in big industries.

7 Q Do you recognize that book?

8 A I have seen this book, yes.

9 Q Is that Doctor Sataloff's book on  
10 occupational hearing loss?

11 A Yes.

12 Q How widely is that accepted in your field?

13 A It is accepted in the hearing conservation  
14 field as being an authority in regards to hearing  
15 conservation programs and the elements of the hearing  
16 conservation programs.

17 Q Mr. Ostrum, have you been asked in this case  
18 to do a review of the efforts of the Norfolk & Western  
19 Railway Company?

20 A Yes, I have.

21 Q With respect to hearing conservation and  
22 hearing protection?

23 A Yes.

24 Q And would you tell the members of the jury



1 what information or documents you may have reviewed in the  
2 course of that analysis, sir?

3 A I reviewed the admissions of the Norfolk &  
4 Western. I reviewed the Norfolk & Western's policy in  
5 regards to noise measurements on engines, which was not done  
6 until the 1980s, the engineering controls, which was done in  
7 the middle 1980s, in regards to hearing protectors which  
8 were not issued, and, as a matter of fact, there was a May  
9 1987 memo which said that hearing protectors should not be  
10 issued to train personnel such as engineers, firemen,  
11 brakemen and so on like that.

12 I also reviewed their training program in  
13 regards -- that is required under the hearing conservation  
14 program and also the audiogram, whether they were requiring  
15 audiograms to be done, and, as a matter of fact, they were  
16 not, and Mr. Puryear had to have his own audiogram.

17 Q Is this the memo that you speak of?

18 A Yes, sir.

19 Q May 18, 1987?

20 A Yes, sir.

21 Q Is this the one?

22 A Yes. It says, "Hearing protectors are not  
23 permitted for train and engine personnel in train operations  
24 at this time. Do not permit issue by safety department

1 personnel and advise if any have been or are being issued by  
2 others."

3 MR. CRANWELL: Your Honor, we will offer this  
4 as Plaintiff's Exhibit Number 15. It may have  
5 already been admitted. Is this covered by an  
6 admission, Keith?

7 THE COURT: Are you going to offer it?

8 MR. CRANWELL: Yes, Your Honor.

9 THE COURT: Do you object?

10 MR. ODDO: I am not sure what the relevance  
11 is, given the date is May of '87 and he retired in  
12 September of '87.

13 MR. CRANWELL: I think when you hear the  
14 closing arguments you will hear the relevance.

15 THE COURT: Is that an objection?

16 MR. ODDO: No objection.

17 THE COURT: Let this be marked as Plaintiff's  
18 Exhibit 15, and it is admitted.

19  
20 (A memo dated May 18, 1987 was marked  
21 Plaintiff's Exhibit Number 15 for  
22 identification and was entered into the  
23 Record.)  
24

1 THE COURT: Thank you, Mr. Cranwell, in the  
2 marking of exhibits.

3 MR. CRANWELL: Full-service lawyer.  
4

5 BY MR. CRANWELL:

6 Q Mr. Ostrum, in any of the information that  
7 you reviewed, did you see anything that would indicate that  
8 the railroad had in place a hearing conservation program in  
9 the '80s?

10 A No, sir.

11 Q In the '70s?

12 A I take it back. There was a program that the  
13 railroad did have in the '80s, but that was for the shops,  
14 it was not for the train and engine personnel.

15 Q How about in the '70s?

16 A No.

17 Q The '60s?

18 A No.

19 Q Now you set up a hearing conservation program  
20 for a railroad in when? The Soo Line railroad what year?

21 A The Soo Line Railroad out of Minneapolis,  
22 yes.

23 Q When was that?

24 A That was approximately 1983.



1 Q Did it cover engineers and firemen?

2 A That was system wide, and it included the  
3 mechanical department, the engineering department and the  
4 transportation department under which engineers and  
5 conductors and brakemen fall.

6 Q Did you-all conduct noise level studies?

7 A Yes, I did.

8 Q Throughout your system?

9 A Yes.

10 Q Did you initiate any hearing protection for  
11 engineers and firemen?

12 A Yes, I did.

13 Q What was that, sir?

14 A I issued them earplugs, which is the hearing  
15 protector that fits inside the ear, and trained them on how  
16 to put it in.

17 Q Is there an accepted methodology for putting  
18 these earplugs in?

19 A Yes, sir, there is.

20 Q How do you put them in, sir?

21 A The type is the foam rubber type. I have got  
22 the type here, and you roll them up until they get very  
23 small. Then to put them in your ear, you lift your ear up,  
24 because the ear canal is not straight, it is a little

1 curved, so you have to lift your ear up. You insert the  
2 earplug, and you hold it there until it expands, roughly,  
3 30, 40, 50 seconds, something like that. When the earplug  
4 expands, then the canal is full, and the noise level will be  
5 reduced to your ear. You should only be able to see the tip  
6 of it.

7 A lot of times you will see some people who  
8 haven't been trained, and they will have it half sticking  
9 out and half sticking in. You will also find people that  
10 will cut it in half and put it in because they don't like it  
11 in their ear, and there are other things that you come  
12 across.

13 Q Let me ask this question: In a high noise  
14 situation, the hearing protection like you just put in your  
15 ear, does it reduce the communication capability or improve  
16 the communication capability?

17 A It improves the communication capability,  
18 because the hearing protector will reduce the high levels of  
19 noise that are coming to the ear, and those are the levels  
20 which attack the ear as far as noise-induced hearing loss.  
21 So it actually improves the ability to hear, because your  
22 speech range is not in the 6,000, 8,000 range.

23 Q Mr. Ostrum, based on your background,  
24 training, education and experience, do you have an opinion

1 as to what the appropriateness of prohibiting the use of  
2 hearing protection in 1987 on engines?

3 A Do I have an opinion of the appropriateness  
4 of not issuing protectors?

5 Q Well, what about saying you can't use them?

6 A Yes, I have an opinion.

7 Q What is it?

8 A The opinion is definitely that hearing  
9 protectors should have been issued until engineering  
10 controls were put into place to reduce the levels of noise  
11 on the engines.

12 Q Do you have an opinion as to whether or not  
13 -- based on your background, training, education and  
14 experience in the area of railroading, do you have an  
15 opinion as to whether or not the Norfolk & Western  
16 corporation met industry standards with respect to hearing  
17 conservation and hearing protection for its firemen and  
18 engineers in the '60s, '70s and '80s?

19 A It is my opinion that they did not meet  
20 industry standards during this period of time.

21 Q When you were at the Soo Line Railroad, did  
22 you have noise level tests conducted in the engines?

23 A Yes. I did a number of tests throughout the  
24 number of years that I was there.



1           Q       Do you recall which engines you may have  
2 tested?

3           A       GP-7s, GP-9s, I believe were the engines that  
4 I primarily tested.

5           Q       What is the GP-7 and the GP-9?

6           A       That is an indication that I never  
7 understood. I just knew that it was a different type of  
8 engine than the other. They always looked the same to me.

9           Q       Do you know who manufactured them?

10          A       General Motors was the manufacturer of those  
11 type of engines.

12          Q       Do you know what the power plants were on  
13 either one of them?

14          A       That I am not sure of. They could vary.

15          Q       Were they diesel?

16          A       They were diesel, yes.

17          Q       Do you recall whether the measurements in the  
18 GP-9s that you did were within or exceeded FRA limits?

19          A       They exceeded the FRA limits.

20          Q       As a result of exceeding the FRA limits, did  
21 you -- I already asked that, I guess. Did you initiate a  
22 hearing protection program for the firemen and engineers?

23          A       Yes. I issued hearing protectors to them. I  
24 also initiated engineering controls.

1           Q       What engineering controls did you-all  
2 initiate?

3           A       Well, after doing a number of tests  
4 throughout the system on various types of engines, I  
5 convinced the mechanical department to retrofit some  
6 engines, and I went on one trip from Minneapolis, Minnesota,  
7 to Dresser, Wisconsin, and did noise measurements on the  
8 engineer and I believe it was the firemen.

9                   During this trip, I also took noise  
10 measurements in the middle of the engine and then  
11 occasionally at the ear of the firemen and at the ear of the  
12 engineer.

13                   We completed this run, and then the engine  
14 was retrofitted. And by that, I mean that the air hose, or  
15 the air which was piped to the inside of the cab, was piped  
16 through the floor so that the noise level wouldn't be inside  
17 the cab.

18                   The location of the horn was located --  
19 relocated from above the engineer to the center of the cab  
20 and back, and, also, additional insulation was put in and so  
21 on like that.

22                   Then approximately a month later after that  
23 was finished and we got the engine back so that we could  
24 make the same run, I then did the same tests, and there was

1 a tremendous difference in the noise levels.

2 The first test, we were yelling at each other  
3 in order to be heard. The second test, we were talking  
4 naturally and everybody could be heard. The first test  
5 averaged well over 95; the second test ended up  
6 approximately 84 point something or other.

7 So there was an indication that the  
8 engineering controls did work and that on this particular  
9 engine hearing protectors were not required because they  
10 were within the standards.

11 Q Mr. Ostrum, when you conducted these tests on  
12 the engines, Kilmer had already done his study, hadn't he.

13 A Yes. He had done his study in the early  
14 '80s, yes.

15 Q Did you feel it was prudent to rely on the  
16 Kilmer study?

17 A No, it was not.

18 Q Would you tell the jury why you didn't feel  
19 it was prudent to rely on and keepsake the offer for the Soo  
20 Line Railroad.

21 A As a safety person, you have to check things  
22 out as the same situation as what Kilmer had, what type of  
23 engines did he have and so on like that. So as a result I  
24 did noise surveys throughout the system, and I came up with



1 considerably higher noise levels than the Kilmer report had  
2 set. I came up with levels of 123 decibels out of an air  
3 pipe which was piped to the inside of the cab. I came up  
4 with bells or horns in the area of 115 to 118. I came out  
5 with engine noise in the area of 110 to 116, I believe it  
6 was. The background noise of the engine was roughly in the  
7 85, 87 area. Then you add everything else to that.

8 Q Did you do any measurements outside the cab?

9 A I did go out to the back of the engine with  
10 my hand-held noise meter and took measurements. Also, this  
11 was recorded on the firemen or the engineer, whoever  
12 happened to go back and check the engines and so on like  
13 that, that that was then on their dosimeter.

14 Q Mr. Ostrum, do you have an opinion as to  
15 whether or not it would have been safe for train engineers  
16 and firemen to wear hearing protection when they were riding  
17 in the engines?

18 A Yes, I do.

19 Q What is that opinion?

20 A It is my opinion that using hearing  
21 protectors in the engine would actually increase the ability  
22 of the train crew to hear the radio and to hear conversation  
23 between themselves in high noise level areas of 80 to 90 or  
24 above.

1 Q Mr. Ostrum, are you aware that in 1989 the  
2 Norfolk & Western Railway issued hearing protection for its  
3 engineers and firemen?

4 A I believe that was part of the material that  
5 I researched.

6 Q Do you have an opinion based on your  
7 background, training, education and experience whether it  
8 was prudent for the railroad to wait so long to give hearing  
9 protection to its engineers and firemen?

10 A Yes.

11 Q What is that opinion?

12 A It is my opinion that the railroad was not  
13 prudent and that they should have issued hearing protection  
14 much much before that to protect the ears of their  
15 employees; the hearing of their employees.

16 Q Mr. Moore said I failed to ask you how long  
17 your field of endeavor has known that hearing protection  
18 would actually increase conversational communication  
19 efficiency in high noise situations.

20 A I learned of it back in the '70s through a  
21 book that I had, industrial noise book, and it has been  
22 reported in other articles that it goes back to the '40s  
23 after the World War II.

24 EAR Corporation is a manufacturer of

1 earplugs, and they came out with some ear logs, is what they  
2 called them, and in some of those publications they have the  
3 information that it actually increases the ability to hear  
4 communication.

5 MR. CRANWELL: Your witness.

6 THE COURT: Mr. Oddo?

7 MR. ODDO: Thank you, Judge.

8

9 CROSS-EXAMINATION

10

11 BY MR. ODDO:

12 Q Mr. Ostrum -- it is Ostrum, right, not

13 Ostrum?

14 A Either way.

15 THE COURT: When you call somebody up, how do  
16 you tell them who is calling?

17 THE WITNESS: This is Don Ostrum.

18

19 BY MR. ODDO:

20 Q I will call you Mr. Ostrum, then.

21 Mr. Ostrum, the audiometric technician certificate that you  
22 spoke of, you don't have that currently; is that right?

23 A That's correct.

24 Q And you haven't had it since 1992?



1 A That's correct.

2 Q And other than the 20-hour course that you  
3 took to get that certificate, you have not taken any other  
4 courses that have been devoted entirely to noise and hearing  
5 loss.

6 A Not entirely to noise.

7 Q And, in fact, as you told us, you have quite  
8 a varied background in safety and industrial hygiene  
9 matters, don't you?

10 A Yes.

11 Q I guess you have got a lot of experience,  
12 particularly, with fire issues; is that right?

13 A No. I haven't been in fire issues since  
14 1968.

15 Q Well, the first 10 or 15 years of your work  
16 life was spent involved in fire-related --

17 A Approximately, yes.

18 Q Fire-related issues?

19 A Yes.

20 Q In fact, for the first 20 or so years of your  
21 work experience you didn't have anything to do with noise or  
22 hearing loss or hearing conservation programs; right? It  
23 wasn't until in the early '70s that you got involved in  
24 that?

1           A       Well, actually, my career started in 1959,  
2       that would be 1979. I started with the Grain Terminal  
3       Association in 1972, and I put in a hearing conservation  
4       program there.

5                       Also one of the clients that I had when I was  
6       with Marsh & McClennan was Northern States Power Company,  
7       which had hydroelectric plants. I inspected all of their  
8       hydroplants in Wisconsin, and they had requirements for  
9       hearing protectors simply because of the noise at the  
10      hydroplant.

11           Q       That wasn't until the '70s, early '70s?

12           A       '69.

13           Q       Now you talked about some of the licenses you  
14      hold. I think you mentioned a couple. People who have  
15      those licenses do not have to specialize in areas of noise  
16      and of hearing conservation; isn't that right?

17           A       That's correct.

18           Q       And you have talked a little bit about your  
19      teaching experience. That experience, again, dealt with a  
20      broad spectrum of safety-related issues; isn't that true?

21           A       That dealt with the theory of the programs  
22      that are needed and then the practical aspects of the  
23      programs; how you implement those, what you look for in  
24      inspections and so on like that.

1 Q On a variety of safety issues; correct?

2 A Yes, that's correct.

3 Q And you talked, I think, specifically, about  
4 training OSHA inspectors. That had nothing to do with  
5 noise, did it?

6 A No.

7 Q Now your consulting work that you do  
8 involves, again, a wide variety of safety matters; isn't  
9 that right?

10 A That's correct.

11 Q And you have testified in a lot of cases on  
12 issues other than noise and hearing; isn't that true?

13 A That's correct.

14 Q I think you told me some of them, slips and  
15 falls and safety belts and tools and lifelines and lifting  
16 and car bumps and others; is that right?

17 A That's correct, yes.

18 Q And you have been retained on several  
19 occasions by Mr. Cranwell's office on behalf of plaintiff's;  
20 isn't that true?

21 A Twice before this, yes.

22 Q And you advertise your services as an expert  
23 witness.

24 A I have paid for one advertisement, I guess.



1           Q       Well, didn't you just a couple of months ago  
2       send out about 1,200 letters to plaintiff's lawyers in the  
3       United States offering your services?

4           A       That's correct. Yes, I did.

5           Q       And your time, I guess, is divided between  
6       being an expert witness and being a consultant; isn't that  
7       right?

8           A       Yes, that's correct.

9           Q       And of the time that you spend as a  
10      consultant, only a small portion of that time is actually  
11      working in noise or hearing-related issues.

12          A       I believe in the deposition I said the last  
13      three clients since the first of August, two of them  
14      involved a hearing conservation program -- well, after last  
15      week all three of them involved a hearing conservation  
16      program.

17                   So it is getting to the point where OSHA is  
18      getting quite tough and there is more need for hearing  
19      conservation programs out there.

20          Q       You spend about half of your time serving as  
21      an expert and about half as a consultant; isn't that right?

22          A       That's correct, yes.

23          Q       Now let's talk a little bit about the Soo  
24      Line. You said you started there in 1979?

1 A That's correct.

2 Q And you implemented the hearing conservation  
3 program in 1983, I believe you said.

4 A Approximately 1983, yes.

5 Q And isn't it true that when you implemented  
6 that program you phased it in as to different types of jobs  
7 that the railroad workers were doing?

8 A Actually, no. I submitted it to management  
9 for approval. It took a couple of months to get approval,  
10 three or four months, something like that, I believe, and  
11 then it was put in system wide.

12 It had been in place -- let's put it this way  
13 -- in the engineering department from the mid '70s, but only  
14 as far as hearing protectors were concerned.

15 Q Isn't it true that the locomotive employees  
16 were the last ones to participate at the Soo Line in the  
17 hearing conservation program?

18 A Yes. They were the ones that participated in  
19 '82, '83, somewhere in that period of time, yes.

20 Q Okay. Now you have talked about the history  
21 of hearing conservation programs. Certainly, it is true  
22 that a minority of the American industry had hearing  
23 conservation programs in place in the 1950s; isn't that  
24 right?

1           A           It was pretty much the big industries that  
2   went to those.

3           Q           Well, again, my question is --

4           A           But it was a small number of the total number  
5   of industries in the country, yes, sir.

6           Q           And that would be true in the '50s and the  
7   '60s, for that matter.

8           A           Yes. It was growing in the '60s.

9           Q           Now you are aware, are you not, from your  
10   experience, that the federal government requires locomotive  
11   horns to be a certain minimum level?

12          A           That's correct.

13          Q           And I believe that level is a minimum of 96  
14   decibels at a point 100 feet in front of a locomotive?

15          A           Plus or minus four decibels, yes.

16          Q           Again, that is not in the cab, that is 100  
17   feet away?

18          A           That is 100 feet in front of the engine, yes.

19          Q           And you understand that to be for safety  
20   reasons so that the pedestrians and the motorists know that  
21   the train is coming?

22          A           That is what it is intended to be for, yes.

23          Q           You talked about, I think, you moved the Soo  
24   Line's horns. You retrofitted the horns.



1 A Oh, yes. Yes.

2 Q Before you moved them, if I can use that word  
3 instead of retrofitted, you did some tests; right?

4 A That's correct, yes.

5 Q And you determined that in your opinion the  
6 horns might be excessive, and you then moved them; right?

7 A Some of the tests involved the engineer and  
8 the firemen, and it was discovered that the engineer was  
9 being way overexposed compared to the firemen because of the  
10 horn being above the engineer.

11 After we retrofitted them, we moved them back  
12 to the top of the engine midway; put insulation in. I  
13 believe there was some dampening put in for the bolt to  
14 attach so that the vibration wouldn't be as strong from  
15 metal to metal, and I think that was about it, yes.

16 Q Well, would it be fair to say that you  
17 thought there was a problem, you tested, and you moved the  
18 horns?

19 A Well, it was a combination of problems,  
20 though, too. It was also the air.

21 Q I am just limiting to the horns since that is  
22 what you retrofitted.

23 A Yes.

24 Q And that was certainly a prudent thing to do.

1 A Yes.

2 Q And if the Norfolk & Western did that, then  
3 that would be prudent, as well.

4 A If they did the tests and they determined  
5 that that had solved the problem, yes.

6 Q Now you understand being in the railroad  
7 business back in the '80s that the Norfolk & Western merged  
8 with the Southern in 1982?

9 A That's correct.

10 Q And after the merger, you would agree, would  
11 you not, that it would have been reasonable for the Norfolk  
12 & Western to have relied on data that the Southern had  
13 accumulated before the merger?

14 A No.

15 Q Well, do you remember when I took your  
16 deposition in this case?

17 A Yes.

18 Q Telephone deposition?

19 A Uh-huh.

20 Q I think it was on September 15. Do you  
21 remember I asked you the question on Page 71, Line 9, "Once  
22 the two railroads merged, would it have been reasonable for  
23 the Norfolk & Western to rely on the Southern data?" And  
24 your answer was, "If they had access to it;" is that

1 correct?

2 A Yes. If they had access to it.

3 Q Assuming that they had access to it, it would  
4 have been reasonable for the Norfolk & Western --

5 A It would have been reasonable, yes.

6 Q And I think you have seen some of the  
7 Southern tests in your work in this case, and isn't it true  
8 that a majority of those tests were within permissible  
9 limits?

10 A The Southern tests were within the limits,  
11 yes.

12 MR. ODDO: Those are all the questions I  
13 have, Judge.

14 THE COURT: Mr. Cranwell, any redirect  
15 examination?

16  
17 REDIRECT EXAMINATION

18  
19 BY MR. CRANWELL:

20 Q Would it have been prudent for the railroad  
21 to rely solely on the Southern data and not do any testing  
22 themselves?

23 A No, it would not have been prudent. They  
24 should have done their own testing.



1 Q And Mr. Oddo asked you if you had given  
2 testimony in two other cases that I was involved in?

3 A That's correct.

4 Q What kind of cases were those?

5 A Those were noise cases for shop personnel of  
6 the Norfolk & Southern.

7 Q Hearing loss cases.

8 A Hearing loss, yes.

9 Q You have never testified in any other type of  
10 case where I have been one of the lawyers, have you?

11 A No.

12 Q No, sir. Mr. Ostrum, do you remember  
13 Mr. Oddo asking you that if the Norfolk & Western undertook  
14 to retrofit its engines whistles, if that would be a prudent  
15 course?

16 A Yes, I remember that.

17 Q Let me add just a little bit to that.  
18 Suppose that course of retrofitting was to be that only when  
19 the engines came in off the road for the Roanoke shop for  
20 some repair would the whistle that they knew exceeded FRA  
21 dBAs would be retrofitted. Would that be prudent?

22 A No, it wouldn't.

23 Q Why is that, sir?

24 A It should be over the entire system so that

1 any engine that they have will in a period of time, three  
2 months, two months, whatever the period of time happens to  
3 be, will be retrofitted. But, also, tests should be  
4 determined to see what the noise exposure is before and  
5 after to see whether it is working.

6 MR. CRANWELL: Thank you, sir. That's all.

7 THE COURT: May the witness now be excused?

8 Mr. Ostrum, you may be excused.

9 THE WITNESS: Thank you, sir.

10

11 (The witness was excused from the witness  
12 stand.)

13

14 THE COURT: Anyone need a break before the  
15 next witness?

16 MR. CRANWELL: Did we relieve the TV man?

17 THE COURT: We have got the TV ready.

18 MR. CRANWELL: The next witness we have got  
19 will be a video deposition.

20 THE COURT: Ladies and gentlemen, I will give  
21 you the chance to go to the restroom while the  
22 television gets set up. It should only take a  
23 minute or so. Go with the deputy sheriff, please.

24

10/12

BA 0054 PE 01417

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Law. No. 770CL89000919-00

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ORDER

On the 5th day of October, 1994, came the parties, by counsel, upon the Motions in Limine filed by the plaintiff and the defendant, and the Motion to Compel filed by the plaintiff.

After having read the respective Motions and heard the arguments of counsel, it is ORDERED and ADJUDGED as follows:

## PLAINTIFF'S MOTION IN LIMINE

1. Defendant agrees that it will not mention plaintiff's alcohol use at trial.
2. Defendant may inquire about substance or alcohol abuse by the plaintiff's son, *to the extent relevant to the plaintiff's claim of depression.*
3. Defendant may inquire about plaintiff's herpes, but only outside the presence of the jury, at which time the Court will rule on the admissibility of such testimony.





1. The Court is inclined to prohibit the introduction of evidence concerning standards (such as ISO and OSHA standards) other than those promulgated by the FRA. The plaintiff is granted leave to submit authority to the Court supporting the plaintiff's position that such standards are admissible, <sup>before trial,</sup> and the Court will consider any such authority. ~~at trial.~~ In the absence of such authority, evidence of standards other than those promulgated by the FRA shall be excluded at trial.

2. The Court will rule at trial on the scope of the testimony of Dr. Powell, Dr. Frazier, Dr. Campanella and Mr. Ostrum.

3. The defendant's motion to exclude certain opinion testimony of Charles Williams is denied.

4. The Court will rule at trial on the admissibility of the testimony of Dr. Campanella. *Counsel represented that it would be necessary for the Court to hear certain aspects of the testimony of this witness out of the jury's presence, in order to rule on admissibility.*

PLAINTIFF'S MOTION TO COMPEL

1. The motion to compel more complete responses to plaintiff's requests for admission no. 4 and no. 5 is denied.

2. The motion to compel more complete responses to plaintiff's requests for admission no. 6 and no. 7 is granted, and defendant is ordered to provide plaintiff with the date on which Dr. Sataloff's corporation was retained by defendant.

The Clerk shall send a certified copy of this Order to counsel of record.

M#237921

ENTERED this 18<sup>th</sup> day of October, 1994.

BK 0054 PG 01419

Michael F. Weinstein  
Judge

SEEN AND OBJECTED TO:

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Counsel for Plaintiff

Kevin P. Oddo  
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Roanoke, Virginia 24038-4125  
(703) 983-7600  
Counsel for Defendant

V I R G I N I A:

IN THE CIRCUIT COURT OF THE  
CITY OF ROANOKE

---

ROBERT E. PURYEAR,  
Plaintiff

-vs-

NORFOLK AND WESTERN  
RAILWAY COMPANY,  
Defendant

---

CASE NO.

OCTOBER 13, 1994  
9:30 A.M.

HEARD BEFORE THE HONORABLE CLIFFORD R. WECKSTEIN

CENTRAL VIRGINIA REPORTERS  
P.O. Box 12628  
Roanoke, Virginia 24027



1 APPEARANCES:

2 CRANWELL & MOORE, ESQS.  
 3 Vinton, Virginia  
 4 By: C. RICHARD CRANWELL, ESQ.  
 and  
 5 KEITH MOORE, ESQ.

6 Counsel on behalf of the Plaintiff

7 WOODS, ROGERS & HAZLEGROVE, ESQS.  
 8 Roanoke, Virginia  
 9 By: KEVIN P. ODDO, ESQ.  
 and  
 DANIEL S. BROWN, ESQ.

10 Counsel on behalf of the Defendant

11 \* \* \* \* \*

12 I N D E X

13 WITNESS DIRECT CROSS REDIRECT RECROSS

14 FOR PLAINTIFF:

15 J. RICHARD FRAZIER, M.D. 6 33 50 54  
 16 Plaintiff Rests 89

17 FOR DEFENDANT:

18 ERIC STUSNICK, Ph.D. 90 115 151 --  
 19 PAUL LAMBERT, M.D. 155 201 204 --  
 20 Defendant Rests 206

1 do you want to do it?

2 MR. CRANWELL: I will probably do it,  
3 Your Honor.

4 MR. ODDO: Judge, excuse me. Maybe we  
5 can take this up now. Since we are going to  
6 have them read, have them given to them and have  
7 them blown up and given to them -- I think I  
8 just saw one over there.

9 MR. CRANWELL: Well, what we have got is,  
10 we are going to put the exhibits in, the  
11 documents in, through the admissions that you  
12 have admitted, because in 1984, they did  
13 extensive testing everywhere else on the  
14 Railroad but on the trains and the firemen, Your  
15 Honor.

16 And we think, clearly, one of the  
17 elements of --

18 THE COURT: He is not arguing that.

19 MR. CRANWELL: Okay.

20 THE COURT: What do you want to do? Do  
21 you want to read them out loud now?

22 MR. CRANWELL: We are going to read the  
23 admissions out loud, but the documents need to  
24 go in, Your Honor.

1 THE COURT: The documents will go in. Do  
2 you have blow-ups that you want to use?

3 MR. CRANWELL: I will use in closing  
4 arguments.

5 THE COURT: Okay. You will read the  
6 admissions. We will put the requests and  
7 admissions and documents in evidence, and then  
8 you can use your blow-ups as you see fit during  
9 closing. Does that take care of that?

10 MR. BROWN: I don't want to delay this,  
11 but I want to come back to the point that I  
12 raised, I guess it was the day before yesterday.

13 Putting in, in written form what you are  
14 also going to read to the Jury as evidence  
15 emphasizes that evidence over all other  
16 evidence.

17 The Supreme Court of Virginia has held  
18 that you can't put in, for instance, depositions  
19 that you have read to the Jury, and that if you  
20 offer evidence of past recollection recorded,  
21 you cannot put the written statement in, too,  
22 because it is duplicated.

23 It is not a matter within the sound  
24 discretion of the Court to do that. The Supreme



1 Court of Virginia has held it is error to do  
2 that, though it may be harmless error.

3 We continue to compound the problem in  
4 this case from the word go with Mr. Cranwell  
5 taking his Plaintiff's evidence, testimony,  
6 summarizing it himself, putting it on a board,  
7 and making an exhibit of it, which is improper.

8 And I just want the Court to know that I  
9 am not just throwing this out off the top of my  
10 head. It is a real problem.

11 The same thing is true if they want to  
12 read the admissions to the Jury. I think that  
13 is proper, but I think you are loading it up  
14 when you do it two ways.

15 THE COURT: Understanding that to be an  
16 objection, it is something of different kind and  
17 character under the law than anything else; and  
18 I am not aware of a case under Rule 411 decided  
19 by the Virginia Supreme Court; but I know under  
20 the Rule 34 -- at least when I was practicing --  
21 the federal courts said the preferred procedure  
22 is to have it in and to have it read.

23 Now, what I understand Mr. Cranwell wants  
24 to do is to read the admissions, admit that

1           these documents are genuine, admitted and give  
2           the documents to the Jury. Your objection --

3           MR. BROWN: If that is all we are talking  
4           about, I am sorry. I don't object to that.

5           THE COURT: I am going to allow  
6           Mr. Cranwell to read the answers, put the  
7           answers in. The Jury will have the documents.  
8           You preserved your objection to the drawing a  
9           couple of days ago. To the extent that your  
10          objection goes to an expert's Curriculum Vitae  
11          going to the Jury, I think that is within the  
12          sound discretion of the Court.

13          MR. BROWN: I think that may be true,  
14          Your Honor, but a lawyer's summary of the  
15          witness' testimony from the stand is a cat of a  
16          different color.

17          THE COURT: The lawyer's summary of the  
18          testimony, we can argue that at such time.

19          Mr. Oddo, isn't it the law that anybody  
20          who wasn't here during Doctor Glorig's  
21          deposition doesn't get to argue anything?

22          I am just asking Mr. Oddo his opinion.

23          MR. ODDO: He got a good deal on that,  
24          didn't he?

1 MR. BROWN: Well, Judge, it was my  
2 thought, in order to help that Court, that  
3 someone who was not here for Doctor Glorig's  
4 deposition might still have a working mind.

5 MR. CRANWELL: Your Honor, can I just --  
6 I want to be sure, because I have been -- a  
7 number of times thought that I clearly  
8 understood what the rules of evidence and all,  
9 but I want to be sure that I understand what the  
10 Railroad's objection is.

11 The last time I went through what I call  
12 a precedent setting case with the Railroad, we  
13 had an objection once every eight minutes during  
14 the course of the trial, 196 times during the  
15 course of the litigation.

16 I just want to be sure that I am not  
17 getting mouse trapped. I want to be sure that,  
18 Your Honor, I understand an admission is  
19 different than an exhibit.

20 An admission is an admitted fact that  
21 becomes a part of the court record. It is my  
22 understanding that the preferable method to  
23 convey that admission, which is a part of the  
24 court record and a part of the case before the



1 trial is to read the admissions to the jurors.

2 The documents that come in as that, I  
3 don't intend to read those; but I do think the  
4 admissions, is, in fact, something that is  
5 different from an evidentiary exhibit. It is  
6 the evidence itself.

7 THE COURT: Do you disagree, Mr. Brown?

8 MR. BROWN: I am sorry, Your Honor. I  
9 was trying to look at exactly what the  
10 admissions are here. Are you -- you want to  
11 introduce all the admissions?

12 MR. CRANWELL: Sure.

13 MR. BROWN: And these admissions go  
14 through step by step referring to --

15 MR. CRANWELL: These are the copies that  
16 we did in accordance with the Court's ruling the  
17 other day.

18 Keith, do you have the marked up copy?

19 MR. MOORE: I have got the original.

20 MR. BROWN: Admissions as to whether a  
21 book is authoritative treatise?

22 MR. CRANWELL: Absolutely.

23 MR. BROWN: Admissions as to facts of  
24 what Doctor Sataloff has testified as an expert

1 witness for the Defendant, whether Doctor  
2 Sataloff has on numerous occasions been retained  
3 by the Defendant. Whether he has consulted with  
4 industry concerning the establishment of hearing  
5 conservation programs since the 1940s. That is  
6 testimonial, Judge. He has done it by  
7 admission.

8 THE COURT: Is that an objection,  
9 Mr. Brown?

10 MR. BROWN: That is the objection

11 THE COURT: What is the objection?

12 MR. BROWN: Read it in if you wish, but I  
13 don't see making that an exhibit to go --

14 THE COURT: It is not an exhibit, but the  
15 Jury gets those things which are admitted as  
16 truth.

17 MR. BROWN: That is correct.

18 THE COURT: I am not real sure that there  
19 is any disagreement between the two of you.

20 MR. CRANWELL: Judge, I am not, either.

21 THE COURT: I think maybe I agree with  
22 Mr. Cranwell, that he is trying to put his  
23 finger on quick silver.

24 MR. BROWN: No. And I am not playing a

1 game here. All I am saying is give them the  
2 information once. Give it to them in writing or  
3 they can go as an exhibit to the jury room or  
4 read it into the Record and let them hear it  
5 like all the other testimony, but don't present  
6 it to them twice if it is not truly an exhibit.

7 MR. CRANWELL: When you say "present it  
8 to them twice," Your Honor, again, I need to  
9 understand --

10 Do you object to the admissions going  
11 back to the jury room during their  
12 deliberations?

13 MR. BROWN: Only if you want to read them  
14 to the Jury as a part of your case in chief.

15 MR. CRANWELL: Well.

16 MR. BROWN: Do it one way or the other.

17 MR. CRANWELL: Let me ask you this.

18 THE COURT: What you want to do,  
19 Mr. Brown, is if Mr. Cranwell reads the  
20 admissions, you want to send the admitted  
21 documents but not --

22 MR. BROWN: That is exactly right.

23 MR. CRANWELL: Your Honor, we won't read  
24 them to the Jury. We will just -- if you will



1 just tell the Jury there are certain admissions  
2 the parties agree to, and I will take it in  
3 closing arguments and argue it; and then they  
4 can take it to the jury room with them. That is  
5 the best way for me to handle that.

6 THE COURT: So, you want to submit them  
7 now and make them a part of the Record now?

8 MR. CRANWELL: Yes, sir.

9 THE COURT: Mr. Brown, do you have any  
10 objection to it now?

11 MR. BROWN: I think the proper procedure  
12 is to read them to the Jury, put whatever  
13 documents he wants to admit in as exhibits,  
14 which they properly are, and proceed in that  
15 fashion.

16 So, I object to putting the whole thing  
17 in as an exhibit. I think it should be read,  
18 put the documents in as exhibit, and I think  
19 that is a proper way to do it.

20 THE COURT: You just said you didn't want  
21 the Jury to have it if he read it. So, he said  
22 all right, I won't read it; the jury can have  
23 it.

24 MR. BROWN: My point is -- I agree. He

1           has solved the problem of duplication.

2                   Now, thinking it through, though, I think  
3           the proper way is to present it to the Jury the  
4           way all the other evidence is presented to the  
5           Jury except for written documentation that  
6           becomes -- documents that become exhibits.

7                   THE COURT: All right. Your objection is  
8           noted. I will get Mr. Cranwell --

9                   MR. CRANWELL: Your Honor, I will  
10          withdraw -- I just wanted to be sure I got it  
11          sledged out, okay, because I went through a  
12          situation where there was never an issue raised  
13          at trial, yet it miraculously appeared in the  
14          appellate's brief of which we cited the Virginia  
15          case law says nuh-huh, you can't change your  
16          boots after you get to appeal.

17                   Now, as I understand it, we know what the  
18          objection is now. I am going to read it, the  
19          admissions, put the documents in. I will handle  
20          it in argument and this won't go to the Jury,  
21          because I don't want this to be something that  
22          the Railroad can hang its boots on to try to get  
23          an appeal. But I am glad we did get it sorted  
24          out.

1 MR. BROWN: And I am happy to say I have  
2 no objection to that whatsoever.

3 THE COURT: All right.

4 MR. CRANWELL: Well, I would just like  
5 for the Record to reflect that he gave two  
6 different alternatives, that either was  
7 acceptable to him; when I accepted, then he  
8 changed. So, as I said, at least we know their  
9 position now, don't we?

10 THE COURT: Mr. Cranwell, I will --  
11 before we break, give me what it is, and I will  
12 mark it part of the Record, received, filed,  
13 part of the Record.

14 MR. CRANWELL: Do you want me to give you  
15 the marked copies so you can see what we did to  
16 it in accordance to the Court's ruling?

17 MR. ODDO: Sure.

18 THE COURT: Do you want to take a break  
19 now? Sheriff, we will take about another ten  
20 minute recess; and counsel can prepare their  
21 documents; I will mark it, and then we will  
22 bring the Jury back.

23

24



1 (A recess was taken. Following  
2 the recess, all parties returned  
3 to the courtroom, and the  
4 following took place outside the  
5 presence of the Jury.)  
6

7 THE COURT: We are again in session. The  
8 parties are present together with their  
9 attorneys. Let me return to the subject upon  
10 which counsel reached agreement so that I can  
11 now disagree with you.

12 I said that I wasn't aware of a Virginia  
13 case on point. There is one, and it is recent  
14 enough that we all read it when it came out.

15 The case is TransiLift, which is  
16 T-R-A-N-S-I capital L-I-F-T with no space,  
17 TransiLift Equipment, Limited versus Warren  
18 Wayne Cunningham 234 Virginia 84 360  
19 southeastern, second 183. It is a 1987 decision  
20 of the Supreme Court of Virginia, affirming the  
21 judgment of the Circuit Court of the City of  
22 Lynchburg.

23 The applicable portions of the opinion  
24 begins on page -- the bottom of page 89. It

1        quotes the rule as in effect at the time of the  
2        trial footnotes -- then I will get to the  
3        footnotes. In the main body of the opinion, the  
4        purpose of the rule -- at Page 90, "The purpose  
5        of the Rule is to relieve the parties of the  
6        burden of proving undisputed facts, thereby  
7        expediting the trial and facilitating a proper  
8        disposition of the case --" citations are  
9        omitted.

10        "The crucial question in the present case  
11        is whether the statements of fact contained in  
12        the admissions Cunningham made pursuant to Rule  
13        4:11 were 'conclusively established.' TransiLift  
14        contends that the responses were conclusive and  
15        binding upon Cunningham when they were 'filed  
16        with the clerk of the court.' At that time,  
17        TransiLift asserts they became 'a part of the  
18        Record,' and there was no reason to introduce  
19        them into evidence."

20        The footnote, "Rule 4:11 has been amended  
21        since the trial of this case to provide 'only  
22        such requests for admissions and the answers  
23        thereto as are offered into evidence shall  
24        become a part of the Record.' Rule 4:11(d)."

1 That is the end of the footnote.

2 TransiLift reasons that because the  
3 responses were binding upon Cunningham, they  
4 could not be waived at trial.

5 I'll skip the next paragraph which says  
6 what the parties contended.

7 Continuing quoting the Court, "Rule 4:11  
8 is virtually identical to Rule 36 of the Federal  
9 Rules of Civil Procedure -- " Ending the quote  
10 for a minute, miscited by this judge a few  
11 minutes ago.

12 Continuing the quote, "-- as construed by  
13 federal courts, a party seeking to rely on the  
14 opposing party's responses to requests for  
15 admission must introduce them into evidence  
16 during the trial of the case. Failure to do so  
17 constitutes a waiver." Citations are omitted.

18 "Courts of other states have adopted  
19 similar rules --" citing two, without reading  
20 the cases, the main decision, a Massachusetts  
21 appellate decision, and a Florida appellate  
22 decision.

23 Continuing the quotation, "A practical  
24 rationale exists for the rule that a party who

1 wishes to rely on Rule 4:11 must introduce the  
2 admissions into evidence. If admission are not  
3 offered for introduction into evidence, the  
4 trial judge would not know whether to disregard  
5 the admissions or to tell the Jury to consider  
6 the admitted facts as conclusively established."

7 And then it goes on to discuss the effect  
8 of not introducing.

9 I conclude from the TransiLift case that  
10 the responses to requests for admissions must be  
11 admitted in evidence as any other exhibit, and  
12 that the judge must tell the Jury to consider  
13 the admitted facts as conclusively  
14 established -- language quoted from Page 91 of  
15 that opinion.

16 The practice in the Federal Courts -- and  
17 I will cite for this McElhaney's Trial  
18 Notebook by James W. Mackelhaney, Third  
19 Edition, published by the section of litigation  
20 of the American Bar Association, 1994, is that  
21 those admissions may be read to the Jury.

22 I don't know how else to tell the Jury,  
23 at any rate, that they are conclusively  
24 established. When they are admitted in



1 evidence, by statute, the exhibits go to the  
2 jury room.

3 So, it seems to me that the way to handle  
4 this -- unlike what either of you suggested  
5 earlier -- was for me to tell the jurors that  
6 certain questions have been asked by the  
7 Plaintiff, admitted by the Defendant, which I am  
8 now going to read them -- me, not  
9 Mr. Cranwell -- and that the Jury may consider  
10 the admitted facts as conclusively established,  
11 and then it goes to the jury room.

12 Mr. Brown?

13 MR. BROWN: Well, I don't know that you  
14 are going to do any great violence in reading it  
15 to them and sending them to the jury room.

16 THE COURT: It seems to me that it  
17 takes -- it seems to me that it is a probably  
18 better practice for the Judge to do it than for  
19 counsel to do it if we are going to do it that  
20 way. Do you have an objection?

21 MR. BROWN: No. I am not going to  
22 object, Your Honor.

23 THE COURT: Do you have an objection,  
24 Mr. Cranwell?

1 MR. CRANWELL: Your Honor, the only thing  
2 that -- I am a little bit -- okay. I guess I  
3 will offer them now, then, on behalf of the  
4 Plaintiff, the redacted admissions signed by  
5 counsel for the Railroad as Plaintiff's Exhibit  
6 Number --

7 THE COURT: Seventeen.

8 MR. CRANWELL: -- Seventeen, Your Honor,  
9 pursuant to Rule 4:11, I believe it is.

10 THE COURT: And without objection,  
11 Plaintiff's Exhibit 17 is admitted into  
12 evidence.

13  
14 (The Request for Admissions was  
15 marked Plaintiff's Exhibit 17 for  
16 identification and entered into  
17 the Record.)

18  
19 THE COURT: And if you would give me the  
20 documents that go with this. If you will give  
21 me the documents that go with this,  
22 Mr. Cranwell, the documents will be here.

23 Did you hear me, Mr. Cranwell?

24 MR. CRANWELL: I was giving them a copy

\*

\*

\*

1 (At which time, the Jury returned  
2 to the courtroom and the following  
3 proceedings were held in the  
4 presence of the Court and Jury.)  
5

6 THE COURT: Ladies and gentlemen, if I  
7 might have your attention for a couple of  
8 minutes.

9 Under the rules that apply to the trial  
10 of civil lawsuits, the Plaintiff, Mr. Puryear,  
11 has asked questions -- you can go ahead and get  
12 your cup if you would like -- has asked the  
13 Defendant, Norfolk and Western Railway Company,  
14 to admitted certain things. The Defendant,  
15 Norfolk and Western Railway Company, has  
16 admitted these things.

17 I am now going to read to you the  
18 requests and the admissions, and I am going to  
19 tell you that under the law of Virginia, the  
20 Jury is to consider the admitted facts as  
21 conclusively established.

22 Here are the requests and the admissions.

23 One. "Please admit or deny that the book  
24 Occupational Hearing Loss authored by

1 Doctor Robert Thayer Sataloff and Doctor Joseph  
2 Sataloff is a reliable and authoritative  
3 treatise in the area of occupationally caused  
4 hearing loss."

5 Response. "Defendant admits that the  
6 book Occupational Hearing Loss, Second  
7 Edition, authored by Doctor Robert Sataloff and  
8 Doctor Joseph Sataloff is a reliable and  
9 authoritative treatise in the area of  
10 occupationally caused hearing loss."

11 Two. "Please admit or deny that  
12 Doctor Joseph Sataloff, M.D. of Philadelphia,  
13 Pennsylvania has testified as an expert witness  
14 for the Defendant, Norfolk and Western Railway  
15 Company, in other hearing-loss cases filed  
16 against the company by employees and former  
17 employees."

18 Response. "Admitted."

19 Three. "Please admit or deny that  
20 Doctor Joseph Sataloff, M.D. of Philadelphia,  
21 Pennsylvania has on numerous occasions been  
22 retained by the Defendant, Norfolk and Western  
23 Railway Company, to consult and conduct medical  
24 examinations on employees and former employees



1 who have filed hearing-loss claims against the  
2 company."

3 Response. "Admitted."

4 Four. "Please admit or deny that  
5 Doctor Joseph Sataloff, M.D., of Philadelphia,  
6 Pennsylvania has consulted with industry  
7 concerning the establishment of hearing  
8 conservation programs since the 1940s."

9 Response. "Defendant admits that  
10 Doctor Sataloff and others were doing research  
11 into the effects of noise on hearing in the  
12 1940s." Defendant admits that Doctor Sataloff  
13 consulted with injury concerning the  
14 establishment -- excuse me. "Defendant admits  
15 that Doctor Sataloff consulted with industry  
16 concerning the establishment of --" hearing  
17 conservation programs. It says -- "'hearing  
18 conversation programs' prior to 1955 when  
19 Mr. Puryear went to work at Norfolk and Western  
20 Railway Company."

21 Five. "Please admit or deny that  
22 Doctor Joseph Sataloff, M.D. of Philadelphia,  
23 Pennsylvania put together a hearing conservation  
24 program for DuPont Corporation in 1949 and that

1           this hearing conservation program required  
2           mandatory hearing protection."

3           The response. "Defendant admits  
4           Doctor Sataloff put together a hearing  
5           conservation program for DuPont prior to 1955  
6           when Mr. Puryear went to work for Norfolk and  
7           Western Railway Company."

8           Six. "Please admit or deny that the  
9           Defendant, Norfolk and Western Railway Company,  
10          has never hired Doctor Joseph Sataloff, M.D. of  
11          Philadelphia, Pennsylvania as a consultant to  
12          give the company advise about protecting the  
13          hearing of their employees."

14          Response. "Denied. In 1990, Defendant  
15          hired a consulting group of which  
16          Doctor Sataloff is a principal to do system-wide  
17          audiometric testing."

18          Seven. "Please admit or deny that the  
19          Defendant, Norfolk and Western Railway Company,  
20          has only retained the services of  
21          Doctor Sataloff in connection with suits brought  
22          against the company by employees and former  
23          employees alleging that the noise that they were  
24          exposed to on the job with the Defendant was the

1       cause of the hearing loss."

2               Response. "Denied. That which is denied  
3       is neither admitted or established."

4               Number Eight. "Please admit or deny that  
5       Doctor R.W. Edmonds, M.D. was employed by the  
6       Defendant, Norfolk and Western Railway Company,  
7       in February of 1966."

8               Response. "Admitted."

9               Nine. "Please admit or deny that  
10       Doctor R.W. Edmonds, M.D., attended the 46th  
11       membership meeting of the Association of  
12       American Railroads Medical and Surgical Officers  
13       on February 23rd, 24th, and 25th, 1966, in San  
14       Francisco, California and that Doctor Edmonds  
15       was present and registered at this meeting."

16              Response. "Defendant admits that Doctor  
17       Edmonds registered for and attended this  
18       meeting."

19              Ten. "Please admit or deny that  
20       Doctor R.W. Edmonds, M.D., was medical director  
21       of the Norfolk and Western Railway Company from  
22       1970 to 1980."

23              Response. "Admitted."

24              Eleven. "Please admit or deny that

1 Doctor C.N. Bennage, M.D. and Doctor Lawrence  
2 Ball were either employees of the Defendant,  
3 Norfolk and Western Railway Company, or doctors  
4 approved by the Defendant to treat employees in  
5 February of 1966."

6 Response. "Admitted."

7 Twelve. "Please admit or deny that  
8 Doctor Bennage and Doctor Ball were both present  
9 and registered at the Association of American  
10 Railroads Medical and Surgical Officers 46th  
11 membership meeting in San Francisco, California  
12 on February 23rd, 24th, and 25th of 1966."

13 Response. "The Defendant admits that  
14 Doctor Bennage and Doctor Ball registered for  
15 and were present at this meeting."

16 Thirteen. "Please admit or deny that at  
17 all times the Plaintiff, Robert Puryear, was  
18 employed by the Norfolk and Western Railway  
19 Company; the company maintained a medical  
20 director and medical department."

21 Response. "Admitted."

22 Fourteen. "Please admit or deny that at  
23 no time while the Plaintiff, Robert E. Puryear,  
24 was employed by the Defendant, Norfolk and



1 Western Railway Company, did the Defendant  
2 require and make mandatory that train and engine  
3 service personnel wear hearing protection."

4 Response. "Admitted."

5 Fifteen. "Please admit or deny that it  
6 was not until around 1989, after the Plaintiff,  
7 Mr. Puryear, had retired in 1987 that the  
8 Defendant made it mandatory that train and  
9 engine personnel wear hearing protection."

10 Response. "Admitted."

11 Sixteen. "Please admit or deny that in  
12 1984, the Defendant Norfolk and Western Railway  
13 Company made the wearing of hearing protection  
14 mandatory at the company's eastend freight car  
15 shop."

16 Response. "Admitted."

17 Seventeen. "Please admit or deny that  
18 hearing protection became mandatory at  
19 Defendant's Roanoke Railroad Material Yard in  
20 the latter part of 1985."

21 Response. "Admitted."

22 Eighteen. "Please admit or deny that  
23 Defendant, Norfolk and Western Railway Company  
24 did not conduct any sound or noise measurements

1 on the interior of its engines in the 1960s."

2 Response. "Admitted."

3 Nineteen: "Please admit or deny that the  
4 Defendant, Norfolk and Western Railway Company,  
5 did not conduct any sound or noise measurements  
6 on the interior of its engines in the 1970s."

7 Response. "Admit."

8 Twenty. "Please admit or deny that the  
9 Defendant, Norfolk and Western Railway Company,  
10 conducted sound and noise measurement at its  
11 eastend car shop in both 1972 and 1977."

12 Response. "Admitted."

13 Twenty-one. "Please admit or deny that  
14 the documents turned over to Plaintiff by the  
15 Defendant in response to requests for production  
16 of documents and numbered RPNW000001 through  
17 RPNW000126 are true and correct copies of  
18 documents contained in the files of the  
19 Defendant, Norfolk and Western Railway Company,  
20 and admit or deny that such documents were made  
21 and/or kept by the company in the normal course  
22 of its regularly conducted business activity."

23 Response. "Admitted."

24 Twenty-two. "Please admit or deny that

1 the documents turned over to the Plaintiff by  
2 the Defendant in response to requests for  
3 production of documents and numbered RPNW000127  
4 through RPNW000244 are true and correct copies  
5 of documents contained in the files of the  
6 Defendant, Norfolk and Western Railway Company,  
7 and admit or deny that such documents were made  
8 and/or kept by the company in the normal course  
9 of its regularly conducted business activity."

10 Response. "Admitted."

11 Twenty-Three. Please admit or deny that  
12 the documents turned over to Plaintiff by the  
13 Defendant in response to requests for production  
14 of documents and number RPNW000245 through  
15 RPNW000347 are true and correct copies of  
16 documents contained in the files of the  
17 Defendant, Norfolk and Western Railway Company,  
18 and admit or deny that such documents were made  
19 and/or kept by the company in the normal course  
20 of its regularly conducted business activity."

21 Response. "Admitted."

22 Twenty-Four. "Please admit or deny that  
23 the documents turned over to the Plaintiff by  
24 the Defendant in response to requests for

1 production of documents and numbered RPNW000245A  
2 through RPNW000347A are true and correct copies  
3 of documents contained in the files of the  
4 Defendant, Norfolk and Western Railway Company,  
5 and admit or deny that such documents were made  
6 and/or kept by the company in the normal course  
7 of its regularly conducted business activity."

8 Response. "Admitted."

9 Twenty-five. "Please admit or deny that  
10 the documents turned over to the Plaintiff by  
11 the Defendant in response to requests for  
12 production of documents numbered RPNW000348  
13 through RPNW000356 are true and correct copies  
14 of documents contained in the file of the  
15 Defendant, Norfolk and Western Railway Company,  
16 and admit or deny that such documents were made  
17 and/or kept by the company in the normal course  
18 of its regularly conducted business activity."

19 Response. "Admitted."

20 Twenty-six. "Please admit or deny that  
21 the documents turned over by Plaintiff by the  
22 Defendant in response to requests for production  
23 of documents and numbered RPNW000357 through  
24 RPNW001174 are true and correct copies of the



1 documents contained in the files of the  
2 Defendant, Norfolk and Western Railway Company,  
3 and admit or deny that such documents were made  
4 and/or kept by the company in the normal course  
5 of its regularly conducted business activity."

6 Response. "Admitted."

7 Twenty-seven. "Please admit or deny that  
8 the documents turned over to the Plaintiff by  
9 the Defendant in response to requests for  
10 production of documents and numbered  
11 RPNW000642 A through D are true and correct  
12 copies of documents contained in the files of  
13 the Defendant, Norfolk and Western Railway  
14 Company, and admit or deny that such documents  
15 were made and/or kept by the company in the  
16 normal course of its regularly conducted  
17 business activity."

18 Response. "Admitted."

19 Twenty-eight. "Please admit or deny that  
20 the documents turned over to the Plaintiff by  
21 the Defendant in response to requests for  
22 production of documents and numbered  
23 RPNW000682-A, RPNW000795-A-B, RPNW000804A-C,  
24 RPWN000815A-D, RPNW000825-A-C, RPNW000826A-H,

1 RPNW000827A, RPNW0001075A, RPNW0001076A-E,  
2 RPNW0001077 through RPNW0001098A, RPNW0001121A  
3 and RPNW0001152A are true and correct copies of  
4 documents contained in the files of the  
5 Defendant, Norfolk and Western Railway Company,  
6 and admitted or deny that such documents were  
7 made and/or kept by the company in the normal  
8 course of its regularly conducted business  
9 activity."

10 Response. "Admitted."

11 Ladies and gentlemen, with the  
12 introduction into evidence of those responses to  
13 requests for admissions, the Plaintiff has  
14 concluded his presentation of evidence.

15 The Defendant who now elects or chooses  
16 to present evidence, Mr. Oddo, will now call his  
17 first witness. Thank you.

18 MR. ODDO: Eric Stusnick.

19 THE COURT: Come forward and be sworn by  
20 the court reporter, please.

1 ERIC STUSNICK

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

5  
6  
7 DIRECT EXAMINATION

8  
9 BY MR. ODDO:

10 Q Would you state your full name and  
11 business address, please.

12 A Eric Stusnick, Wylie Laboratories, 2001  
13 Jefferson Davis Highway, Arlington, Virginia.

14 Q What is your occupation, sir?

15 A I am an acoustic engineer. My actual job  
16 title at Wylie is Deputy Director of Research and  
17 manager of Arlington operations.

18 Q Can you tell the Jury what your education  
19 and employment background is?

20 A Certainly. I have a bachelor's degree in  
21 Physics from Carnegie Institute of Technology in 1960;  
22 it is now called Carnegie-Mellon University, a master's  
23 degree in Physics from NYU in 1962, and a Ph.D. in  
24 Physics from the State University in New York at Buffalo

1 maximum levels are?

2 A Sure. Maximum level would be typically  
3 the highest level that occurs during the time period  
4 that you measured or that you were exposed.

5 Q Does the maximum level have any  
6 particular relationship to the time-weighted average of  
7 the dose?

8 A Not really. Since, the maximum level is  
9 the maximum level, it is independent of the exposure  
10 time. So, unless you combine an exposure time with a  
11 level, you can't really get a noise exposure.

12 Q Can you give the Jury an analogy in  
13 non-scientific terms of what you are talking about?

14 A Okay. The time -- I was -- I had  
15 almost -- another sentence that I wanted to say on the  
16 definition of time-weighted average level.

17 MR. CRANWELL: Your Honor, I don't object  
18 to him giving that one more sentence.

19 THE WITNESS: Okay. Basically, what it  
20 represents physically -- I mean, you have an  
21 actual dose that represents the noise exposure  
22 from all the varying sounds that you heard  
23 during, say, an eight-hour day.

24 What the time-weighted average represents



1 physically, if you had been exposed to a  
2 constant noise for that whole period, that is  
3 the level that would give you the same dose.

4 So, physically, it just represents the  
5 constant level that would give you the same --  
6 what dosage your actual time varying level did.

7 Now, if you talk about -- it is  
8 usually -- it is usually less than maximum.  
9 Unless the dose actually is constant, the  
10 time-weighted average is always less than the  
11 maximum.

12 The analogy that I have often used is  
13 this: say you want to know the average height of  
14 students in the senior class at a high school.  
15 You, say, oh, gee, a real efficient way to do  
16 that is to go to the cafeteria at lunch and  
17 measure someone and average it.

18 Well, you walk into the cafeteria. You  
19 see, boy, there are a hundred and fifty people  
20 there; and you cannot measure all of them and  
21 your eyesight is directed for the table of  
22 basketball players who are congregating among  
23 themselves.

24 So, you go and you measure them. That

1 would be representative of the maximum height,  
2 not of the whole group of people.

3 And if you use that measurement as being  
4 representative of the whole group of people, you  
5 obviously would be making a mistake. The proper  
6 procedure would have been to sample tall ones,  
7 medium ones, and short people.

8 I think that is a pretty good analogy for  
9 the difference between TW weight. Time-weighted  
10 average would represent the average height;  
11 maximum level would represent the height of the  
12 tallest people.

13  
14 BY MR. ODDO:

15 Q Now, Doctor Stusnick, have you reviewed  
16 the report of Doctor Campanella in this case?

17 A Yes, I have.

18 Q And have you looked at his deposition  
19 testimony?

20 A I have.

21 Q And I am going to show you what has been  
22 marked as Plaintiff's Exhibit 12. Have you seen this  
23 chart in somewhat smaller form?

24 A Let's see. Yes, I believe I have seen

1 BY MR. ODDO:

2 Q Did Doctor Campanella do an over-the-road  
3 test?

4 A My understanding from his deposition is  
5 that he did not.

6 Q What is an over-the-road test?

7 A Basically measuring sound levels while  
8 the locomotive is actually in motion going from one  
9 point to another point.

10 Q And what, in fact, did he do?

11 A He connected the locomotive to a load  
12 cell, which is a set of resistors that allow you to put  
13 a load on the generator, which in turn puts a load on  
14 the diesel engine and let you simulate --

15 Q Okay.

16 A -- levels.

17 Q Can one accurately simulate an engineer's  
18 or fireman's noise exposure by hooking up a locomotive  
19 to a load cell?

20 A The noise exposure, no, because there is  
21 no way to tell how much time it was at the various route  
22 settings or various other noise sources.

23 Q Did Doctor Campanella measure maximum  
24 level?

1 A Yes, he did.

2 Q Did he do a time-weighted average?

3 A No, he did not, again, because he was not  
4 simulating any actual trip.

5 Q Now, I want you to assume that  
6 Doctor Campanella has testified that he had a  
7 sound-level meter on fast response. What, if any,  
8 effect would that have in taking sound-level  
9 measurements?

10 A Fast response will generally give you  
11 slightly higher levels than slow response will.

12 Q Now, Doctor Stusnick, are you familiar  
13 with the different notches on locomotives and the  
14 different sound levels that are associated with those  
15 notches?

16 A Yes.

17 Q And, in fact, you mentioned earlier, I  
18 think, that you have done sound-level testing on  
19 locomotives; is that true?

20 A Yes, that is correct.

21 Q And that has been over the road?

22 A Over the road, yes.

23 Q Is the sound level in any notch a  
24 constant level?



1           A       No, not really. It can vary primarily  
2 because the mode of operation can vary. Even though you  
3 are in a given notch, you can be going uphill, level,  
4 downhill, you could be accelerating, you could be  
5 decelerating. All of those condition will produce  
6 somewhat different sound levels.

7                   Typically, we find that at any given  
8 notch, the sound levels can range over at least a 10 dB  
9 range.

10          Q       Well, assume that Doctor Campanella has  
11 testified that he did maximum level testing, and then he  
12 got numbers of about 90.5 for a maximum level in the  
13 eighth notch of a locomotive. In your experience, how  
14 would that vary, if at all, if his tests had been done  
15 over the road?

16          A       I think he would have found -- if he  
17 continuously sampled, as we do, during an actual run,  
18 that it would vary as much as 10 or 15 dB below that  
19 during the course of a eight-hour or ten-hour trip.

20          Q       You said 10 or 15 dB?

21          A       Yes, 10 or 15 decibels below that. That  
22 is the kind of range that we tend to see.

23          Q       Now, are you familiar with the Kilmer  
24 Study?

\* \* \*

MR. ODDO: No further questions, Judge.

THE COURT: Mr. Cranwell.

CROSS EXAMINATION

BY MR. CRANWELL:

Q Doctor Stusnick, you work for -- what is the name of this group?

A Wylie Laboratories.

Q Wylie laboratories. And am I correct that you-all have been working for Norfolk and Western for a considerable period of time?

A Not continuously. We have had them -- we have worked for them for roughly ten years off and on.

Q Roughly ten years off and on. Do they pay you for your work?

A Yes, sir.

Q They pay you-all a pretty good piece of change, don't they?

A It depends on who on our staff is doing the work.

Q Well, they are a big client of you-all's, aren't they?

A No, sir, they are not.

1 Q They are a big enough client that you  
2 would not want to make them mad, would you?

3 A I don't know how to respond to that, sir.

4 Q Well, you wouldn't want to lose their  
5 business, would you?

6 A Frankly, if we lost their business, no  
7 one would notice. About 90 percent of our business is  
8 related to air craft noise not to railroad noise.

9 Q My question is: Would you want to lose  
10 their business? That is a yes or no, real easy.

11 A Would I want to lose their business?

12 Q Absolutely.

13 A No, I wouldn't want to lose their  
14 business.

15 Q Thank you, sir. Now, you consult with  
16 them almost on an annual basis, don't you?

17 A We have probably had --

18 Q For the last ten years.

19 MR. ODDO: Judge, I ask that Mr. Cranwell  
20 allow the witness to answer the question.  
21

22 BY MR. CRANWELL:

23 Q Go ahead.

24 A Without my records in front of me, I

1 can't say that I have had a case with them every year  
2 for the last ten years.

3 Q Well, would it be fair for me to assume  
4 that over the last ten years they have paid your firm in  
5 excess of a hundred thousand dollars?

6 A I have no idea.

7 Q Would it be closer to two hundred  
8 thousand or three hundred thousand?

9 A I sincerely doubt that.

10 Q It is a big number though, isn't it?

11 A Well, let me guesstimated from what I  
12 know one of them cost. Typically, any one of these  
13 typical studies, as we did, is anywhere around two or  
14 three thousand dollars. And I really don't think we  
15 have done 50 of them. I know we haven't done 50 of  
16 them.

17 Q How much have you charged them so far in  
18 this case?

19 A So far?

20 Q So far.

21 A For the measurements, I think it was  
22 twenty-four hundred and change.

23 Q Not the measurements. I want to know  
24 what the total charge has been?



1           A       I haven't billed them yet for the time I  
2 have spent here today.

3           Q       What are you going to bill for that?

4           A       Well, my rate is \$150 an hour.

5           Q       From the time you leave Arlington until  
6 the time you get back, right?

7           A       Well, not counting sleeping and eating  
8 and things like that.

9           Q       But otherwise, when you are awake, you  
10 are on the meter?

11          A       No. When I am working on their work, I  
12 am on the meter.

13          Q       Okay. So, what, you will bust them  
14 another couple of grand?

15          A       Probably.

16          Q       Now, let me ask you this question, sir.  
17 Have you ever heard the old saying whoever has got the  
18 gold makes the rules?

19          A       Yes, I have heard it.

20          Q       What does that mean to you, sir?

21          A       I am not sure.

22          Q       Well, okay. You are an expert not in  
23 money but in acoustics; is that right?

24          A       That is correct.

1           Q       Well, let's you and I move to acoustics,  
2 then, if we could. And first of all, I want to -- you  
3 said you have done over-the-road testing on locomotives?

4           A       Yes, sir, I have.

5           Q       And I thought you said that that -- the  
6 over-the-road testing, you would expect to reduce the  
7 decibel levels by 10 to 15 is what we see on these  
8 charts?

9           A       No. What I said, if -- for instance,  
10 let's talk about the one that I am most familiar with.  
11 This is the locomotive that we used, that we tested.

12                   That represents the maximum level at  
13 notch eight. In notch eight, the levels probably could  
14 have been anywhere from 78 to 88 for various periods of  
15 time.

16          Q       Okay.

17          A       Notch Seven, they would have been  
18 somewhat lower. And the thing is that even in a given  
19 notch, they don't stay at the maximum for the whole  
20 period of time that you are in that notch.

21          Q       Well, I am going to sit this right here;  
22 and I am going to go back to my notes. And I want to  
23 ask a question again because I had written it down when  
24 you said it. That the actual run, you should expect

1 the dB levels to be 10 to 15 below what is on this  
2 chart?

3 A No, no. I think you took it down  
4 incorrectly. I said the range of levels.

5 Q Would be 10 to 15 below that?

6 A It would go from there all the way to 10  
7 or 15 dB. I can give you an example.

8 Q Wait a minute. I just want you to answer  
9 my question.

10 A Sure.

11 Q Is that what you said?

12 A I said the range in levels, not the level  
13 would be, the range of levels could go from there to 10  
14 or 15 dB below there.

15 Q And we would run that range, then, to get  
16 the time-weighted?

17 A You would have to look at each level, and  
18 what amount of time it occurred for.

19 Q Then, I take it then, you are not  
20 complaining about the time-weighted average on here as  
21 being 88 over the run?

22 A If that is the time-weighted average,  
23 that is reasonable. That would represent the constant  
24 level --

1 Q Okay. Well --

2 A -- that would produce that dose.

3 Q In fact, in 1987, when you did the other  
4 study -- or another study for the Railroad, did you do  
5 over-the-road tests then, or did you just make an  
6 assumption on your cab level noises?

7 A I would have to see which report you are  
8 referring to.

9 Q The 1987 report that you did for the  
10 Railroad?

11 A This is the report I did where we studied  
12 the affects of hearing protection on the ability to  
13 detect signals.

14 Q Okay.

15 A That was not an occupational noise  
16 exposure study. These represent maximum levels, not  
17 time-weighted average levels.

18 Q Did you make an assumption, then, sir, as  
19 to the cab perceived background noise levels in the cab?

20 A Yes.

21 Q Where did you get that data from?

22 A I would have to go -- off the top of my  
23 head, I am not sure where the C39-8 data came from.

24 Q Do you know whether it may have come from



1 a field run over a period of time? The reason I ask is  
2 that I read the report, and it doesn't identify those as  
3 being maximum levels. And as a matter of fact, on your  
4 chart it says time-weighted dBA's, doesn't it?

5 A No. It says A-weighted sound level, not  
6 time-weighted.

7 Q Okay.

8 A A-weighted is something different.

9 Q What is A-weighted?

10 A A-weighting is an adjustment to what the  
11 microphone actually measures to account for the fact  
12 that the human ear does not hear all frequencies equally  
13 well. It is less sensitive at very low frequencies and  
14 very high frequencies, whereas a good microphone has  
15 equal sensitivity at all frequencies. So, you have to  
16 adjust the so-called unweighted sound level to an  
17 A-weighted sound level in order to replicate what the  
18 human ear would hear. And that is what A-weighting is.

19 Q And you made assumptions with windows  
20 closed and windows open?

21 A Right. Those are generally maximum  
22 levels. They are probably from the Kilmer report,  
23 actually.

24 But I can't swear that all of them are.

1 I would have to look at the notes and compare them. I  
2 would have to look in the file.

3 Q So, you rely on the data in the Kilmer  
4 report.

5 A Yes, sir.

6 Q And the Kilmer report includes Doctor  
7 Campanella's data, doesn't it?

8 A In the early part --

9 Q That is a yes or no.

10 A Yes, sir, it does.

11 Q And it includes it as part of the  
12 national study in a national publication?

13 A That is correct.

14 Q All Right. Now, you wanted to say  
15 something else. Go ahead and say it.

16 A Doctor Campanella's data occurs in the  
17 first or second chapter where Mr. Kilmer is summarizing  
18 noise data that is in the literature, prior data,  
19 typically, on a research program like his, you do a  
20 literature search first to see what was known.

21 Most of the data in that table of  
22 which -- some of which is Mr. Campanella's, is not  
23 time-weighted average or doses there.

24 Because at the time this study was done,

1 Mr. Kilmer's study was done, people were not doing very  
2 much dosimetry.

3 Q Are you -- you have completed your  
4 answer?

5 A Yes.

6 Q Do you remember when you were talking  
7 about doing the time-weighted averages, that you would  
8 go into the cafeteria and if you looked at the  
9 basketball players, you would get the maximum?

10 A Yes.

11 Q If we were looking at liquids that we  
12 wanted to drink --

13 A Yes.

14 Q -- we could figure maximums also,  
15 couldn't we? For example, if I told you you had milk,  
16 that would be one that you wouldn't mind drinking; isn't  
17 that right?

18 A I suppose so. I am not sure I understand  
19 your point yet.

20 Q Well, maybe you will. And if I told you  
21 it was alcohol, you might have a different thought about  
22 it, might you?

23 A Yes.

24 Q And if I told you it is gasoline, it

1 would be at a point that you would not want to touch it  
2 at all; isn't that correct?

3 A Yes.

4 Q Now, isn't it true that the FRA standards  
5 have got a point of which you don't go beyond at any  
6 time?

7 A Oh, yes, certainly.

8 Q Okay. And you should measure for those  
9 maximums to make sure that you don't expose your  
10 employees to that, shouldn't you, sir?

11 A Yes.

12 Q And, as a matter of fact, if you have got  
13 a whistle that is 116.8 dBA when you are inside the cab  
14 and 127.5 dBA when you are outside the cab, employees  
15 are not to be exposed to that at all, are they, sir?

16 A That is correct.

17 Q So --

18 A Any level over 115 is a violation.

19 Q So, that would be gasoline, isn't it?

20 A Yes.

21 Q In all this work that you did for the  
22 Railroad and for this case, did they happen to give you  
23 their 1984 study that they did on the runs, on an actual  
24 road run?



1           A       Yes, sir, they did.

2           Q       And does it have the horn blast in there  
3 from the C36-7?

4           A       Yes.

5           MR. CRANWELL: Your Honor, would it help  
6 if I gave each member of the Jury a copy of this  
7 as I take them through it?

8           MR. ODDO: I object to that, Judge. The  
9 witness is going to testify.

10          THE COURT: Just take your witness --  
11 what are you doing? Let me see what you have,  
12 Mr. Cranwell.

13

14 BY MR. CRANWELL:

15          Q       Is that an N & W document that reflects a  
16 test that they did on a run out on the road?

17          A       It is not clear -- it is not -- yes, I  
18 assume it does because they give speed, so they  
19 certainly must have been moving.

20          THE COURT: If you are going to go  
21 through -- if it is a document that is in  
22 evidence, the members of the jury can look at it  
23 along with -- be aware that the evidence you are  
24 considering now is the testimony of

1 Doctor Stusnick.

2 MR. CRANWELL: Do we have one more? Will  
3 you-all share?

4  
5 BY MR. CRANWELL:

6 Q If you look at the top, that says G.E.  
7 locomotive C36-7 horn loudness test?

8 A That is correct.

9 Q And that was done July 27, 1984?

10 A It says 4-27-84.

11 Q Well, look at that real close.

12 A Excuse me. It is a seven. You are  
13 right.

14 Q And they describe the methodology they  
15 used?

16 A Yes, they do.

17 Q They even describe the FRA definition for  
18 continuous noise, don't they?

19 A That they do, yes.

20 Q It looks like they knew what they were  
21 doing?

22 A Yes.

23 Q Let's you and I look at the cab noise  
24 first and foremost, that would be BG that would be the

1 background noise in the cab?

2 A That is correct.

3 Q Those are all significantly higher than  
4 what you show on your run up to Shenandoah, aren't they,  
5 sir?

6 A They represent maximum sound levels.

7 Q My question is, every one of those are  
8 significantly higher than what you show on your run to  
9 Shenandoah?

10 A Let me check my run to Shenandoah.  
11 Actually, let's see, well, the very first one is Notch  
12 Six. In Notch 6, I shows levels -- we don't keep track  
13 of levels below 80, but I show levels going as high as  
14 99 on Throttle Six.

15 Q For how much of 99?

16 A One second. Two seconds at 95, four  
17 seconds at 94 and so on down. Most of the time, it  
18 seemed to spend its time between 80 and 88.

19 Q Right.

20 A So, that is not inconsistent with what  
21 they are saying.

22 Q I understand it is not inconsistent, but  
23 their measurements showed 88 to 90 when they did the  
24 test?

1 A Yes.

2 Q Right?

3 A Right.

4 Q And you assume that that was 88 to 90,  
5 that was measured over a period of time; it couldn't  
6 just be one measurement, could it?

7 A No. I assume it was a maximum because if  
8 you look at the last paragraph on the first page, they  
9 say FRA maximum levels are determined with the sound  
10 level meter at "slow A-weighting max."

11 Q Okay.

12 A On that sound level meter, if you set the  
13 switch to that, it retains the highest level it saw.

14 Q Okay.

15 A It doesn't show you all the levels. It  
16 just retains the highest it set up to the point that you  
17 are measuring until you stop the measurement and resets  
18 it.

19 Q So, we had an 88 to 90?

20 A Yes.

21 Q A 92 to 93?

22 A Yes.

23 Q A 90 to 93?

24 A That is correct.



1 Q An 82 to 85?

2 A That is correct.

3 Q And an 85 to 91?

4 A Uh, I see an 89 to 91.

5 Q Excuse me, 89?

6 A That is correct.

7 Q An 89 to 91?

8 A That is correct.

9 Q An 89 to 90?

10 A That is correct.

11 Q An 87 to 89?

12 A That is correct.

13 Q Two 78s to 80s?

14 A Yes. But you will notice those are with

15 the windows closed.

16 Q That is correct.

17 A The data is not inconsistent with what I

18 have measured. If you were looking just at the very

19 maximum of what we have measured --

20 Q Okay.

21 A -- for the whole trip, you would see

22 levels like that or maybe even a bit higher.

23 Q The thing that was kind of puzzling to

24 me, if they only measured the maximum, it looks like to

1 me every time they were measuring, they were getting  
2 pretty close to the maximum levels that you say they  
3 were at. Now, are you telling us that one, two, three,  
4 four, five, six, seven, eight, nine, ten, eleven,  
5 twelve, thirteen, fourteen, fifteen, sixteen, seventeen  
6 times they measured, they just happened to hit the  
7 maximum, sir?

8 A Well, these are instantaneous  
9 measurements.

10 Q My question is: Did they just happen to  
11 hit the maximum?

12 THE COURT: If he has got to explain the  
13 answer for what a scientific test is, he can do  
14 so.

15 MR. CRANWELL: Can he answer my question  
16 first?

17 THE WITNESS: I am trying to, sir. Those  
18 are the maximums for the time period that they  
19 looked at. They don't indicate how long they  
20 looked.

21 They have the meter set on max hold,  
22 basically. If you start it running, it would  
23 retain the maximum level.

24 If you let it run for five seconds and

1           turn it off, what you will see on the meter is  
2           the maximum level that occurred in those five  
3           seconds.

4           If you have it on for ten seconds, it  
5           will show you the maximum level that occurred in  
6           those ten seconds. They don't indicate how long  
7           they kept it on.

8  
9       BY MR. CRANWELL:

10          Q       Now, how about for the horn?

11          A       The horn is the same things. Those are  
12       taken -- those are maximum levels according to --

13          Q       Well, you didn't get anywhere near this  
14       on any of your measurements, did you?

15          A       No, sir.

16          Q       That is because the unit that you were  
17       on, making your run, the horn had been relocated, hadn't  
18       it, sir?

19          A       Yes, the horn was about in the middle of  
20       the long hood.

21          Q       So, we cannot tell anything about the  
22       horns that Mr. Puryear was exposed to from your test,  
23       can we, sir?

24          A       No, sir.

1 Q And if Mr. Puryear's work history is  
2 correct; and if, in fact, it is 116 and 117 like these  
3 measurements show, then isn't it correct, sir, that his  
4 exposure on the GEC 36-7 at these levels alone  
5 sufficient to cause a high frequency hearing loss?

6 MR. ODDO: Objection. There is no --

7 THE WITNESS: I am not qualified to talk  
8 about hearing loss.

9 MR. ODDO: I will let him answer.

10 THE WITNESS: I am strictly a measurement  
11 man, not a laryngologist.

12  
13 BY MR. CRANWELL:

14 Q Well, why do you make measurements?

15 A I usually compare them with standards, in  
16 this case, the FRA standard.

17 Q And the FRA standard is designed to do  
18 what, sir, put noise levels at which workers aren't  
19 suppose to be --

20 A That is correct.

21 Q We are back to the glass of gasoline.

22 A I just don't want to --

23 Q We are back to the glass of gasoline,  
24 aren't we, sir?



1 MR. ODDO: Judge, will you let him  
2 answer?

3 THE COURT: Mr. Cranwell is asking the  
4 question. Doctor Stusnick doesn't get to  
5 interpose during the question, either.

6 THE WITNESS: Would you repeat the  
7 question, sir?

8  
9 BY MR. CRANWELL:

10 Q My question is: We are back to the glass  
11 of gasoline, aren't we, sir? If it is 116.8, the law  
12 says this is the levels at -- to which employees are not  
13 supposed to be exposed to noise because above those  
14 levels, we know that their hearing is going to be  
15 injured; isn't that correct, sir?

16 A The law says you aren't allowed to have  
17 them at levels above that. Yes, that is correct.

18 Q Why is the law there, to protect the  
19 hearing of workers?

20 A The law is there to protect the hearing  
21 of the workers.

22 Q Thank you, sir. Now, did you run any  
23 measurements on your run with the doors open to the  
24 engine room?

1 A There is no -- you mean --

2 Q The doors to the cab, excuse me.

3 A Typically -- I am not sure -- typically,  
4 the breakmen leave the cab several times during a trip.  
5 We don't keep track of doors open, and doors closed.

6 Q Did you-all document that on your test?

7 A No. We don't keep track of doors open  
8 and doors closed.

9 Q You are pretty familiar, I assume, with  
10 the way the Railroad operates because you describe what  
11 they would be doing on this trip to Shenandoah.

12 A Right.

13 Q All right.

14 A The trips I have been on, typically, the  
15 doors are closed except when someone is exiting or  
16 entering the cab. And I am sure that that --

17 Q How many trips have you been on on N & W  
18 engines?

19 A On N & W, I am really not sure. Since I  
20 have been manager, I don't go on the trips anymore. It  
21 is one of my acoustic engineers usually that takes the  
22 data.

23 Q Did you go on this?

24 A No, I did not.

1 Q One of your people went on this?

2 A Yes.

3 Q All right. Now, my question is: Did you  
4 read Mr. Puryear's deposition?

5 A Yes, I did.

6 Q Did you understand him to say that most  
7 of the time they travelled with the doors open and the  
8 windows open on these?

9 A I don't recall that specifically.

10 Q Well, assume that he testified to that  
11 here in this courtroom, that most of the time -- were  
12 the units that you were on air conditioned?

13 A I am not sure. I wasn't on these units.

14 Q Excuse me.

15 A Before I was manager, I did go on a few.  
16 I don't remember how many were Norfolk Southern or not.  
17 We have done 25 trips over the last ten years or so, not  
18 all of them Norfolk Southern, in fact, not even the  
19 majority. I was on many of the earlier ones, and I  
20 don't remember which railroad they were for.

21 Q Isn't it true that this is the only road  
22 test, the one in this case, that your firm has ever  
23 conducted for the Norfolk and Western?

24 A I am not sure. I think there may have

1       been others, but I would have to check my records. I  
2       honestly don't know.

3               Q       Well, you would know, wouldn't you? I  
4       mean, for example, didn't you or somebody from your firm  
5       come down here in 1991 and 1992 and monitor  
6       Doctor Campanella when he did the noise level test over  
7       in the freight shop and maintenance buildings?

8               A       Yes, we didn't take any measurement of  
9       our own, but we monitored him.

10              Q       You monitored him to make sure he did it  
11       right?

12              A       That is correct.

13              Q       But you-all didn't let him know or let us  
14       know that you-all were going to do this one so that we  
15       could check to see if you-all did it right, did you?

16              A       No, sir.

17              Q       Was there any reason you wanted it to be  
18       a secret the way you did your test?

19              A       Not at all. I am very proud of the way  
20       we do our tests.

21              Q       Let's take that then? Let's assume that  
22       the Railroad runs -- as Mr. Puryear has says -- most of  
23       the time with the doors open and the windows open on  
24       their trains.



1 A Okay.

2 Q Have you got that assumption?

3 A Okay.

4 Q Your test does not accurately reflect  
5 that work situation, does it, sir?

6 A Our --

7 Q Yes or no?

8 A I do not believe it does, but I am not  
9 sure how often the doors were open on this test.

10 Q Well, you don't know because you were not  
11 there?

12 A Because I wasn't there.

13 Q But it does not accurately reflect the  
14 work situation, does it?

15 A It reflects the work situation as it is  
16 now.

17 Q Well, they require hearing protection  
18 now, don't they? As a matter of fact, your report notes  
19 that the engineer and the people were wearing hearing  
20 protection?

21 A That is correct.

22 Q But if your report is correct, they don't  
23 need to be wearing that hearing protection, do they?

24 A That is correct.

1 Q Well low and behold, I wonder why they  
2 are wearing it.

3 MR. ODDO: Objection, Judge. That is not  
4 a question.

5 MR. CRANWELL: That is a question.

6 THE COURT: Mr. Cranwell, your wonderment  
7 is not a question. I sustain the objection.

8 MR. CRANWELL: I apologize, Your Honor.

9  
10 BY MR. CRANWELL:

11 Q It does not reflect the work situation,  
12 then, as you and I have assumed, based on Mr. Puryear's  
13 testimony, does it, sir?

14 A No, sir, it doesn't.

15 Q And it does not reflect the horn noise as  
16 Mr. Puryear was exposed to, does it, sir? That's  
17 another no, isn't it?

18 A That is correct.

19 Q When you say "correct," you say correct  
20 it is another no?

21 A Yes. The horn that Mr. Puryear was  
22 exposed to was located in a different position and was  
23 much louder than the horn -- the level in the cab was  
24 much louder than the horn on the locomotive that we

1 tested.

2 Q And wouldn't you say that these tests  
3 that were run in 1984 by the Railroad would be far more  
4 reflective as to the kind of noise that Mr. Puryear was  
5 exposed to than what your tests would show, sir?

6 A It is again a function of how much the  
7 window --

8 Q Answer yes or no.

9 A I do not know.

10 Q You don't know?

11 A No, sir. If the doors are open most of  
12 the time, then that data is, in deed, representative of  
13 the exposure. If the doors and windows are closed most  
14 of the time, then the two lower levels that are in that  
15 list are representative of the exposure; and I really  
16 have no idea how much the doors were open and the  
17 windows were open.

18 Q And with respect to the horn noise, would  
19 this not be more reflective of what Mr. Puryear was  
20 exposed to than what your test does, sir?

21 A Yes, sir.

22 Q In fact, the horn measures maximums and  
23 averages, doesn't it?

24 A The data in there are --

1 Q Take a look. Page Two, it says "maximums  
2 and average," doesn't it?

3 A But again, those are average maximums.

4 Q Average maximums?

5 A They say that their meter was set at slow  
6 response A-weighting maximum. That word "max" has a  
7 meaning for that sound level meter.

8 Again, remember there isn't a true single  
9 maximum. These are just a range of maxima. Most horns,  
10 as the signal -- the pattern -- is blown, go through a  
11 10 or 15 dB range of values.

12 Q So, of 40 times that the whistle was  
13 blown, it exceeded the FRA maximum exposure permission,  
14 didn't it, sir --

15 A That is correct.

16 Q -- on one trip, by the Railroad's own  
17 admission or own test?

18 A I am not sure whether those are all the  
19 horn blowings in the trip, but that is what -- there are  
20 40 entries in there, in that test sheet, that are, in  
21 fact -- that exceed 115.

22 Q Well, if you have got one of these kind  
23 of readings on one of your tests, wouldn't you tell your  
24 client that they ought to give their employees hearing



1 protection and make them wear it.

2 A If they asked me what are the things they  
3 could do to improve the situation, that might be one of  
4 the things that I would recommend. I probably would  
5 recommend relocating the horn, first.

6 Q Mr. Stusnick, don't these numbers cry out  
7 for some action to protect the men?

8 A I don't know how to respond to that.

9 Q Well, you can answer that yes or no?

10 A Well, the "cry out -- " I am a scientist.  
11 The "cry out" is too vague.

12 Q As a prudent scientist, would you  
13 recommend to a client of yours, if you had these kind of  
14 noise exposures consistently, 40 blasts from a horn  
15 exceeding the FRA maximums 40 times on one trip,  
16 wouldn't you tell them it was time to give the engineers  
17 and their firemen some hearing protection?

18 A I would suggest that they do have a  
19 problem and that they should, in fact, do something to  
20 reduce the nose exposure.

21 Q And one of the things would be require  
22 them to wear hearing protection like they are doing now,  
23 wouldn't it, sir?

24 A That is, in fact, one possible means.

1 Q How much are you making an hour?

2 A A hundred and fifty dollars an hour. My  
3 company is making a hundred and fifty dollars an hour, I  
4 don't.

5 Q I am going to try to keep this short,  
6 then. I don't want to spend too much of the Railroad's  
7 money here.

8 You are familiar with the history of the  
9 Railroad's resistance to being covered by any hearing  
10 standards at all, aren't you, sir?

11 A No, sir.

12 Q You are not?

13 A No.

14 Q Your firm didn't do some lobbying for the  
15 Railroad?

16 A We do not do lobbying. We are a research  
17 and test organization?

18 Q Do you know who did the lobbying, then?

19 A No.

20 Q Isn't it true, sir, that the FRA  
21 standards are more favorable to the employer than they  
22 are the employee as compared to OSHA?

23 A I am --

24 Q Didn't the Railroad really fight hard to

1 get a separate --

2 THE COURT: One question at a time,  
3 please.

4 THE WITNESS: I don't -- I am not sure  
5 how to respond to "more favorable."

6 There are -- at the time --

7  
8 BY MR. CRANWELL:

9 Q Let me ask the question a different way.  
10 Under FRA standards, can't you expose a worker to more  
11 noise dose levels than you can under OSHA?

12 MR. ODDO: Judge. Objection. What the  
13 standard is, is what the standard is.

14 THE COURT: I overrule the objection  
15 because this is a matter that was addressed on  
16 direct examination.

17 THE WITNESS: I can't even give a  
18 clear-cut yes or no on that because there are  
19 two OSHA standards.

20 There are three definitions of dose. The  
21 original OSHA definition of dose, which is  
22 covered in Part B of the original OSHA standard,  
23 said that you look at only levels between 90 and  
24 115 dB in calculating the dose.

1           In other words, if you had anything below  
2           90, a level of 89 dB would produce no dose  
3           contribution.

4           When FRA developed their standard -- and  
5           I don't know anything about the politics that  
6           went on in that development process, but when  
7           they developed that standard, the technical  
8           argument they used was, well, okay, 90 dB is the  
9           allowed eight-hour dose. Railroad employees are  
10          allowed to work 12 hours. What would be an  
11          equivalent level for a 12-hour exposure? What  
12          level would give you an equivalent sound  
13          exposure if you were at that level, and it comes  
14          out to be 87? So, they changed the  
15          definition -- for FRA purposes, they changed the  
16          definition of the dose to look at all levels  
17          from 87 to 115.

18          So, obviously, if you have a same  
19          situation and you measure it by the OSHA Part B  
20          standard, you are going to get a slightly lower  
21          dose than if you measure it by the FRA standard.

22          A few years later -- and I really can't  
23          quote the dates on you -- OSHA came out with a  
24          so-called hearing conservation amendment, which



1 was in addition to the original standard in  
2 which they defined a third definition of dose.

3 That definition says that you include in  
4 the calculation of dose all the levels from 80  
5 up to 130, even though from 115 to 130 is still  
6 -- is a violation, anything over 115, you still  
7 include it in your calculation of the dose.

8 That would clearly give you a larger dose  
9 than the FRA. So, there is an OSHA standard  
10 that would give you a lower dose. There is an  
11 OSHA standard that would give you a higher dose.

12  
13 BY MR. CRANWELL:

14 Q Did I just write my notes down wrong when  
15 I said FRA dose is higher than OSHA when I was tracking  
16 your testimony?

17 A It is higher than the OSHA Part B dose.  
18 It is lower than the OSHA Part C dose, which is the  
19 hearing conservation amendment.

20 Q Now --

21 A Incidentally, we calculate them all three  
22 ways. I can tell you what the other two doses are for  
23 the trip.

24 Q Now, in this -- I am sure you can. In

1 this trip, where you went along, you said you had 13  
2 overloads?

3 A Yes. They occurred at the starting end  
4 as we were calibrating.

5 Q Now, you can get overloads by just  
6 exposed to too much noise?

7 A That is correct.

8 Q Okay.

9 A And the reason I know that that is not  
10 the case is because on that same sheet, you will see  
11 that the highest single noise level that we measured  
12 through the whole trip was 111 dB.

13 Q Would it be true that if  
14 Doctor Campanella would have been on the train with you,  
15 we would know whether it was for too much noise or  
16 whether somebody hit the mike with their hand, wouldn't  
17 we, sir?

18 A I don't understand your question.

19 Q Well, maybe, everybody else does. I will  
20 try it one more time. If Doctor Campanella had gotten  
21 to ride on the train, we would know whether these 13  
22 overloads that you had came from excessive noise times,  
23 like you see on these other tests for the Railroad, or  
24 whether it came from somebody hitting the mike or

1 breathing in the mike or things like that?

2 A I think you --

3 Q Would we not know for sure, sir?

4 A I think you know for sure now, because  
5 you look at the data sheet that was printed out from the  
6 sound level meter, which we had no control over, and it  
7 shows you what the maximum A-weighted level was through  
8 the whole trip.

9 Q But the test that Doctor Campanella  
10 conducted, you had a representative present, didn't you,  
11 sir?

12 A It was -- oh, that Doctor Campanella  
13 conducted?

14 Q Conducted down here in '91 and '92 out  
15 here in the shops where they --

16 A Oh, yes.

17 Q -- make railroad cars and things?

18 A Yes.

19 Q You had a person present each time to  
20 monitor his methodology?

21 A That is correct.

22 Q And you had nobody to appear in court in  
23 either case to question his methodology, did you?

24 A We never did appear. Excuse me.

1           Q       You never provided any testimony in any  
2 courtroom questioning the methodology of those tests,  
3 did you, sir?

4           A       No, sir.

5           Q       Because you were watching to see that he  
6 did it right, right?

7           A       I --

8           Q       Or somebody from your firm was there?

9           A       I would have to look at the notes as to  
10 what the comments were. None of those have gone to  
11 trial yet as far as I know; or if they have, we  
12 certainly haven't been called in to testify in them.

13          Q       Would it surprise you to know that  
14 you-all were listed as expert witnesses, and two of the  
15 cases have already gone to trial and you never  
16 testified, sir?

17               MR. ODDO: Objection, Judge, we are  
18 getting far astray.

19               THE COURT: I think we are. I think we  
20 are.

21               MR. CRANWELL: Well, Judge, every now and  
22 then, I can get carried away; and I apologize.  
23 As my worthy opponent said in opening  
24 statements, every now and then I get a little



1           aggressive; and I apologize to the Jury and you  
2           and to my opponent for that.

3  
4       BY MR. CRANWELL:

5           Q       Sitting here today, you cannot tell us  
6           for sure whether your firm has ever done any other  
7           over-the-road test for the N & W other than this one for  
8           sure, can you?

9           A       For sure, no. I suspect there have been.  
10          There are some that are West Virginia runs, I think were  
11          Norfolk Western.

12          Q       You think?

13          A       I think so. But I cannot be a hundred  
14          percent sure of that without my records in front of me.

15          Q       Do you know whether your employees that  
16          made this over-the-road trip were required to wear  
17          hearing protection?

18          A       By us, we don't require it.

19          Q       How about by the Railroad?

20          A       I don't know whether Mr. Alvarez, who did  
21          the measurements was required to wear hearing protection  
22          or not.

23          Q       I was just wondering.

24          A       I honestly don't know.

\* \* \*

## DIRECT EXAMINATION

BY MR. ODDO:

Q Please state your full name.

A Paul Lambert.

Q And Doctor Lambert, you are an  
otolaryngologist; is that right?

A Yes.

Q That is an ear, nose, and throat doctor?

A Correct.

Q Where are you located?

A At the University of Virginia.

Q What is your position there?

A I am a professor in that department and  
specialize in ear surgery.

Q Can you tell the Jury what your  
educational background is starting with college?

A College and medical school at Duke and  
residency training in that field of surgery at UCLA  
Hospital and then back to Virginia in 1982.

Q And since 1982, have you been practicing  
otolaryngology in Virginia?

A Correct.

Q And you are licensed to practice



1 each side. So, that is within the normal range. The  
2 understanding of speech -- so, this is just being able  
3 to repeat the word, and this is actually knowing what  
4 the word really meant -- and anything above 90 percent  
5 is normal. So, it was normal in both ears.

6 Q And in the records that you have reviewed  
7 from his other examinations, were the speech reception  
8 test and the speech discrimination score normal  
9 throughout each of those tests?

10 A Yes.

11 Q Doctor, if a person has a hearing loss  
12 due to noise, does their hearing continue to get worse  
13 after they are removed from the noise?

14 A No, just during the exposure to the noise  
15 would someone's hearing loss go down. And then it is  
16 possible that after removal from noise that the hearing  
17 may actually improve at certain times.

18 Q Sir, have you looked at the audiogram  
19 that was done by Doctor Sydnor in 1987?

20 A Yes.

21 Q And I believe that that is there in front  
22 of you. Can you, sir, for the Jury -- I am just going  
23 to hold this if I can -- can you for the Jury, sir,  
24 contrast -- compare and contrast those two audiograms

1 the one from '87 being on the right, and the one from  
2 '94 being on the left?

3 A The hearing in the low tones -- again,  
4 this is my audiogram; this is the one seven years  
5 previously. The hearing in the low tones is normal.  
6 The hearing in the middle tones are also normal and  
7 essentially the same.

8 This -- my hearing test appears to be a  
9 little bit worse in higher frequencies, for example,  
10 this line right here would be 3000 cycles per second or  
11 3000 hertz; and the level there is 30 in 1987.

12 In 1994, the right side, it was 35 and  
13 the left side it was 40. So, it is a five decibel  
14 difference in the right and ten decibel difference in  
15 the left.

16 At 4000, the left ear was 45. And on our  
17 test, it was 55. And the right was 60, and in our test,  
18 the right is 55.

19 We usually say five decibels one way or  
20 the other is within the test re-test error. So, a ten  
21 decibel difference would be significant. So, there has  
22 been some change at 3000 and 4000 in our hearing test  
23 compared to the 1987 one.

24 And at the very high frequency, 8000,



1 essentially, the same. It is within a five decibel  
2 difference. Ours is a little worse, but only five  
3 decibels worse. So, there has been a change at 3000 and  
4 4000 in our hearing test.

5 Q What is the significance of that change,  
6 if any?

7 A Well, it suggestions that something was  
8 going on that caused the nerve in both ears to  
9 degenerate. And one would have to then look at the  
10 history and see what potential things could have caused  
11 that. With no obvious history, for example, medications  
12 or any type of traumas to the ear, etc., then one would  
13 assume that that is an aging change.

14 Q All right. I am going to put another one  
15 up here.

16 A Okay.

17 MR. ODDO: Before I do, Judge, let me  
18 just ask that the 1994 audiogram be marked as  
19 Defendant's Exhibit Two, the '87 be marked as  
20 Number Three; and I am going to put the March 1,  
21 '89 audiogram and ask that that be marked as  
22 Exhibit Four.

23 THE COURT: Mr. Oddo, are you offering  
24 these at this time?

1 MR. ODDO: I will do so at the  
2 conclusion, but I will be happy to do so now.

3 THE COURT: Is there any objection?

4 MR. CRANWELL: No objection.

5 MR. ODDO: All right. I will offer them  
6 as exhibits.

7  
8 (The 1994 audiogram of Mr. Puryear  
9 was marked Defendant's Exhibit Two  
10 and entered into the Record.)

11  
12 (The 1987 audiogram of Mr. Puryear  
13 was marked Defendant's Exhibit  
14 Three and entered into the  
15 Record.)

16  
17 (The March 1, 1989, audiogram of  
18 Mr. Puryear was marked Defendant's  
19 Exhibit Four and entered into the  
20 Record.)

21  
22 THE COURT: They are admitted.  
23  
24

1 BY MR. ODDO:

2 Q Doctor Lambert, let's put up Defendant's  
3 Exhibit Four next to Defendant's Exhibit Number Three.  
4 The one that is marked Number Four is dated March 1,  
5 '89, Gill Memorial.

6 Can you compare the one from '89, which  
7 is Exhibit Four, and the one from '87, which is Exhibit  
8 Three and tell us whether those are, essentially, the  
9 same?

10 A Again, the low frequencies and the middle  
11 frequencies look essentially the same. So, we will look  
12 at 3000. There was 25 in the left and 30 in the right.  
13 It is 30 and 25 -- although, they are flip-flopped -- so  
14 it is within five decibels. So, it is reasonably the  
15 same.

16 At 4000 in 1987, the right ear was 60;  
17 and it is 60 here. The left ear was 45, and it is 55  
18 here. So, that is a 10 decibel difference. So, that  
19 would be a significant difference at the 4000 mark in  
20 the left ear.

21 The very highest frequency, 8000, 40 and  
22 45 -- it is 50. So, for one ear it would be the left  
23 ear has a 10 decibel drop. So, that would be a  
24 significant drop. So, there is a significant drop in

1 the left ear only, not for the right ear, between those  
2 two.

3 Q You mentioned that at 3000, Doctor, the  
4 numbers were in the 25 to 30 range. Is that clinically  
5 significant?

6 A Repeat that for me? Significant in terms  
7 of?

8 Q Is that a clinically significant loss?  
9 In other words, would that be a loss that would be very  
10 noticeable by the individual?

11 A I think in terms of hearing, in terms of  
12 understanding speech, it would not be. It could cause  
13 some other things that could be noticeable; but from a  
14 hearing standpoint, no.

15 Q In term of speech discrimination it would  
16 not be noticeable?

17 A No.

18 Q Let me ask you to assume, sir, that  
19 Mr. Puryear retired in 1987, September of 1987. Do you  
20 have an opinion, sir, to a reasonable degree of medical  
21 probability as to what the continued deterioration in  
22 his hearing has been in the 3000 frequency?

23 A When I talked with him, he was really not  
24 exposed to any particular noise or did not have any



1 intercurrent illness or ear problem. So, my assessment  
2 of that would be that is an aging phenomena.

3 Q Is that called presbycusis?

4 A Yes.

5 Q And is it true that, generally, as people  
6 get older, their hearing changes?

7 A After about age 40, it begins to occur  
8 very gradually, first in higher tones -- we are  
9 typically not aware of that -- but then as aging  
10 continues and it moves down more toward the speech  
11 range, then we do become slightly aware of it.

12 Q And have you treated people with  
13 presbycusis?

14 A Yes.

15 Q And is it true that there are millions of  
16 Americans who have presbycusis who have never had any  
17 occupational noise exposure?

18 A The statistic is 25 percent. So, one out  
19 of every four people -- persons over the age of 65 would  
20 have some degree of hearing loss due to aging.

21 Q And in your opinion, did Mr. Puryear's  
22 job have anything to do with this continued  
23 deterioration that you have described?

24 A No. No, sir.

\* \* \*



## CROSS EXAMINATION

BY MR. CRANWELL:

Q Doctor Lambert, you got your instructions from Mr. Oddo before you examined Mr. Puryear in this case; is that correct?

A Yes.

Q What did you understand your instructions to be, sir?

A He told me to carefully go over his history, particularly, with regards to how long he had been on the trains, and what noises he had found to be excessively loud in his opinion, and then to see how that impacted on his life.

Q Did he ask you to ask about his social life and those kinds of things?

A He said just "impact on his life," I would assume that means both the social and the work life.

Q And did he tell you that this man had a hearing-loss claim against the Railroad and he would like for you to testify on behalf of the Railroad after you examined him?

A He did not tell me that there would

1 necessarily be a testimony involved. He told me to  
2 examine the patient when he initially sent the records,  
3 examine those records and give him my opinion.

4 Q My question, though, is did he relay to  
5 you that there was ongoing litigation and that you were  
6 going to be asked to give some opinions favorable to the  
7 Railroad based on your examination?

8 A I would not give opinions that were not  
9 completely objective. So, the word "favorable" I object  
10 to.

11 Q Well, okay. You understood that you were  
12 going to give some opinions after you did the  
13 examination?

14 A Correct.

15 Q Now. And he asked you about the cause of  
16 maybe some decreased hearings after all of these tests,  
17 and you said that you thought that that might be  
18 attributable to aging; is that correct?

19 A Yes.

20 Q It is true, though, Doctor, this man's  
21 audiogram is a classic occupational hearing-loss type  
22 graph, isn't it?

23 A Well, it has many characteristics like  
24 that. The problem is that it has the same type of

1 characteristics as an aging change would, as well, with  
2 the high frequencies being involved.

3 Q Isn't it true that in the aging, you get  
4 kind of a soft wave rather than a notch; and isn't it  
5 true that the signature of an occupational hearing loss  
6 is the sharp drop, as we see on these audiograms?

7 A The notch is more indicative of noise  
8 than as aging, yes.

9 Q And this is a notch, isn't it, sir?

10 A There is a notch there.

11 Q So, let's ask you the question that he  
12 did not ask. Based on the history that you took from  
13 Mr. Puryear, exposure to noise at the Railroad, working  
14 long hours at the Railroad, have you formulated an  
15 opinion based on reasonable medical certainty as to the  
16 cause of this significantly notched hearing loss, sir?

17 A I think that -- as I testified earlier --  
18 that noise played a part in this. I believe aging  
19 played a part, as well.

20 Q My question is: Do you have an opinion  
21 based on reasonable medical certainty as to the cause of  
22 the loss that we see on the 1987 audiogram?

23 A I do have an opinion on that.

24 Q And that is exposure to the noise, isn't



1 it, sir?

2 A Exposure to noise and aging, both.

3 Q Okay. Fine. And exposure to noise,  
4 based on the history that you took, had to come from the  
5 Railroad, didn't it?

6 A The other noise exposure, I think, was  
7 probably not significant.

8 Q So, is the answer to my question, yes, it  
9 came from the Railroad?

10 A Well --

11 Q Why are you so resistant to --

12 A I am not resistant. I want to say that  
13 there are two factors involved here.

14 Q All right.

15 A That the noise is, certainly, Railroad  
16 noise; aging is aging.

17 Q Yes, sir. Now, let's put that aside.  
18 Aging. All right. Let's leave that over there. I want  
19 to come back. Isn't it true that the noise exposure  
20 based on the history that you took that caused the  
21 portion of the hearing loss that we are talking about in  
22 this case came from the Railroad?

23 A Yes.

24 Q Thank you. Now, isn't it true, Doctor,

1 that tinnitus caused by different problems with the ear  
2 is described by patients as sounding different?

3 A It can be different. Well, there is  
4 actually two major types of tinnitus. There is a  
5 low-frequency and a high-frequency tinnitus.

6 Q Well, in terms of neurosensory,  
7 occupational induced hearing loss from noise, how do  
8 patients describe tinnitus?

9 A They would describe the tinnitus as a  
10 high-frequency sound. The tinnitus mirrors the degree  
11 of hearing loss.

12 Q Do they describe the type of sound that  
13 it is?

14 A Patients typically will describe various  
15 sounds. They will talk about hissing sounds. They will  
16 talk about chirping crickets. There are various ways  
17 that patients will describe the high-frequency sound.

18 Q Isn't it true, Doctor, that  
19 high-frequency hearing losses with tinnitus, that the  
20 classic sounds that patients describe are like ringing a  
21 bell or hissing are more usual in neurosensory hearing  
22 loss?

23 A That is true. That statement is true.

24 Q And let's go back to your report now

1 because I happened to read it last night. How about  
2 Paragraph Two on Page One. Would you read the last  
3 sentence?

4 A "The tennitus is described as both a  
5 hissing sound or like electricity going through a power  
6 line. Mr. Puryear denies any dizziness, otalgia or  
7 other ear symptoms."

8 Q Now, that hissing sound is pretty  
9 classical of a noise-induced tennitus; isn't it, sir?

10 A It is typical for any high tone hearing  
11 loss.

12 Q You like Doctor Sataloff's book?

13 A I said that it was an authoritative book.

14 Q How about you and I looking at page 398.  
15 "How the patient describes the tennitus is often of  
16 diagnostic significance." What does that mean?

17 A The tennitus can often give us some  
18 indication of what the hearing loss was caused from.

19 Q For example, a low pitch type of tennitus  
20 is more often in --

21 A -- in another ear disease, otosclerosis.

22 Q And other forms of --

23 A -- conductive hearing loss.

24 Q Now, that doesn't have anything to do

1 with nerve damage hearing loss; isn't that what that is  
2 saying?

3 A That's right. So, you see, the low pitch  
4 tennitus with non-nerve type hearing loss --

5 Q Now, read the next sentence.

6 A "Sounds like ringing bells and hissing  
7 are more usual in sensorineural hearing loss, which is  
8 what he has.

9 Q And this old fireman from the Railroad  
10 described pretty good for you how you have a -- how his  
11 tennitus sounds, doesn't it?

12 A He described it as I just read.

13 Q That is classic of a noise-induced  
14 tennitus, isn't it, sir?

15 A Well, if you look at that sentence, it is  
16 classic for a nerve-type hearing loss.

17 Q Well, and that is what you get with a  
18 noise-induced hearing loss, isn't it?

19 A Correct.

20 Q As a matter of fact, the reason you get  
21 it in these levels is because the window -- they call  
22 it -- that passes through to the cochlea, the  
23 frequencies -- the hair cell frequencies between three  
24 and six are (indicating) right where the sound is coming



1 through pounding on them, isn't it?

2 A That is one potential cause for a hissing  
3 sound in the ear noise.

4 Q Do you ever play golf?

5 A Not too much.

6 Q Do you ever watch it on television?

7 A Occasionally.

8 Q What happens when they get on the green  
9 and they are getting ready to putt?

10 A Well, a lot of things would happen.

11 Q What usually happens to the crowd, sir?

12 A They are usually watching in anticipation  
13 and quiet.

14 Q As a matter of fact, they have got those  
15 marshals out there to quiet everything down, don't they?

16 A They do.

17 Q This is the kind of tennitus we are  
18 talking about, like this sound?

19 A Yes.

20 Q And when Mr. Puryear is playing his golf  
21 and everything gets real tight or real quiet with those  
22 people he is playing with and he needs to be  
23 concentrating, like when he is trying to go to sleep,  
24 this is what he is hearing, isn't it?

1           A       I am not sure exactly what he is hearing,  
2 but it is potentially something like that.

3           Q       It would kind of be distracting, wouldn't  
4 it?

5           A       Potentially.

6           Q       Why do you use the word "potentially"?

7           A       Well, I didn't even notice the sound  
8 until you mentioned it, quite honestly.

9           Q       Until it got quiet?

10          A       Until you drew my attention to it. So,  
11 it is hard for me to know how it would bother each  
12 person.

13          Q       If you like to play golf and you have to  
14 listen like this, every time you are trying to putt, it  
15 has an impact on you, doesn't it -- not that playing  
16 golf is the greatest most important thing in the world,  
17 is it, sir?

18          A       Since I am not a golfer, I am not sure  
19 how to answer that.

20          Q       Okay. Let's return to Doctor Sataloff  
21 for just a moment, if we could. Does it make you  
22 uncomfortable for me to stand here?

23          A       Not at all.

24          Q       Chapter 13 in his book, "Hearing loss,

1 Handicap and Rehabilitation, Affects on Personality."?

2 A Yes.

3 Q I am reading from Page 383. "No other  
4 physical handicaps have so many and such serious  
5 repercussion on personality of some people as hearing  
6 loss."

7 "And interestingly enough, some of the  
8 worse effects are associated with hearing losses due to  
9 conditions such as Meneire's disease that are  
10 comparatively mild in degree, almost negligible on the  
11 basis of physical measurements alone."

12 Do you agree with that?

13 A In the general sense of that, yes.

14 Q Would you agree with this, that "Hearing  
15 loss cannot be restricted to the ear itself. It is  
16 impossible to divorce the ears from what lies between  
17 them?"

18 A Yes.

19 Q And that Doctor Sataloff goes on to say  
20 that you probably need general practitioners,  
21 psychologist, psychiatrists, and many others helping  
22 treat patients?

23 A I guess rarely that would be necessary.

24 Q So, you disagree with him?

1           A       Well, in my own practice, I can think of  
2 maybe one patient a year that I might send to a  
3 psychiatrist.

4           Q       How many physical hearing-loss patients  
5 do you see, Doctor?

6           A       That is what my practice is entirely of,  
7 hearing loss.

8           Q       Occupational hearing loss?

9           A       Hearing loss from all causes.

10          Q       How about -- how many occupationally  
11 noise-induced neurosensory hearing loss patients do you  
12 have occasion to see and treat per year, sir?

13          A       Oh, I would guess maybe five to ten a  
14 week.

15          Q       So, what?

16          A       So, 250 to 500.

17          Q       A year?

18          A       A year.

19          Q       Do you agree with Doctor Sataloff that  
20 hearing loss due to occupational noise exposure -- and I  
21 am on Page One, Chapter One, "Occupational Loss  
22 Overview."

23                 "Hearing loss due to occupational noise  
24 exposure is our most prevalent industrial disease."?



1 A Yes.

2 Q And do you agree with him when he says  
3 "This is especially regrettable since new noise-induced  
4 hearing loss is almost completely preventable at  
5 relatively little cost."?

6 A Yes.

7 Q In fact, back in the early '70s or the  
8 '60s when everybody else was doing hearing protection,  
9 if the Railroad had of spent -- what do these things  
10 cost?

11 A Uh.

12 Q They are not very expensive, are they?

13 A Less than a dollar, I would suspect,  
14 maybe a dollar.

15 Q You have got, what, five- or six hundred  
16 engineers and firemen, spend five- or six hundred  
17 dollars?

18 A (The witness indicated.)

19 Q All the agony and all the tragedy could  
20 have been avoided, couldn't it, Doctor?

21 MR. ODDO: I object. That is  
22 argumentative. Judge, I think we are exceeding  
23 the scope of Direct, as well.

24 THE COURT: Do you want to respond to the

1 objection, Mr. Cranwell?

2 MR. CRANWELL: Your Honor, it is not  
3 argumentative. It is asking him if he reads  
4 that statement in the book, and I am quoting to  
5 see how far he agrees with that statement --

6 THE COURT: Rephrase the question with  
7 different terminology. I sustain the objection.  
8

9 BY MR. CRANWELL:

10 Q Isn't it true that for whatever the cost  
11 this is per engineer, per fireman, back 20 years ago in  
12 requiring the men to wear them, we wouldn't even be here  
13 on Robert Puryear, would we, sir?

14 A Well, I don't know that. But I would,  
15 certainly, say that hearing protectors should be used  
16 whenever. I use them myself.

17 Q Well, whatever. Let's you and I assume  
18 that it is undisputed in 1984, that the Railroad knew  
19 that they had a horn on this GEC 36-7 engine that had a  
20 blast of 116.8 decibels, would that exceed the standards  
21 that the FRA sets out, sir?

22 MR. ODDO: Your Honor, we are clearly  
23 beyond the scope. This witness was not asked  
24 question about the standards --

1 THE WITNESS: I can respond a little to  
2 that.

3 THE COURT: Doctor, when you hear the  
4 lawyers arguing objection, it is the time for  
5 you to wait for the judge to rule.

6 THE WITNESS: I am sorry.

7 THE COURT: The doctor having been  
8 qualified as an expert in a field that could  
9 encompass the answer and that is -- and knows  
10 what the standards are, he can answer the  
11 question. I overrule the objection.

12 Go ahead, Sir.

13 THE WITNESS: A hundred and fifteen  
14 decibels -- well, any sound over 90 decibels is  
15 potentially injurious to the ears.

16 And then there is a trade-off between  
17 time of exposure and intensity of the sound.  
18 So, a hundred and 15 decibels greater than a 15  
19 minutes of continuous exposure to that, year in  
20 and year out, could be injurious to the ear.

21  
22 BY MR. CRANWELL:

23 Q And if you get 29.9 minutes on a trip,  
24 you have got a bad situation, don't you, Doctor?

1           A       Again, it would be 15 minutes of  
2 continuous exposure would be potentially injurious to  
3 the ear. So, I would have to ask about how much  
4 continuous exposure that there was.

5           Q       Well, assume that it is 29.9 minutes per  
6 trip; and it took one trip per week for seven years, six  
7 years?

8           A       So, that is the 115 decibels --

9           Q       A hundred and sixteen?

10          A       A hundred and sixteen decibels --

11          Q       -- point eight?

12          A       -- continually for -- that is not a  
13 whistle blast.

14          Q       That is a whistle that he is exposed to,  
15 29 minutes of the whistle blasting.

16          A       Uh-huh. But it is at shorter intervals  
17 that add up to the 29 minutes?

18          Q       Yes, sir.

19          A       Well, it is potentially injurious. The  
20 thing of it is, a hundred and fifteen decibels for 15  
21 minutes continuous is the way the standard is actually  
22 written; and that is different than if someone were  
23 exposed to 20 seconds and then had an hour of rest and  
24 then another 15 or 30 seconds or whatever, so the body



1 has a chance to recover in between those. So, it  
2 doesn't quite equate.

3 In other words, if you were running up a  
4 hill, it might be harder to run up a hill for 15 minutes  
5 than it would be to run for 30 seconds and rest, and run  
6 for 30 seconds and rest.

7 Q Doctor, isn't it true that the FRA  
8 standard, the OSHA standards, all standards that you and  
9 I know of, state that you cannot expose a worker to  
10 above 115 decibels for any period of time, period?

11 A That is not true, because they can be  
12 exposed for fifteen minutes.

13 Q Do you want to look at the FRA standards?

14 A A fourth of an hour is 15 minutes.

15 Q For how many decibels?

16 A A hundred and fifteen.

17 Q What about above a hundred and fifteen?

18 A Well, it goes to a hundred and twenty for  
19 half of that. So, it would be an eighth of an hour.

20 Q Do you want to read that right there?

21 A Exposure to continuous noise shall not  
22 exceed 115 dBA.

23 Q Okay. That is FRA, isn't it?

24 A Right.

1           Q       Well, you disagree with the FRA is what  
2       you are saying?

3           A       No. I think there are several different  
4       ways of -- when you said "FRA," I wasn't -- I did not  
5       know that they cut off at a hundred and fifteen.

6                   Our academy, for example, only cuts off  
7       at a hundred and forty decibels. So, there's  
8       differences of when -- of where that cut off is.

9           Q       You came in here to testify as an expert  
10       in a case involving FRA standards, and you didn't even  
11       know what they were?

12                   MR. ODDO: Judge, we never offered this  
13       man as an expert in FRA --

14                   THE COURT: I sustain the objection, and  
15       the Jury will disregard the question.

16  
17       BY MR. CRANWELL:

18           Q       Doctor, would -- let's don't draw on one  
19       of their charts. Let's draw on Doctor -- let's you and  
20       I draw on Doctor Powell's graph. Let me give you an  
21       orange pencil so everybody can see it.

22                   I want to refer you to Page 384 where he  
23       is talking about the relationship between hearing and  
24       speech and the various types of frequency hearing

1 losses, where B would be the example of low-frequency  
2 problems and I think A would be high-frequency tones; is  
3 that correct?

4 A I think that is correct.

5 Q Would you pencil in the audiogram for the  
6 high-frequency hearing loss that shows in Doctor  
7 Sataloff's book?

8 A Okay.

9 Q Would it help if I called them out to  
10 you?

11 A This is fine.

12 THE COURT: It is not as visible as you  
13 thought it was going to be.

14  
15 BY MR. CRANWELL:

16 Q Maybe he better use blue.

17 A Okay.

18 Q Now, do you agree that individual's chief  
19 problem is not hearing, but distinguishing what he  
20 hears?

21 A That is correct. They would hear sounds  
22 but have trouble telling the words.

23 Q And we are still on Page 385. He hears  
24 the vowels, so he knows someone is speaking; but he

1 cannot distinguish between some of the consonants, and  
2 thus, he is unable to tell what is being said; is that  
3 correct?

4 A That is correct.

5 Q This is the type of person that would  
6 want you to speak to annunciate more clearly and to  
7 pronoucne the consonants more distrinctly rather than  
8 speaking in a loud voice; is that correct?

9 A Yes.

10 Q That is true because in the 3000 to 6000  
11 frequency range or really the 2000 to 3000 frequency  
12 range is where we have the real astute discrimination  
13 part of hearing, isn't it, sir?

14 A Actually, the consonant sounds, which are  
15 the ones that we are talking about, the ones that are  
16 difficult to understand, are really in the 1000 to 3000  
17 cycles per second range.

18 Perhaps there might be an occasional one  
19 that would fall over the 4000. But really not above  
20 4000 so much. So, it would be this 1000 to 4000 range  
21 is the consonant sounds, yes, sir.

22 Q So in here, for example, for Mr. Puryear,  
23 we have significant loss of the ability to discern  
24 consonants, don't they?



1           A       It would be that whole range from 1000  
2 up, would be the range of consonants.

3           Q       But in his particular case, we are really  
4 getting our problems in here, aren't we, sir, between  
5 1000 and 4000?

6           A       That is where he has the hearing loss,  
7 correct.

8           Q       And isn't it true that that is where the  
9 major portion of information that we are able to  
10 discriminate, on the basis of hearing, occurs?

11          A       Again, the 1000 to 4000 range is -- it is  
12 equally important to the low frequency, but if you miss  
13 that high frequency, you have some difficulty in  
14 situations of background noise.

15          Q       What happens is you know that somebody  
16 says do you want to eat or do you want to fly. They  
17 hear, do you want to eat or do you what to eye,  
18 basically?

19          A       Perhaps.

20          Q       And they don't know what is going on so  
21 they just smile at you, don't they?

22          A       Perhaps.

23          Q       Well, perhaps. You know that is what the  
24 characteristics of a noise-induced hearing loss is.

1 People kind of withdraw in crowds, don't they, Doctor?

2 A They certainly can.

3 Q Doctor, isn't it true that we have  
4 treated -- from a society's standpoint, we have treated  
5 hearing loss differently than other disabilities, as to  
6 the way -- I am not talking about the medical community  
7 now.

8 A Well, I think hearing loss is an  
9 invisible handicap, as we say. And it may not get some  
10 of the attention that other more visible disabilities  
11 get.

12 Q Do you agree with Doctor Sataloff when he  
13 says on Page One of his book, "Although the importance  
14 of good hearing can hardly be overemphasized -- " I  
15 assume he is saying that it is really important; is that  
16 correct?

17 A I think we all agree that hearing is  
18 important.

19 Q "It has not been appreciated by the  
20 public or even by the medical community?"

21 A Perhaps that is true for the medical  
22 community. I am not sure.

23 Q "Little has changed from the days when  
24 society had to be admonished, 'thou shall not curse the

1 deaf.'" "

2 "No other handicap can have a greater impact on  
3 the quality of daily living than a significant loss of  
4 hearing in some people." That is true, isn't it,  
5 Doctor?

6 A Hearing can be a handicap. Hearing loss  
7 can be a handicap.

8 MR. CRANWELL: That is all I have, Your  
9 Honor.

10 THE COURT: Mr. Oddo.

11  
12 REDIRECT EXAMINATION

13  
14 BY MR. ODDO:

15 Q Let us revisit, Doctor, if we might, what  
16 Mr. Cranwell walked you through here. And just so the  
17 Jury understands what you have been asked to do here,  
18 compare --

19 MR. CRANWELL: Your Honor, can I state an  
20 objection?

21 MR. ODDO: I withdraw that remark.

22 MR. CRANWELL: He has already withdrawn  
23 it. Would you instruct the Jury to disregard  
24 it?

1           A       He was at a very mild degree of loss, I  
2 believe it was 30 decibels.

3           Q       And now where is he at 3000, seven years  
4 after he retired?

5           A       He is a little bit worse at that level.  
6 He is probably a moderate degree.

7           Q       And what is that caused by?

8           A       Aging.

9           MR. ODDO: No further questions.

10

11                       RECROSS EXAMINATION

12

13 BY MR. CRANWELL:

14           Q       And, Doctor, if he didn't have the  
15 noise-induced hearing loss from exposure of noise at the  
16 job, he would not be nearly as bad off as he is today,  
17 would he?

18           A       Noise and aging are additive.

19           MR. CRANWELL: Thank you, sir.

20           THE COURT: Mr. Oddo, any last questions  
21 for the doctor?

22           MR. ODDO: No, Your Honor.

23           THE COURT: Doctor Lambert you are  
24 excused. Thank you very much.



**COPY**

V I R G I N I A:

IN THE CIRCUIT COURT FOR THE  
CITY OF ROANOKE

- - - - -  
ROBERT E. PURYEAR,

Plaintiff

-vs-

NORFOLK & WESTERN RAILWAY  
COMPANY,

Defendant  
- - - - -

VOLUME IV

October 14, 1994  
9:00 A.M.

HEARD BEFORE:

THE HONORABLE CLIFFORD R. WECKSTEIN

CENTRAL VIRGINIA REPORTERS  
P.O. BOX 12628  
ROANOKE, VIRGINIA

\* \* \*

1           apologies for it. But I will tell you what. What  
2           I love about the American Jury system is it does  
3           give justice.

4           That is all Mr. Puryear asks for you. You  
5           are his only means of rectifying the wrong that was  
6           perpetrated over a 32-year career as a good  
7           employee.

8           Do justice and nothing more. Thank you for  
9           your attention.

10          THE COURT: Thank you, Mr. Cranwell. Ladies  
11          and Gentlemen of the Jury, you have now heard the  
12          evidence, the instructions and the argument and  
13          when I finish talking, the case will be yours.

14          I have been telling you since Tuesday not to  
15          discuss the case. Now comes the time for you to  
16          discuss the case.

17          The first thing that will happen when you go  
18          back to the Jury Room is that the deputy sheriff  
19          will give you some menus and you can order lunch.

20          He will tell you how long he guesses it will  
21          take for lunch to be delivered and the City will be  
22          glad to buy lunch for you.

23          I don't want to cut into your time by  
24          telling you now to go to lunch and then settle down

1 to your deliberative process.

2 You will have with you in the Jury Room all  
3 of the exhibits that have been admitted in  
4 evidence. You will have with you in the Jury Room  
5 a copy for each of you of the instructions that I  
6 read to you earlier, the same copies that you had.

7 If you have any questions, I suggest to you  
8 that you put them in writing. I will consult with  
9 the lawyers before I answer them.

10 Let me answer one of them now. I can't tell  
11 you what the testimony was on any point, nor can  
12 the court reporter read it back to you.

13 That is why there are seven of you in the  
14 Jury Room. Your collective recollection of the  
15 evidence is the evidence.

16 It is usually best for your deliberations,  
17 to be conducted in an orderly fashion, for you to  
18 choose one of your number as your foreperson at the  
19 beginning and for him or her to guide you to assure  
20 that everyone has the opportunity to express his or  
21 her views about the weight and the effect of the  
22 evidence.

23 Rarely is it helpful for somebody to express  
24 some emphatic determination, to vote a particular

\* \* \*

\* \* \*

1 (The Jury returned to the  
2 Courtroom and the following  
3 proceedings were had.)

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

7 THE CLERK: Members of the Jury, have you  
8 agreed upon a verdict?

9 THE JURY: Yes.

10 THE CLERK: We the Jury on the issues joined  
11 unanimously found our verdict in favor of the  
12 plaintiff, Robert E. Puryear, and fix his damages  
13 in the sum of \$150,000, signed by the foreperson.

14 Members of the Jury, is this your verdict  
15 and so say you all?

16 THE JURY: It is.

17 THE COURT: Ladies and Gentlemen, I am going  
18 to ask each of you the same question. Sir, is this  
19 your verdict?

20 A JUROR: Yes, sir.

21 THE COURT: Sir, is this your verdict?

22 A JUROR: Yes, sir.

23 THE COURT: Sir, is this your verdict?

24 A JUROR: Yes, sir.



1 THE COURT: Ma'am, is this your verdict?

2 A JUROR: Yes, sir.

3 THE COURT: Ma'am, is this your verdict?

4 A JUROR: It is.

5 THE COURT: Ma'am, is this your verdict?

6 A JUROR: Yes.

7 THE COURT: Sir, is this your verdict?

8 A JUROR: Yes, sir.

9 THE COURT: The Jury has been polled.

10 Ladies and Gentlemen, I am not going to make a long  
11 speech to you after you have been here since first  
12 thing Tuesday morning.

13 On behalf of everyone involved in our system  
14 of justice and on behalf of everyone involved with  
15 this case, I want to express deep and heartfelt  
16 appreciation for your conscientious and diligent  
17 service throughout this trial.

18 You have performed a valuable civic duty by  
19 your service as Jurors here this week. It is  
20 people like you, sitting, listening and deciding,  
21 who make it so that the rest of the world looks at  
22 our system of justice as the crowning jewel.

23 You have performed what is in my mind the  
24 most important civic duty, save perhaps for serving

\* \* \*

\* \* \*

1           get to be called as a Juror.

2           Thank you very much. I hope you have a very  
3           pleasant weekend and I want to tell you that as you  
4           leave, you are free to go home and talk with  
5           anybody you want. Good night.

6  
7                   (The Jury was excused  
8           from the Courtroom.)

9  
10           THE COURT: The Jurors have departed and  
11           been excused. You have heard the verdict of the  
12           Jury. Are there any motions?

13           MR. ODDO: Judge, we would move to set aside  
14           the verdict as excessive and contrary to the law  
15           and the evidence and ask for ten days to file a  
16           written motion.

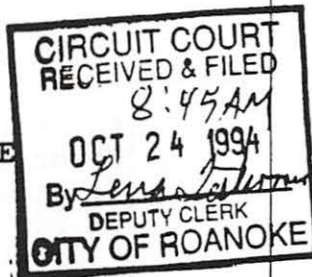
17           THE COURT: You may have ten days within  
18           which to file the motion. Mr. Cranwell, would you  
19           prepare the appropriate order on the verdict?

20           Mr. Oddo, as you discussed this with your  
21           client and with Co-Counsel, you can make a decision  
22           whether it is necessary to set a hearing.

23           The order you prepare will run interest on  
24           the judgment made from today. Is there anything

VIRGINIA:

IN THE CIRCUIT COURT FOR THE CITY OF ROANOKE



ROBERT E. PURYEAR,  
Plaintiff,

v.

Law. No. 770CL89000919-00

NORFOLK AND WESTERN RAILWAY  
COMPANY,

Defendant.

DEFENDANT'S MOTION TO SET ASIDE  
JURY VERDICT AND FOR NEW TRIAL

Defendant, Norfolk and Western Railway Company ("NW"), by counsel, moves this Court to set aside the jury verdict and award defendant a new trial on all issues. The grounds for NW's motion are:

1. Evidence of tests performed by Dr. Campanella were improperly admitted into evidence.
2. Exhibits which did nothing more than reduce oral testimony to writing were improperly admitted into evidence.
3. The jury verdict was excessive.

In further support of its motion, NW relies on the accompanying memorandum of law.

NORFOLK AND WESTERN RAILWAY COMPANY

By: Kevin P. Oddo  
Of Counsel

WOODS, ROGERS &  
HAZLEGROVE, P.L.C.

M#239780

Kevin P. Oddo, Esq. (VSB No. 27503)  
Woods, Rogers & Hazlegrove, P.L.C.  
First Union Tower, Suite 1400  
10 South Jefferson Street  
P.O. Box 14125  
Roanoke, Virginia 24038-4125  
(703) 983-7600

Counsel for Defendant

CERTIFICATE OF MAILING

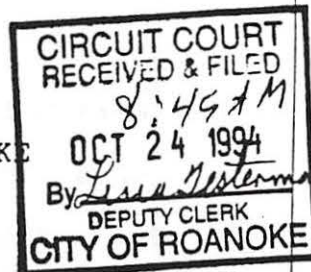
The undersigned hereby declares that a true copy of the foregoing was mailed, postage prepaid, to H. Keith Moore, Esq., Cranwell & Moore, P.O. Box 11804, Roanoke, Virginia, 24022-1804, counsel for plaintiff, this 21<sup>st</sup> day of October, 1994.

Kevin P. Oddo



VIRGINIA:

IN THE CIRCUIT COURT FOR THE CITY OF ROANOKE



ROBERT E. PURYEAR,  
Plaintiff,

v.

Law. No. 770CL89000919-00

NORFOLK AND WESTERN RAILWAY  
COMPANY,

Defendant.

MEMORANDUM IN SUPPORT OF DEFENDANT'S MOTION  
TO SET ASIDE JURY VERDICT AND FOR A NEW TRIAL

Defendant, Norfolk and Western Railway Company ("NW"), by counsel, submits this memorandum in support of its motion to set aside jury verdict and for a new trial.

PRELIMINARY STATEMENT

The jury verdict in favor of plaintiff Robert E. Puryear ("Puryear") was tainted by the improper admission into evidence of sound level tests performed by Angelo Campanella. Mr. Campanella, an acoustical engineer, testified that Puryear was exposed to excessive noise while working on certain locomotives for NW. He based this testimony on sound levels he recorded in 1975 on locomotives owned by the C&O Railroad and the Maine Central Railroad. The Court allowed this evidence despite the fact that (1) plaintiff admittedly never rode on the locomotives which Campanella tested, and (2) Campanella admittedly had no basis for knowing whether the locomotives he tested were the same or substantially similar to the locomotives on which Puryear

M#239880

WOODS, ROGERS &  
HAZLEGROVE, P.L.C.

worked for NW. In the absence of such a basis, this evidence should have been excluded.<sup>1</sup>

The jury verdict also was tainted by the improper admission of several exhibits offered by plaintiff. These exhibits did nothing more than reduce to writing previously admitted oral testimony of Puryear and Campanella, thereby elevating the significance of such testimony and giving it greater emphasis than other testimony. When the exhibits were taken to the jury room during deliberations pursuant to Va. Code § 8.01-381, plaintiff was permitted, in essence, to continue to argue his case to the jury.

This improperly admitted evidence went directly to the issues of causation and damages, which were strongly contested by NW at trial. Testimony of Puryear's own physician, Dr. Powell, and NW's physician, Dr. Lambert, established that aging was the cause of Puryear's complaints. The improperly admitted evidence, however, influenced the jury by creating the impression that Puryear had been exposed to excessive noise on a daily basis for 30 years, and that such lengthy and excessive exposure must have been the cause of Puryear's injuries.

These errors require that the jury verdict be set aside and that NW be granted a new trial.

---

<sup>1</sup> As discussed infra, p.7, Puryear's attempt to provide the foundation for Campanella's testimony fell far short of the mark.

\* \* \*

In his testimony before the jury, however, Puryear stated that the only F-7's he had been on were owned by NW and by RF&P Railroad. He further testified that he had been on several GP-9's, but did not state that he had been on one owned by Maine Central Railroad. Finally, he admitted that railroads set up their locomotives differently, specifically mentioning the horns and the brake exhaust (two of the sources of noise of which he complained).

Campanella then testified before the jury. During his testimony, NW again objected to his opinions on the grounds that there was no evidence that the locomotives he had tested were the same or substantially similar to the locomotives Puryear worked on. This objection was overruled.

B. Admission of Exhibits.

During the testimony of Puryear and Campanella, the Court admitted into evidence (over the objections of NW) several exhibits which consisted of nothing more than oral testimony reduced to writing. Specifically, plaintiff's exhibit 6, a chart entitled "Robert Puryear Work Summary (With Noise Exposure Figures)" set forth Puryear's work history, including locomotives worked on, length of time on each locomotive, and decibel level of each locomotive. Plaintiff's exhibit 12, a chart entitled "Robert E. Puryear Occupational Noise Dose Calculation" set forth the specific decibel levels which Campanella claimed Puryear had been exposed to while working for NW. These charts included

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Campanella's opinions of the noise levels on the F-7 and GP-9 locomotives discussed above.

Both Puryear and Campanella had orally testified as to the information reflected on these exhibits prior to their admission. Thus, the exhibits themselves simply mirrored that testimony and served only to emphasize it above other evidence in the case. This created the impression with the jury that Puryear's noise exposure had been lengthy and excessive, and, therefore, that it must have been the cause of his hearing loss.

#### ARGUMENT AND AUTHORITIES

I. PLAINTIFF DID NOT ESTABLISH THAT THE LOCOMOTIVES CAMPANELLA TESTED WERE THE SAME OR SUBSTANTIALLY SIMILAR TO THE NW LOCOMOTIVES ON WHICH HE WORKED.

The Virginia Supreme Court repeatedly has held that the results of tests of experiments are not admissible in evidence "unless the tests were made under conditions which were the same or substantially similar in essential particulars to those existing at the time of the accident." Runyon v. Geldner, 237 Va. 460, 463, 377 S.E.2d 456, 458 (1989); Mary Washington Hosp. v. Gibson, 228 Va. 95, 99, 319 S.E.2d 741, 743 (1984); Featherall v. Firestone Tire & Rubber Co., 219 Va. 949, 959, 252 S.E.2d 358, 365 (1979). By Campanella's own testimony, this requirement was not satisfied in this case.

Campanella clearly and unequivocally admitted that he had no basis for knowing whether the F-7 and GP-9 locomotives he tested were the same or substantially similar to the ones Puryear worked



\* \* \*

caused by other factors, such as age. Had this evidence been properly excluded, the jury could have reached a different conclusion on the issue of causation, and, ultimately, damages.

The effect of Dr. Campanella's testimony is illustrated by the fact that plaintiff's special damages as presented to the jury amounted to \$355. The verdict for plaintiff was in the amount of \$150,000. Thus, the jury verdict was 422 times the amount of plaintiff's special damages.

The undisputed evidence established that plaintiff's injuries were caused primarily by aging. Plaintiff's own physician, Dr. Powell, admitted that the most critical frequency was 3000 hertz because the majority of speech and information was processed at that frequency; that plaintiff's hearing at 3000 hertz as of the date he retired was such that he would not have problems processing speech and information; and that plaintiff's hearing loss at 3000 hertz as of today was caused by aging. Given this undisputed evidence, and the evidence of plaintiff's special damages, the jury must have been influenced by Dr. Campanella's testimony which significantly overstated plaintiff's noise exposure.

II. THE EXHIBITS WHICH REDUCED ORAL TESTIMONY TO WRITING UNDULY EMPHASIZED CERTAIN PORTIONS OF THE TESTIMONY AND SHOULD NOT HAVE BEEN ADMITTED INTO EVIDENCE.

The Virginia Supreme Court has cautioned against the admission of documentary exhibits which merely repeat oral testimony. For example, in Scott v. Greater Richmond Transit

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Co., 241 Va. 300, 402 S.E.2d 214 (1991), the Court held that a document consisting of a statement made by plaintiff to an investigator could be read by the investigator as past recollection recorded, but was not admissible as an exhibit. Id. at 305, 402 S.E.2d at 218. The rationale for this holding as expressed by the Court was that admission of the document itself could elevate the importance of the oral testimony contained therein by giving it more emphasis than other oral testimony. Id.

This same logic was articulated in Horne v. Milgrim, 226 Va. 133, 138, 306 S.E.2d 893, 895 (1983), in which the Court held that the transcript of a deposition could be read but not introduced as an exhibit so that it received "no more emphasis than other oral testimony."

The same reasoning applies in this case. Both Puryear and Campanella testified orally and in detail regarding Puryear's work history and alleged noise exposure. Puryear then was permitted to reinforce this testimony through the introduction of exhibits which contained nothing more than this same oral testimony reduced to writing. Pursuant to Va. Code § 8.01-381, these exhibits went to the jury room, where they again assumed significance greater than that accorded the other oral testimony in this case.

The Court recognized at trial the enormous impact which a writing can have in the jury room when it cautioned the jury on taking notes. As the Court stated, jurors who have something in

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writing in the jury room think that the writing must be true and accurate, and are less likely to accept the views of other jurors which have not been reduced to writing. Similarly, where the issue of causation was in dispute, and where NW was attacking Campanella's methodology, the presence of several exhibits in the jury room which emphasized Campanella's opinions could only lead the jury to believe that the Court had deemed valid those opinions.

Judge Weinstein, in his treatise on evidence, acknowledged the dangers associated with admitting summaries or charts which do nothing more than summarize or organize other testimony. 5 J. Weinstein and M. Berger, Weinstein's Evidence, § 1006[07] at p. 1006-21 (1994). These summaries and charts, which he labels pedagogical devices, "may mislead the jury by unfairly emphasizing parts of the proponent's proof or creating the impression that the facts underlying the summary or chart, if disputed, have been conclusively established." Id. at p. 1006-21 to -22. Judge Weinstein plainly states that such devices are not evidence, but instead are "more akin to argument." Id. at p. 1006-23 to -24.

The admission of the specific exhibits which NW objected to was of critical importance because they lent credence to the opinions of Campanella, which NW had argued to the jury were flawed because of numerous mistakes in his methodology and assumptions. The exhibits also emphasized the testimony of Campanella, which itself was based on inadmissible tests.

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-10-



Moreover, Campanella's testimony was the only evidence establishing that plaintiff was exposed to excessive noise prior to the early 1980's. The implicit credibility given Campanella's testimony by admitting exhibits containing that testimony undoubtedly undercut NW's arguments that his methodology, and hence his opinions, were flawed. The exhibits further influenced the jury by reinforcing in their minds the erroneous belief that Puryear had been exposed to excessive noise on a daily basis for his entire 30 year career, which, as set forth above, affected the issues of causation and damages.

III. THE JURY VERDICT OF \$150,000 WAS EXCESSIVE AND SHOULD BE SET ASIDE.

It is well-settled that a trial court has the affirmative duty to set aside an excessive verdict or to decrease it through remittitur. Rutherford v. Zearfoss, 221 Va. 685, 689, 272 S.E.2d 225, 227-28 (1980); Glass v. David Pender Grocery, Co., 174 Va. 196, 201-02, 5 S.E.2d 478, 481 (1939)("[i]f the amount of the verdict returned bears no reasonable relation to the damages suggested by the facts in the case, and is manifestly out of line and at variance with the facts, courts must exercise control in the interest of fairness and justice").

The verdict here is both excessive and out of proportion to the alleged injuries, suggesting that the jury was influenced by sympathy or bias and that it misconstrued the law and the facts.

The Virginia Supreme Court has admonished that: "In arriving at

WOODS, ROGERS &  
HAZLEGROVE, P.L.C.

M#239880

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TWENTY-THIRD JUDICIAL CIRCUIT  
OF VIRGINIA



CLIFFORD R. WECKSTEIN, JUDGE  
ROANOKE CITY COURTHOUSE  
315 CHURCH AVENUE, S.W.  
P. O. BOX 211  
ROANOKE, VIRGINIA 24002-0211  
(703) 981-2435  
FAX (703) 224-3040

CIRCUIT COURT FOR THE COUNTY OF ROANOKE  
CIRCUIT COURT FOR THE CITY OF ROANOKE  
CIRCUIT COURT FOR THE CITY OF SALEM

COMMONWEALTH OF VIRGINIA

November 1, 1994

C. Richard Cranwell, Esquire  
H. Keith Moore, Esquire  
Cranwell & Moore  
P.O. Box 11804  
Roanoke, Virginia 24022-1804

Kevin P. Oddo, Esquire  
Woods, Rogers & Hazlegrove, P.L.C.  
P.O. Box 14125  
Roanoke, Virginia 24038-4125

Re: Robert E. Puryear v. Norfolk and Western Railway Company  
CL89000919  
Circuit Court of the City of Roanoke

Dear Counsel:

This matter was tried by jury on October 11-14, 1994. After the jury returned its verdict, Mr. Oddo asked for, and was granted, ten days within which to file post-trial motions. On October 24, 1994, the clerk received and filed the defendant's motion to set aside jury verdict and for new trial, and a memorandum in support thereof. On October 28, 1994, I received the file from the clerk, along with an order, endorsed by counsel, which I entered on October 31, 1994.

Having considered the defendant's motion, and the memorandum in support thereof, the Court now denies the defendant's motion to set aside the verdict. To this ruling, the defendant's objections are preserved, for all of the reasons previously articulated by counsel for the defendant. Counsel will please prepare and promptly tender a final order, entering judgment on the jury's verdict, with interest at the judgment rate from October 14, 1994, and striking the matter from the docket.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Clifford R. Weckstein".  
Clifford R. Weckstein

CRW/ddh

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OF ROANOKE

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The Defendant having announced its intention to file its Petition for Appeal of this Court's final judgment in the Supreme Court of Virginia, it is Ordered that execution of the judgment hereby rendered shall be suspended during the timely prosecution of such appeal, provided that the Defendant shall file an appeal bond or irrevocable letter of credit in the amount of

618

\$170,000<sup>00</sup>, conditioned upon the satisfaction of the judgment and payment of all damages incurred in consequence of such suspension. 10055 PG 00031

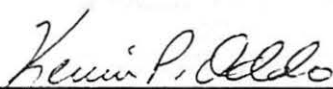
The Clerk shall furnish certified copies of this Order to counsel of record.

And nothing further remaining to be done, it is Ordered that this case be stricken from the docket and placed among the ended actions at law.

ENTERED this the 14<sup>th</sup> day of November, 1994.

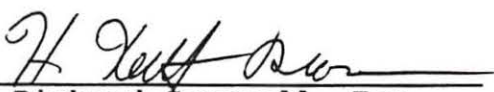
  
Judge

SEEN AND OBJECTED TO:

  
Kevin P. Oddo, Esq.  
Daniel S. Brown, Esq.  
Woods, Rogers & Hazlegrove, P.L.C.  
First Union Tower, Suite 1400  
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Counsel for Norfolk and Western Railway Company

SEEN:

  
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H. Keith Moore, Esq.  
Cranwell & Moore  
P.O. Box 11804  
Roanoke, Virginia 24022-1804  
(703) 344-1000

Counsel for Robert E. Puryear

M#242618

Assignments of Error:

- I. THE TRIAL COURT ERRED IN ADMITTING THE EXPERT TESTIMONY OF DR. ANGELO CAMPANELLA THAT PLAINTIFF WAS EXPOSED TO EXCESSIVE NOISE FROM DEFENDANT'S LOCOMOTIVES, WHERE THAT TESTIMONY WAS BASED ON TESTS OF CERTAIN LOCOMOTIVES ON WHICH PLAINTIFF ADMITTEDLY NEVER WORKED, AND WHERE CAMPANELLA ADMITTEDLY HAD NO BASIS FOR KNOWING WHETHER THE LOCOMOTIVES TESTED WERE THE SAME OR SUBSTANTIALLY SIMILAR TO THE LOCOMOTIVES ON WHICH PLAINTIFF HAD WORKED.
- II. THE TRIAL COURT ERRED IN ADMITTING INTO EVIDENCE OVER DEFENDANT'S OBJECTION CERTAIN EXHIBITS WHICH DID NOTHING MORE THAN REDUCE PREVIOUSLY ADMITTED ORAL TESTIMONY TO WRITING, THEREBY ELEVATING THE SIGNIFICANCE OF SUCH TESTIMONY, GIVING IT GREATER EMPHASIS THAN OTHER TESTIMONY AND PERMITTING IT TO BE CARRIED INTO THE JURY ROOM.



## ROBERT PURYEAR WORK SUMMARY

## I. 1955 - 1959 FIREMAN ON N&amp;W'S STEAM ENGINE

Worked, on the average, 12 travel hours per trip.  
Maximum hours allowed per day - 16 hours.  
Off an average of 4 days a month, excluding vacations.

## II. 10/59 - 05/61 FURLOUGHED.

III. 05/61 - 1975 FIREMAN and ENGINEER on NORFOLK & WESTERN'S  
NORFOLK DIVISION FROM CREWE TO NORFOLK

98% as fireman

Worked, on the average, over 10 travel hours per trip.  
Maximum hours allowed per day for most of this period  
- 12 hours.  
Off an average of 4 days a month, excluding vacations.

Models of Engines Worked On:

Worked over 50% of the time on *Engine Model EMD GP-9*

Worked 10% of the time on the *Alco Engines*.

Worked on passenger train engine Model EMD-7A - "covered wagon" type from 1972-1975 for approximately 60 trips.

IV. 1975 - 1987 N&W ROAD FOREMAN OF ENGINES FOR THE  
SHENANDOAH DIVISION.

Worked an average of 3 days per week on engines on road trips.  
Road trips would last, on the average, over 10 travel hours per road trip.

Models of Engines Worked On:

*G.E. C-36-7 Model Locomotives*. Worked at least 1 road trip per week on this model.

ROBERT E. PURYEAR

OCCUPATIONAL NOISE DOSE CALCULATION

LOCATION EMD F-7 WORKDAY (Fireman)  
(AJC, 1975)

Noise Exposure\\	Exp.
Head Position	time
	Min
Cab (Avg Power Lv)	210
Whistle-Horn & Seat	27.5
Whistle-Horn & Walk	
Eng-Walkway	7
Eng-Cntr	0.33

Totl Expos % Allowed  
Exposure TWA, dBA  
115 dBA Exposure Not Allowed.

**PLAINTIFF'S  
EXHIBIT**

#7

10-11-94

Withdrawn by TT  
CW

LOCATION N&W GP-9 WORKDAY (Fireman)  
(Composite - AJC & Kilmer)

Noise Exposure\\	Exp.
Head Position	time
	Min
Cab (Avg Power Lv)	600
Whistle-Horn & Seat	
Whistle-Horn & Walk	0.5
Eng-Walkway	20
Eng-Cntr	0.5

Totl Expos % Allowed  
Exposure TWA, dBA  
115 dBA Exposure Not Allowed.

LOCATION GE C-36-7 (N&W #8532) (Road Foreman)  
(N&W Data)

Noise Exposure\\	Exp.
Head Position	time
	Min
Cab (Avg Power Lv)	600
Whistle-Horn & Seat	29.9
Whistle-Horn & Walk	0.5
Eng-Walkway	15
Eng-Cntr	0.5

\* 8-hr TWA

Totl Expos % Allowed  
Exposure TWA, dBA  
115 dBA Exposure Not Allowed.

## FEDERAL RAILROAD ADMINISTRATION

## NOISE EXPOSURE LIMITATIONS

DURATION permitted (hours)	Sound level (Db(A))
12 .....	87
8 .....	90
6 .....	92
4 .....	95
2 .....	100
<u>1</u> 1/2 .....	102
1 .....	105
1/2 .....	110
1/4 or less .....	115

\* EXPOSURE TO CONTINUOUS NOISE SHALL NOT EXCEED 115 Db(A).

SOURCE: FRA REGULATIONS - 49 CFR §229.121 "LOCOMOTIVE CAB NOISE".

## OCCUPATIONAL NOISE DOSE CALCULATION

PLAINTIFF'S  
EXHIBIT

12

LOCATION EMD F-7 WORKDAY (Fireman)  
(AJC, 1975)

Noise Exposure\\	SPL	Exp.	%US
Head Position	dBA	time	FRA
	Slow	Min	Lim
Cab (Avg Power Lv)	99	210	152%
Whistle-Horn & Seat	103	27.5	35
Whistle-Horn & Walk			
Eng-Walkway	115	7	47
Eng-Cntr	120	0.33	4

Totl Expos % Allowed 225 %  
 Exposure TWA, dBA 95.9  
 115 dBA Exposure Not Allowed.

LOCATION N&W GP-9 WORKDAY (Fireman)  
(Composite - AJC & Kilmer)

Noise Exposure\\	SPL	Exp.	%US
Head Position	dBA	time	FRA
	Slow	Min	Lim
Cab (Avg Power Lv)	89.3*	600	113
Whistle-Horn & Seat			
Whistle-Horn & Walk	109	0.5	1
Eng-Walkway	103	20	25
Eng-Cntr	112	0.5	2

Totl Expos % Allowed 142 %  
 Exposure TWA, dBA 92.5  
 115 dBA Exposure Not Allowed.

LOCATION GE C-36-7 (N&W #8532) (Road Foreman)  
(N&W Data)

Noise Exposure\\	SPL	Exp.	%US	* 8-hr TWA
Head Position	dBA	time	FRA	
	Slow	Min	Lim	
Cab (Avg Power Lv)	88	600	95%	
Whistle-Horn & Seat	116.8	29.9	256	
Whistle-Horn & Walk	127.5	0.5	19	
Eng-Walkway	91	15	4	
Eng-Cntr	91	0.5	0	

Totl Expos % Allowed 543 373 %  
 Exposure TWA, dBA 99.5  
 115 dBA Exposure Not Allowed.



ROBERT E. PURYEAR  
HORN EXPOSURE NOISE  
FOR N&W GE-C-36-7  
ENGINES (8500 SERIES)

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1981 - 1987

PER TRIP

Number of Horn Blasts Per Trip	Exposure Time Per Trip
240	29.9 Minutes

PER YEAR

Number of Horn Blasts Per Year (one (1) trip per week for 48 weeks)	Exposure Time Per Year
11,520	1,435.2 Minutes

SIX YEARS

Number of Horn Blasts	Exposure Time Six (6) Years 1981 - 1987
69,120	8,611.2 Minutes

OVEREXPOSURE FOR SIX YEARS

$8611.2 \times 60 = 516,672$  total sec.  $\times 2$  (.5 sec. overexposures) = 1,033,344

Hearing Protectors

PLAINTIFF'S  
EXHIBIT

15

5/21

TMT:

SOME EAR PLUGS WERE GIVEN TO ENGINEERS THE LATTER PART OF LAST YEAR. THE BEST WE CAN FIGURE IS AROUND 10 PR. IN THE LOUISVILLE AREA; by TRAINMASTER. ON 5/14/87 A FIREMAN AT PRINCETON, IND. ASKED ME FOR A PAIR. I HAD A PAIR IN THE CAR AT THE TIME AND LET HIM HAVE THEM.

A. H. Ruppelle

Roanoke, VA - May 18, 1987  
File: D-190

Messrs. D. A. Gilbert  
J. D. Wood  
J. W. Woods  
T. M. Tillison  
E. A. Hill, Jr.  
W. R. Roby

Hearing protectors are not permitted for Train and Engine personnel in train operations at this time. Do not permit issue by Safety Department personnel and advise if any have been or are being issued by others.

Mr. McManus  
Assistant Vice President  
Safety & Hazardous Materials

24662/HMSW/jhc

cc: W. L. DeWitt

Ⓢ Cy: Supts. Safety/SW Region

Please Note Above.

Advise by June 5<sup>th</sup> if hearing protectors are being furnished THE employees. If so, where and who is issuing them.

J. M. Tillison  
5/21/87

VIRGINIA:

IN THE CIRCUIT COURT FOR THE CITY OF ROANOKE

ROBERT E. PURYEAR,

Plaintiff,

v.

NORFOLK AND WESTERN RAILWAY  
COMPANY,

Defendant.

Law No. 770CL89000919-00

DEFENDANT'S ANSWERS TO  
PLAINTIFF'S REQUEST FOR ADMISSIONS

COMES NOW the defendant, and files the following Answers to Plaintiff's Request for Admissions. By answering these Requests, NW does not waive any objections to the admissibility of these requests, including objections as to relevancy.

1) Please admit or deny that the book Occupational Hearing Loss authored by Dr. Robert Thayer Sataloff and Dr. Joseph Sataloff is a reliable and authoritative treatise in the area of occupationally caused hearing loss.

RESPONSE:

Defendant admits that the book Occupational Hearing Loss, second edition, authored by Dr. Robert Sataloff and Dr. Joseph Sataloff is a reliable and authoritative treatise in the area of occupationally caused hearing loss.

2) Please admit or deny that Dr. Joseph Sataloff, M.D. of Philadelphia, Pennsylvania has testified as an expert witness for the Defendant, Norfolk and Western Railway Company in other hearing loss cases filed against the company by employees and former employees.

RESPONSE:

Admitted.

3) Please admit or deny that Dr. Joseph Sataloff, M.D. of Philadelphia, Pennsylvania has, on numerous occasions, been retained by the Defendant, Norfolk and Western Railway Company, to consult and conduct medical examinations on employees and former employees who have filed hearing loss claims against the company.

RESPONSE:

Admitted.

4) Please admit or deny that Dr. Joseph Sataloff, M.D. of Philadelphia, Pennsylvania has consulted with industry concerning the establishment of hearing conservation programs since the 1940s.

RESPONSE:

Defendant admits that Dr. Sataloff and others were doing research into the effects of noise on hearing in the 1940's. Defendant admits that Dr. Sataloff consulted with industry concerning the establishment of hearing conversation programs prior to 1955 when Mr. Puryear went to work at Norfolk & Western Railway Company.

5) Please admit or deny that Dr. Joseph Sataloff, M.D., of Philadelphia, Pennsylvania put together a hearing conservation program for Dupont Corporation in 1949 and that this hearing conservation program required mandatory hearing protection.

RESPONSE:

Defendant admits Dr. Sataloff put together a hearing conservation program for Dupont prior to 1955 when Mr. Puryear went to work at Norfolk & Western Railway Company.



6) Please admit or deny that Defendant, Norfolk and Western Railway Company, has never hired Dr. Joseph Sataloff, M.D. of Philadelphia, Pennsylvania as a consultant to give the company advice about protecting the hearing of their employees.

RESPONSE:

Denied. In 1990, Defendant hired a consulting group, of which Dr. Sataloff is a principal, to do system-wide audiometric testing.

7) Please admit or deny that the Defendant, Norfolk and Western Railway Company, has only retained the services of Dr. Sataloff in connection with suits brought against the company by employees and former employees alleging that the noise that they were exposed to on the job with the Defendant had caused a hearing loss.

RESPONSE:

Denied.

8) Please admit or deny that Dr. R. W. Edmunds, M.D. was employed by the Defendant, Norfolk and Western Railway Company, in February of 1966.

RESPONSE:

Admitted.

9) Please admit or deny that Dr. R. W. Edmunds, M.D. attended the 46th membership meeting of the Association of American Railroads Medical and Surgical officers on February 23, 24, and 25, 1966 in San Francisco, California and that Dr. Edmunds was present and registered at this meeting.

RESPONSE:

Defendant admits that Dr. Edmunds registered for and attended this meeting.

10) Please admit or deny that Dr. R. W. Edmunds, M.D. was Medical Director of the Defendant, Norfolk and Western Railway Company, from 1970 to 1980.

RESPONSE:

Admitted.

11) Please admit or deny that Dr. C. N. Benage, M.D. and Dr. Lawrence Ball, M.D. were either employees of the Defendant, Norfolk and Western Railway Company, or doctors approved by the Defendant to treat employees in February of 1966.

RESPONSE:

Admitted.

12) Please admit or deny that Dr. Benage and Dr. Ball were both present and registered at the Association of American Railroads Medical and Surgical Officers 46th Membership Meeting in San Francisco, California on February 23, 24 and 25, 1966.

RESPONSE:

Defendant admits that Dr. Benage and Dr. Ball registered for and were present at this meeting.

13) Please admit or deny that all times that the Plaintiff, Robert Puryear, was employed by the Defendant, Norfolk and Western Railway Company, the company maintained a medical director and medical department.

RESPONSE:

Admitted.

14) Please admit or deny that at no time while the Plaintiff, Robert E. Puryear, was employed by the Defendant, Norfolk and Western Railway Company, did the Defendant require and make mandatory that train and engine service personnel wear hearing protection.

RESPONSE:

Admitted.

15) Please admit or deny that it was not until around 1989 after the Plaintiff, Mr. Puryear, had retired in 1987 that the Defendant made it mandatory that train and engine personnel wear hearing protection.

RESPONSE:

Admitted.

16) Please admit or deny that in 1984 the Defendant, Norfolk & Western Railway Company, made the wearing of hearing protection mandatory at the company's East End Freight Car Shop.

RESPONSE:

Admitted.

17) Please admit or deny that hearing protection became mandatory at Defendant's Roanoke Railroad Material Yard in the latter part of 1985.

RESPONSE:

Admitted.

18) Please admit or deny that Defendant, Norfolk and Western Railway Company, did not conduct any sound or noise measurements on the interior of any of its engines in the 1960's.

RESPONSE:

Admitted.

19) Please admit or deny that Defendant, Norfolk & Western Railway Company, did not conduct any sound or noise measurements on the interior of its engines in the 1970's.

RESPONSE:

Admitted.

20) Please admit or deny that Defendant, Norfolk and Western Railway Company, conducted sound and noise measurements at its East End Car Shop in both 1972 and 1977.

RESPONSE:

Admitted.



21) Please admit or deny that the documents turned over to Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000001 - RPNW000126 are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

22) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000127 - RPNW000244 are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

23) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000245 - RPNW000347 are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

24) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000245A - RPNW000347A are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

25) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000348 - RPNW000356 are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

- Admitted.

26) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000357 - RPNW001174 are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

27) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000642A-D are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

28) Please admit or deny that the documents turned over the Plaintiff by the Defendant in response to request for production of documents and numbered RPNW000682A; RPNW000795-A-B; RPNW000804A-C; RPNW000815A-D; RPNW000825A-C; RPNW000826A-H; RPNW000827A; RPNW0001075A; RPNW0001076A-E; RPNW0001077A; RPNW0001098A; RPNW0001121A and RPNW0001152A are true and correct copies of documents contained in the files of the Defendant, Norfolk and Western Railway Company and admit or deny that such documents were made and/or kept by the company in the normal course of its regularly conducted business activity.

RESPONSE:

Admitted.

NORFOLK AND WESTERN RAILWAY COMPANY

By \_\_\_\_\_  
Of Counsel

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