UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF LOUISIANA

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IN RE: FEMA TRAILER FORMALDEHYDE PRODUCTS LIABILITY LITIGATION

Docket No. MDL-1873(N)
New Orleans, Louisiana
Tuesday, December 2, 2008

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TRANSCRIPT OF MOTION TO CERTIFY CLASS PROCEEDINGS
HEARD BEFORE THE HONORABLE KURT D. ENGELHARDT
UNITED STATES DISTRICT JUDGE

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Proceedings recorded by mechanical stenography, transcript produced by computer.

I N D E X

P R O C E E D I N G S

(TUESDAY, DECEMBER 2, 2008)

(MOTION TO CERTIFY CLASS)

THE COURT: Good morning. As you were. All right. We have today the hearing for class certification in the FEMA Trailer Formaldehyde Products Liability Litigation, MDL No. 1873.

Counsel, are you prepared to proceed?

MR. MEUNIER: For plaintiffs we are, your Honor.

MR. WEINSTOCK: Defendants are as well, your Honor.

MR. MILLER: The government as well, your Honor.

THE COURT: Let's go ahead and make our appearances then of those of you who are going to have an active participatory role in this hearing. Mr. Meunier.

MR. MEUNIER: For the PSC, Jerry Meunier.

MR. D'AMICO: On behalf of the PSC, Frank D'Amico, Jr.

THE COURT: Good morning.

MR. WOODS: On behalf of the PSC, Justin Woods.

THE COURT: Good morning.

MR. WEINSTOCK: For the manufacturing defendants, Andy Weinstock.

MR. HINES: For the manufacturing defendants, Richard Hines.

MR. MILLER: On behalf of the United States, your Honor, Henry Miller, Adam Dinnell, and Michelle Boyle.

THE COURT: Good morning.

MR. REICH: On behalf of the PSC, your Honor, Dennis Reich.

MR. DOMINICK: And on behalf of the PSC, Paul Dominick.

THE COURT: Good morning to all of you all. We had previously discussed a time-limited presentation, and I will tell you at outset that I have read through the materials you all have submitted, they are substantial and comprehensive. I appreciate your work on it. They are very detailed.

I have also received your pretrial order, which approaches 400 pages, and I have been through that. So what I would like to do at this juncture is to give you an opportunity here to both present any additional testimony, the key word being additional testimony and argument; and we had previously discussed breaking this four-hour window down into three hours of testimony, whichever way you all want to divide that up, and then one hour of oral argument, a half hour allotted to the plaintiffs, that would include rebuttal time -- you can reserve some of that for rebuttal -- and a half hour for both the defendants and the government to make any oral presentation they would like to make. Doing that would get us to the 12:30 hour, which is when we are going to conclude the hearing today.

So I will stress again the word additional. I do not need to hear something that is made clear in the briefs. And I hope as I sit here now that if you've filed it and you've proofread it, you

feel like your points are clearly made. So let's build upon that, supplement that.

I will also tell you at the outset it is my intention to take the motion under advisement. So if there are any of you here who are waiting with bated breath for a ruling at 12:31, I don't intend to issue a ruling today from the bench. I would much prefer to issue a written order and reasons and that is what I will do.

I am considering and I assume that you all would certainly want to take me up on the idea of filing a very short page limited post hearing memo, page limited meaning I am thinking in terms of ten pages. And that again is a supplement. It is not a rehash of what I have either already read or what I am hearing today. It would simply be an opportunity for you as you return to your offices in case something pops into your head as a result of what is said here today to go ahead and make some additional commentary on that. It is not an opportunity to tell me again something that I've already heard or read, in many cases several times over. So let's proceed in that fashion.

There is also a Daubert challenge with regard to Dr. Williams, I believe. I have read the material for that, you all have submitted a lot of material on that. My intention with regard to that is to go ahead and cover that. You can cover that with testimony here today, you can cover it as part of your oral argument. A ruling on that, if necessary, depending on where it fits in the court's decision will be forthcoming as part of its

order and reasons relative to the class cert hearing.

I don't intend to rule on the Daubert motion today, or I guess there is a chance I could rule on it independently and before I rule on class cert, but I would like to go ahead and consider that all at the same time. So let's proceed in that fashion.

MR. MEUNIER: Your Honor, for the plaintiffs, just if I could seek some clarification. If we are able to address, for example, Daubert issues as well as the admissibility of certain exhibits that have been objected to in post trial briefing, could we then use our 30 times argument today just on the question of certification?

THE COURT: Yes. But I do want to have a page limited post trial briefing. So again, you know, if you can do that within the confines of the ten page limit that I am suggesting -- of course, if I give ten to each the government and the defendants, perhaps the plaintiffs, it would be fair to give them 15, balancing the equities here of your position having to confront both of the government and the defendant.

But if you can do it in that page limit, that's fine. If you make that known as your presentation, I would be perfectly willing to consider those objections as part of the post trial issues.

MR. MEUNIER: And I only say that, your Honor, because I think the way the time is divided with 30 minutes total to plaintiffs, we would probably prefer to use the entire 30 minutes

of argument on certification under Rule 23 and defer until later any argument on Daubert or admissibility and just put that into our post trial brief.

THE COURT: That's fine.

MR. MEUNIER: And, Judge, in terms of the order. As you know we have one live witness and I believe the defendants either have one or two. Will it be permissible to allow the plaintiff expert to testify, then the defendant's witnesses to testify, and then proceed to arguments?

THE COURT: Yes. That would be my plan would be to start the oral arguments around 11:30, that would give us three hours, and I would like to divide that time so that we do know that we can finish within three hours all of the pertinent testimony that you would like to present here in open court today. That in no way limits -- I mean, if you filed affidavit or deposition testimony, of course the court has the benefit of that and today's testimony would be purely a supplement to what has already been filed.

I will tell you that if we go ahead and do the post trial memos, which it sounds like you all would like to do, I don't want to have post trial memos and then have reply memos and back and forth. Because the paper up here is -- I saw people wheeling boxes in here yesterday that looked like the afternoon of D-Day when they're putting the materiel on to the beach of Normandy to support the invasion. I don't need more paper. What I would like is simply a recap or a response to what we did here today.

So keep in mind, you may want to talk to each other and say, well, here is what we're going to cover in our ten pages, because you won't have a chance to file one, "oh, I have to reply to what they've put" because this could go on well into the spring time if we do that.

MR. MEUNIER: It would be simultaneously --

MR. D'AMICO: Simultaneous -- that's what I was going to ask.

THE COURT: Simultaneously filed. They'll be due on the exact same date, probably a day next week.

MR. MEUNIER: Thank you, Judge.

MR. D'AMICO: Judge, one more point of clarification before we begin. Initially when we had talked about three hours of testimony, we were going to be calling two live witnesses.

THE COURT: Okay.

MR. D'AMICO: I took your admonition to heart very seriously and we decided not to call Dr. Ken Paris live, instead we reduced his testimony to a three-page supplemental affidavit.

THE COURT: Right.

MR. D'AMICO: Therefore, I don't anticipate more than an hour with Dr. Patricia Williams. What I would like to do since we do have four hours set aside though is reserve some additional time, because we do have a lot of argument to make on trial plans and Rule 23 and those things. So if we could get an extra 15 minutes for that taken away from testimony time, that would help

a lot.

THE COURT: I tell you what I'm going to do. I don't like to relegate myself to the role of official timekeeper. We will set aside an hour and a half for each of you with regard to examination of witnesses, direct or cross, okay. That will be the game plan and then a half hour each for oral argument. If you don't use your hour and a half on witnesses, I will credit you up to 15 minutes additional time to make oral argument.

MR. D'AMICO: That'll help tremendously, your Honor.

THE COURT: So let's try to be efficient. If we can be efficient, then it might benefit you and we might be able to get this done again by 12:30.

MR. D'AMICO: Thank you very much.

MR. WEINSTOCK: Your Honor, I don't want to spend the morning talking about logistics, but yesterday we did receive the plaintiffs' PowerPoint that's going to go with Dr. Williams. We got it yesterday and there is no meaningful way to object to it. Some of it's obviously new. There are a few slides that I am going to have questions for when they're up on the board as to whether these pictures actually go with the study that's entitled on top, and if the court would indulge me that since I did not have an ability to brief it and explain it or to cut those pictures out, I would appreciate it.

THE COURT: So you want to do that while they're putting them up?

MR. WEINSTOCK: I want to be able to say clarification, are these pictures really out of this study or is there a study on top and these are just illustrative pictures below?

THE COURT: Why don't you just make it in the form of an objection and that way I can hear it. If the answer is satisfactory then there will be no need for me to rule.

MR. WEINSTOCK: Right. And I don't need to cross-examine at that point, I just want clarification. Thank you, your Honor.

MR. MILLER: Actually on that same vein, your Honor.

THE COURT: Mr. Miller.

MR. MILLER: Henry Miller for the United States. The government objects to the PowerPoint presentation that apparently Dr. Williams is going to use. I got notice from my paralegal that that had been sent to the government and received it yesterday. I got a copy this morning for the first time. It wasn't identified pursuant to Rule 26 as attachments to her report, which Rule 26 requires a witness to do. Apparently it wasn't identified in the pretrial order, which was submitted to the court on Monday. It's listed some demonstrative exhibits but they don't identify it specifically. So the United States would object to the use of that PowerPoint presentation.

THE COURT: Okay. The objection is so noted. It will be considered in connection with the witness 's testimony. Why don't we go ahead and begin. If you would go ahead and call the first witness for the plaintiffs. This will be Dr. Williams, I believe.

MR. MEUNIER: Dr. Patricia Williams.

THE COURT: Dr. Williams, if you would come up here, ma'am. Please remain standing until you take the oath.

Before we start, last call for cell phones. Anybody that has cell phones, black berries, pagers, whatever else they've invented since I instituted my rule, would you please turn those in to my secretary Susan. Even turned off I appreciate it if you would not have those in the courtroom.

Those of you who can't see that need to see this, this is just for attorneys, if you would like to sit in the jury box, you're free to do so. It may be if you're sitting on this side it may be hard to see the screen. Maybe you've already seen the slide show or whatever, PowerPoint.

THE DEPUTY CLERK: Please raise your right hand.

(WHEREUPON, PATRICIA M. WILLIAMS, Ph.D., WAS SWORN IN AND TESTIFIED AS FOLLOWS:)

THE DEPUTY CLERK: Thank you. You may be seated.

THE WITNESS: There was one more thing I needed.

THE DEPUTY CLERK: Okay. Please state your name and give correct spelling for the record.

THE WITNESS: Patricia M. Williams, P-A-T-R-I-C-I-A, middle initial M, Williams, W-I-L-L-I-A-M-S.

THE COURT: Go ahead.

VOIR DIRE EXAMINATION

BY MR. D'AMICO:

Q. Good morning, your Honor, Frank D'Amico, Jr. on behalf of the Plaintiffs Steering Committee.

Dr. Williams, would you please state your name for the record.

A. Patricia M. Williams, Ph.D., DABT.

Q. And, Dr. Williams, in connection with your testimony, did you provide the court with an up-to-date and current copy of your curriculum vitae?

A. Yes, I did.

MR. D'AMICO: And that curriculum vitae, your Honor, has already been attached and made a part of the record, so we won't go into all of her publications and all of her extensive background. But for the benefit of the court because there is a Daubert challenge, I would like to go over a few of her background credentials.

THE COURT: Sure.

BY MR. D'AMICO:

Q. Dr. Williams, would you please give us a brief recitation of your education and training, and mention anything specific to that which might be of particular interest to this case.

A. Well, I am board certified in toxicology by the American Board of Toxicology, which is actually certifies internationally, there are about 2,000 of us worldwide with that certification. It requires passage of a three half day board exam with credentialing -- first, before we can take it we have to be judged

as to whether we have practiced toxicology for a period of time. And then you're allowed to take the board.

I completed all three parts successfully on the first try, there is usually about a 50 percent passage rate on it. From then you must maintain continuing education on an annual basis and recertify in another five years, every five years. You may not use the term DABT, Diplomate of the American Board of Toxicology, unless you do. It's a competency exam in toxicology.

That -- my credentials since I think it was 2006, November of 2006. I have a Bachelor of Science in medical technology and I am licensed by the State of Louisiana and qualified, also board certified for the interpretation -- performance and interpretation of all complexity testing, including high complexity testing of laboratory procedures.

And in addition because of my doctorate level and my experience and that board certification, I am qualified under federal law, the CLIA, Clinical Laboratory Improvement Act, to be a laboratory director. And have had a medical surveillance laboratory for -- laboratory procedures for environmental and occupational exposure to analyze clinical warning signs. That's my bachelorette degree.

I also have a masters in microbiology, and in that microbial physiology and biochemistry as part of that. I began working with formaldehyde at that time as my master's level because I did electron microscopy, so I formed the cross-links and tissues

with the formaldehyde to be able to look at the structures, cell structures and cytostructures.

I have a doctorate in anatomy from Tulane in the Department of Anatomy, specifically my minor is biochemistry. I did work on erythropoiesis and megakaryocytopoiesis, and again used formaldehyde and other aldehydes in fixation of tissues, visualization of cell receptors and ultra structure of the cell as well as, of course, cadavers we have formaldehyde fixative in there.

My doctorate, of course, I did animal and human research, including dose responses and analysis of those particular kinds. I've also done immunocytochemistry.

Post doctorally I continued to have graduate training in epidemiology from Tufts Medical Center, and then, of course, continued with some continuing education at the New England Epidemiology Center. I think that was at the University of Michigan. I also did some -- I do a lot of continuing education in toxicology, University of Kansas Medical Center, Dr. Clawson who wrote the book on toxicology has a course, and then every year I go to cytotoxicology meetings.

I also in my academic career started out at LSU Medical Center, and, of course, worked my way up and became a department head in medical technology for seven years. And that was a statewide position in which I organized and implemented the teaching programs and all of the aspects of medical technology,

immunology, hematology, clinical chemistry, paracytology, microbiology, urinalysis, the works.

Then I went on to become the director of the occupational toxicology outreach program as an associate professor, tenured associate professor of medicine with LSU Medical Center in Shreveport. And there I ran a statewide program for prevention of disease from chemical exposure.

My main responsibility was to be, to provide information to physicians who are unfortunately are not trained in recognition and the other etiology, the occupational environmental etiology of disease. So I taught second year medical students and worked closely with my fellow peers in the Department of Medicine, as well as community physicians throughout the state. They would call me and ask me if I would do the environmental histories on their patients when they could find no other reason why they were not responding to treatment.

So I did that from 1995 to 2005. I was also a codirector of the Center of Excellence for Clinical and Forensic Toxicology which is really pulls together things outside of occupational and environmental medicine such as drug testing, forensic type work.

In 2005 I moved to the University of New Orleans -- actually, while I was in Shreveport I implemented an asthma education and intervention program. I had received funding as I proposed a settlement in a case by Judge Mary Ann Lemmon's court, and it was accepted as a win-win from both sides; so then I

inherited the job to implement it, and I was the principle investigator. So I implemented that, you know, at St. John Parish for adults and children.

And then it was so successful I brought all of the computer programs that we developed for the intervention and the education program to the pulmonary care clinic in Shreveport with my colleagues. And I maintained through my budget asthma educated to implement that.

From there I moved to the University of New Orleans and became the coordinator for toxicology research laboratories and I'm an associate professor in the Pontchartrain Institute for Environmental Sciences. There I teach three courses in toxicology: Toxicology in Human Health, Ecotoxicology, and be teaching a new one, the Toxicology of Coastal Marine Microorganisms, because they do a lot of the coastal erosion work.

Q. Doctor, have you ever performed health profiles and epidemiologic studies in workers to identify the evolution of disease in association with chemical exposures?

A. Yes. I've surveyed over 17,000, and stopped counting after that, workers throughout the state with surveys similar to symptom surveys that we used on the plaintiff fact sheet to identify. And I worked with both industry, as well as labor, on hazardous materials committees to help them identify through the symptoms hot spots in their workplace that needed to be addressed.

Q. Doctor, have these survey questionnaires ever been used in

court?
A. No. I would not allow that. That was strictly for the benefit of both industry and labor, and I was often called in by industry itself to help them with it.
Q. Okay. Let me make sure I understand you. These survey questionnaires, have they ever been used in court?
A. Oh, now, I have other surveys.
Q. Yes.
A. I have the environmental history surveys.
Q. That's what I'm talking about.
A. You asked about the workers. The workers, that I would not allow to be used in court, that was kept very confidential, only industry or management or the workers' unions would know that.

But I have also an environmental health survey that was developed and certainly was peer reviewed by, approved by and used in a community study, Grand Bois, for research, which was a two-year study followed up one year of the epi study and using that research, that environmental health survey, and then a medical surveillance with laboratory procedures for a year. That same survey I used with the physicians, as I mentioned, to do an environmental history.

But it also has been accepted in two federal courts, one in U.S. District Court as a causation tool, one in U.S. District, Northern Mississippi, I think Eastern District, Columbus, Mississippi; and the other in Texarkana Division, I think that's

Northern Texas -- no, Eastern Texas -- Texarkana division of the U.S. District Court. Both have acknowledged the, that particular health survey as an absolute acceptable and really praised it, I think, in their orders as being very good.

Q. Have you ever been qualified as an expert to testify in federal court before?

A. Yes.

Q. Can you tell us how many times?

A. Twice.

Q. Have you ever been excluded from testifying in your area of expertise in any courts?

A. No.

Q. And have you ever been qualified by the courts as an expert in the areas of expertise as you've recited them to the court?

A. Wait. Would you repeat that?

Q. Which areas of expertise have you been qualified in?

A. Oh, the areas of expertise, toxicology, anatomy, hematology, epidemiology, interpretation of laboratory procedures, causation, etiology, specific and general causation, and many other things.

THE COURT: That was on both occasions, twice that you've been qualified in federal court you were offered in all of those areas --

THE WITNESS: In Texarkana --

THE COURT: Wait. Let me finish.

THE WITNESS: Oh, okay.

THE COURT: You were offered on the areas that you just recited and were accepted in all of those areas on both occasions in federal court?

THE WITNESS: In federal court, toxicology and -- yes, interpretation of the etiology of disease and specific and general causation in the Mississippi case, yes.

In the Texarkana, it was a strange little case, and that was, if I remember correctly, I wasn't board certified at that time so it was really for the etiology of disease and specific and general causation.

THE COURT: Okay.

BY MR. D'AMICO:

Q. As a causation expert, have you qualified in various courts of law specifically in the areas of toxicology?

A. Yes.

Q. Anatomy?

A. Yes.

Q. Epidemiology?

A. Yes.

Q. Hematology?

A. Yes.

Q. Neuroanatomy?

A. Yes.

Q. Medical surveillance using laboratory procedures?

A. Yes.

Q. Performance and interpretation of health assessments?
A. Yes.
Q. Causation of diseases in communities and individuals environmentally exposed to toxic chemicals?
A. Yes.
MR. D'AMICO: Your Honor, in connection with the proffer, I'd like to tender the witness as an expert in toxicology, anatomy, epidemiology, hematology, neuroanatomy, medical surveillance using medical procedures, performance and interpretation of health assessments, and causation of diseases in communities in individuals environmentally exposed to toxic chemicals.
THE COURT: Counsel, would you prefer to go ahead and voir dire this witness now on the area of expertise?
MR. WEINSTOCK: Yes, because it's going to be about five questions, your Honor, so I just assume handle expertise very quickly.
THE COURT: Okay. All right.

TRAVERSE EXAMINATION

BY MR. WEINSTOCK:
Q. Were you qualified as an expert in epidemiology in federal court?
A. No, no. That was -- that was in relation to the surveys in a state court.
Q. And then I believe you said or counsel said that in Mississippi you were qualified to testify as to specific and general causation?

A. That is correct.
Q. But Judge Barbier in a case in the Eastern District, either there was some confusion either you weren't offering specific causation opinions or the attorneys involved offered -- claimed you were going to offer those opinions but those were not accepted; is that correct?
A. No, that is not correct.
Q. Please tell us.
A. What happened in Judge Barbier's case, I was pretty shocked, it was a summary judgment. The defense attorney wrote, and I don't know what you call it, in a motion, if that's what it is, that there was no physician that diagnosed the plaintiff with asthma. That was false. And that there was no physician, he said there was no physician who gave a deposition who diagnosed the plaintiff with asthma and linked it to her occupational exposure. That was a false statement in his motion.

He left out of his motion when he listed physicians Dr. Michael Robicheaux, who was the initial treating and diagnosing physician, who did indeed -- and I provided that --
Q. Doctor, I appreciate that, but can you get the court to the part where Judge Barbier ruled on your opinion?
A. Well, he didn't. He ruled that there was no diagnosis because the physician that was treating her at the time of whenever this went to trial and they deposed him changed his diagnosis from asthma -- he had been treating her for asthma for quite some time,

but when he went into a deposition he was quite, very adamant, he called his patient a liar, he said she didn't have asthma, you know, it was --

THE COURT: Dr. Williams, let's stick with it. I know there are a lot of details you want to share with us, but we're kind of getting off of the issue that Mr. Weinstock was asking about.

BY MR. WEINSTOCK:

Q. I want to get to the actual point here. Are you saying that you're qualified to give an opinion on specific causation?

A. I have been qualified many times to do, but I am not here to do specific causation.

Q. And even though you're not a medical doctor, you can say in your mind what caused a specific medical illness in a patient; is that correct?

A. That is correct, yes. That's what the Federal Reference Manual on Scientific Evidence does say toxicologists do make those calls.

Q. Toxicologists, not epidemiologists, that's your testimony?

A. Correct. Correct.

MR. WEINSTOCK: Thank you. That's all I have for qualifications.

THE COURT: Mr. Miller, anything you would like to ask?

MR. WEINSTOCK: The only other thing I would say is we briefed the rest of that and I don't want to waste the court's time with that.

THE COURT: Yes.

MR. DINNELL: No questions from the United States, your Honor.

THE COURT: Okay. Thank you, Mr. Dinnell. Go ahead, Mr. D'Amico.

DIRECT EXAMINATION

BY MR. D'AMICO:

Q. Just to be clear and so that the record is abundantly clear, you are not here today to give specific causation testimony as to any individual in the alleged class, correct?

A. That is correct. I am only here for general causation.

MR. D'AMICO: Should I proceed with the questioning, your Honor?

THE COURT: Yes, go ahead.

BY MR. D'AMICO:

Q. Doctor, I believe you have prepared a slide show presentation for the court so we can give the court a brief premier on how formaldehyde affects the human body, in particular children. Are you prepared to give that presentation now?

A. Right. Someone has the --

MR. D'AMICO: I guess I should ask Brandi. Brandi, are you prepared to give the presentation?

BY MR. D'AMICO:

Q. Okay. Doctor, if you would, please, tell the court, what is formaldehyde?

A. It's a very small molecule --

MR. MILLER: Excuse me, your Honor, if I may object. I just renew the government's objection to the use of the PowerPoint presentation, and I have a continuing objection on that.

THE COURT: Right. So noted.

MR. MILLER: Thank you, your Honor.

THE WITNESS: Frank, this does not have a pointer on it.

MR. D'AMICO: Did we bring the pointer?

THE WITNESS: I have a pointer.

MR. D'AMICO: You have the pointer, okay.

THE WITNESS: Is it all right to use a laser pointer?

THE COURT: Sure.

BY MR. D'AMICO:

Q. Okay. What are we looking at here? And please, describe for the court, what is the chemical composition of formaldehyde?

A. This is CH_2O with a double bond between the carbon and the oxygen. It's an ultimate toxicant, that means it comes into the body as a reactive electrophile, very ready to react, it is capable of damaging cells and tissues. Most compounds have to be biotransformed, or a lot of compounds, before they become the active ultimate toxicant.

Q. Next slide, please.

A. Electrophiles, and we say it's a reactive electrophiles are electron deficient and that double bond right there and the electrons tend to not disburse properly and it doesn't have enough

electrons, so it has a partial positive charge so it's seeking negatively charged molecules, sort of like a magnet attracting a metal, and it's very indiscriminate in what it attacks.

Q. Next slide, please. Can you give examples of what formaldehyde attacks inside our body, or is that --

A. Well, first. It has the property of forming cross-links. And to give you an idea of what that means on a very lay language, this is -- each of these yellow, I tried to highlight the form of formaldehyde compound. And it has brought together these molecules, these other molecules by forming cross-links and it's very reactive in doing that. We use it in the lab, tissues, cadavers to fix it, it's a fixative, preservative.

Q. Can you give us examples of formaldehyde attacking inside our body?

A. Okay. Formaldehyde has the ability to form protein to protein cross-links, DNA to protein cross-links. Back to the -- yeah. And so we're interested in what kind of damage occurs from formaldehyde, and in this instance it's an inhalation exposure predominantly. We want to know what happens to the normal cells that are lining the respiratory tract, and this is a picture of -- and I will identify what comes out of the studies for the defense attorney who raised the question -- this comes from a textbook of histology showing the normal cells that line the tract there, cuboidal in nature with lots of little projections called cilia.

And the reason you have to have those cilia is you have a

long tube, which we'll see, that the cilia beat like rows of oars and they all beat up and they bring particles and trash up, protect the lower lung.

Q. Can DNA be repaired once these --

A. Wait, we have several slides to do.

Q. Oh, I'm sorry. Let's go ahead and go through the slides.

A. Keep going. This is when you say attack cell membranes, I wanted to give a visual concept of a cell membrane. If you look at this -- go to the next slide, please, or can I click them from here, is that possible? Okay. Let me do them then.

These right here, this is one cell and this is cell membrane, here is another cell and the cell membrane, and this is a nucleus. And look at the railroad track appearance, and I just want to quickly -- it's not working. Go to the next slide -- take you to, this is what you're looking in a cell membrane. These are phospholipids lined up -- you skipped one -- these are actually chemicals so that that formaldehyde molecule can imbed itself in the chemicals.

Next slide. This is a lung cell, Type II pneumocyte, and this is a nucleus.

Next slide, please. This is representative of the DNA in that nucleus, it's a double helix, it has to be pulled apart when the cell is going to make copies to go in to daughter cells and divide.

Next slide. This is a close up of it. I don't want you

to think these are just little structures, these are actually -- next slide, please -- molecules. And this again is more molecules for the formaldehyde to attack and cause cross-links.

Next slide, please. And when it does, it does DNA protein cross-links, you have proteins all surrounding the DNA, and this is representative of the type of damage to DNA that formaldehyde does. It will clump them and then when the cell is trying to make a copy of that DNA, it's a bad copy, it's a mutant cell, it's an incorrect copy and it can be a malignant cell.

Next slide, please. The part about the formaldehyde when it forms those cross-links, as you saw in that sort of chicken wire slide with it touching other and pulling in, is that it shares electrons with other compounds. And it's permanent, it's irreversible. You can't get it off. And that's the toxicity, that's the mechanism underlying the toxicity.

Q. Dr. Williams, we've gone over this in your deposition and the defense has heard it but the court is hearing it for the first time, so if you would, please, as a result of this attack on other molecules it forms protein to protein cross-links, DNA protein cross-links or incorporates itself into macromolecules. Describe that for the court. What is it about formaldehyde that makes it particularly attractive to and attach to cell molecules?

A. It's because it has a positive charge and it's missing electrons, so it's going to go after those electrons and those chemicals whether it's in a membrane, whether it's inside the cell

or whether it's DNA, it's going to go after, it's seeking the missing electrons, that's what it makes it reactive.

Something -- you know, we have other electrophiles, but something like benzene has to go to the bone marrow and then be made, biotransformed into the electrophile. This comes into the body as a reactive toxicant.

Q. The fact that it chemically is or from a neutron perspective an electrophile, is that one of the reasons why it's used in glues and resins?

A. Oh, right. That's why we use it in cadavers, that's why we use it in glues and resins. What you saw was a resin forming on that slide that I showed.

Q. Now, once this attack is occurred by formaldehyde on the molecules and these protein to protein cross-links, can the DNA be repaired?

A. Well, yeah. It depends, you know, and I didn't do it a slide, but cells have lots of things going on in what we call a cell cycle. And if you hit it in the early part of the cell cycle, you have time to repair it; if you hit it right before it's ready to divide, it's just not going to have time to repair. So it depends.

You also have enzyme systems. If you don't overwhelm the enzyme systems, it can repair. But if you overwhelm it at any one point or you hit it right before the cell is going to divide, it's not going to be repaired, then you have a daughter cell with a mutant DNA.

Q. In fact, formaldehyde has been listed as a known human carcinogen, hasn't it?
A. Yes. IARC in 2004 has listed, has decided that it is a Group 1 human carcinogen, known human carcinogen.
Q. Now, in your report, Doctor, you talk about completed exposure pathways. What do you mean by completed exposure pathways?
A. Well, you have to get a chemical inside the body for it to do damage, so the exposure pathways in this particular case you have inhalation of formaldehyde in air, particles in dust.

Now, when I show the rest of the slides you'll understand why you cannot have inhalation without ingestion, because anything in dust or particles is going to be carried up by the cilia. And then you also have the dermal absorption, not through the skin. Formaldehyde is water soluble and your skin is a really good protecter of your body. You need to have a lipid soluble compound to really go through the skin.

But it does go through the epidermis, the very thin epidermis of the eye because you have a lot of water soluble coatings of the eye and you have a lot of areas of the eye, the lacrimal gland, the stroma of the cornea that are actually mostly water and they can hold the formaldehyde in it.
Q. In fact, doesn't the literature state that because formaldehyde is so water soluble and it is an electrophile, that once is hits the moist environment in the throat it attaches and binds?
A. Yes, it can. Yes, it can. And we will see evidence of the

type of damage it does.
Q. Okay. Now, we talked about completed exposure pathways. Which ones are applicable to the residents of the FEMA trailers with formaldehyde exposure?
A. All three of them, I just gave them specific to this case.
Q. What happens to the formaldehyde once it is inhaled?
A. Well, we have studies, IARC, this is all from IARC, International Agency for Research on Cancer, and this 93 percent is absorbed in the nasal passages and once absorbed it is rapidly metabolized. This is in humans. In the rat about 100 percent is absorbed in the nasal passages.

Now, we, of course, to be able to do this kind of work you have to do this in an animal study. We took C14 formaldehyde and labeled and gave it to rats and then killed them. We can't do that to humans, but we know that 40 percent is eliminated as CO_2 through expiration from the lungs, 17 percent is excreted as formic acid in urine, 5 percent is eliminated as formic acid in feces, and 35 to 39 percent remains in the tissues forming those cross-links.
Q. Those cross-links, protein cross-links that you described earlier?
A. Correct.
Q. What happens to that 35 to 39 percent that remains in the tissues?
A. Well, it depends on the tissue. It's permanent, it's irreversible. And tissues have -- they all have their own renewal

rate where they get rid of old cells and new cells will come. So they will remain there that time period sloughed or they'll just remain, some tissues do not renew. Or if we have a hit in the DNA, a mutant cell can be formed and it will remain from that time that the cell divides then you have the mutant DNA in daughter cells.

Q. All right. This 35 to 39 percent that remains in the tissues, is it incorporated into macromolecules such as exist in cell membranes?

A. Yes. I showed the cell membranes, I showed the DNA, but it can also attack enzymes. It can attack just about anything that has electrons that it can hang on to.

Q. With that explanation I think we have the next slide, and I would like you to describe for the court the respiratory tract as it pertains to inhalation and transport of gaseous formaldehyde, which is a known toxic substance.

A. Okay. Just to make sure everybody is on the same page and these are from the Netter Medical Illustrationist, these are the lungs, they're very delicate so they have the bony rib cage protecting them.

Next slide, please. This is the trachea. If you stuck your finger in your mouth all the way back until you start gagging, you would find the pharynx, that's in the pharynx, it would divide. In the front you would have the trachea, which is the tube, it's a respiratory -- these are the respiratory airways. The characteristic of this, that I'll refer to later on, is

cartilaginous rings with a -- the C-shaped ring, and the C is connected by a smooth muscle.

Now, at this level it's pretty big. So the contraction of this smooth muscle can't really obstruct the whole airway, but when you get down -- next slide -- into these tiny little airways, you can actually constrict the airway and you're wheezing (DEMONSTRATING), you can't get air through, obstructive air flow. It will terminate in little air sacs. If you had a pin, like a sewing pin, the tip of it, that's about the size of it, you can stick one in there. And you have millions of these little alveoli.

Next slide, please. There is a lot of blood vessels bringing blood to and taking from, that's how we have exchange of gases in the lung. So that when a toxic agent comes in, it can be absorbed. If it gets down into the lung, it can easily absorb through the lungs.

Next slide. If you looked at it on cross-section, you see this is the air space, this is the blood vessels, so there's not much there preventing transport of a gaseous substance into the blood.

Next side, please. If you look at those little alveoli in the diagram cross-section, this is what you would see. Each of those would be the air sacs and here is the air tube, the bronchial, and you'll notice these little hairs which represent the cilia that I showed you earlier (INDICATING).

Q. All right. Is there an anatomic difference in an adult lung

from the lung of a child?
A. Yes, there is. I don't know if the next slide, let's see. Yes. Here is the fetal lung. Here are the developing alveoli -- now a fetus doesn't breathe in a momma, it's using diffusion of oxygen through water, so it's not totally developed.

Next slide. You have a newborn where you can see the alveoli are not quite -- there really is a lot of tissue. And here is a 12-year old child. The lung will continue to develop until adulthood in size.

MR. WEINSTOCK: Your Honor, this is one of the slides we had the objection about. The objection is, is the slide on the left a newborn or stillborn?

THE WITNESS: No, this is a newborn. If you look at the bottom is should -- human newborn is A, B is a 12-year old girl. Now this is at death, of course, you're not going to be able to --

MR. WEINSTOCK: Right, let's hope. Did this newborn child ever take a breath, do we know?

THE WITNESS: I don't know. I don't have that information. But A is a human newborn and B is a 12-year old child.

THE COURT: Okay.

BY MR. D'AMICO:
Q. When formaldehyde cross-links proteins in a cell, what does that do to a cell or tissue of a cell?
A. Well, we're going to see in the next slide, I think we have,

we're going to see what it does to the tissues. This is, this is from a reference slide from a histology textbook, and we're going to start with what does the respiratory tract look like cellularly --

Q. Normally.

A. Normally. And then we'll show what the formaldehyde attacks from that.

Wait, go back to that last slide. I am starting with outside, like the nostril, and I want to show this is a stratified squamous epithelium just to make it simple like little rounded cells just one on top of the other, a layer. And this is dead cells, no longer have a nucleus. And if you would peel your nose or seen on the feet, on the back of the hands. You should not see this inside -- normally you do not see this inside the respiratory tract. We are going to see that there are studies that show it.

Go ahead to the next after formaldehyde. This is normal epithelium of the respiratory tract. Next slide, please. And this is inside the nose where you have the hairs. Stratified squamous epithelium has a job, it generates hairs which can filter out big particles. And then -- next slide -- as we go to the back of the nose, the nasal cavity, and the trachea, the lung, big tube I showed, the bronchi and the dividing smaller little tubes entering the lung, this is what you see. It's the pseudostratified ciliated columnar epithelium, and this is the normal cilia and the normal structure.

And disbursed in here are cells that secret mucus, they're called goblet cells, and they need the mucus because that catches mold spores or dust particles and helps the cilia carry them up to be swallowed instead of going into the lung. Next slide.

Q. Let me stop you here. These slides that you're showing of the normal airway tract, where did you get these slides, out of a medical textbook?

A. These are from my medical textbooks. I am an anatomist and have them all over the house, yes. This is from Bloom and Fawcett probably or histology textbook and I don't remember the author of it.

Q. Okay. Next slide, please.

A. Here is a close-up so you can see the rectangular cylindrical and structure of the normal respiratory epithelium and here is the cilia.

Next slide. Now, we're switching to what does formaldehyde do to this normal tissue. And this, to answer the gentleman's question, is from the article Holmstrom, et al, Histological Changes in the nasal mucosa in Rats.

Q. Let me stop you there.

A. Okay.

Q. This was discussed in your deposition, wasn't it?

A. Correct. And these are the same pictures.

Q. They were provided to the defendants at your deposition, prior to your deposition?

A. Correct. As pictures, Xerox pictures.
Q. All right. Go ahead.
A. And so this is the normal -- this is a rat study. This is the normal pseudostratified ciliated columnar epithelial from the article.

The next slide. Next slide, please. And this is the same picture at top of the normal respiratory epithelium from the same article. And here the rat's given formaldehyde had invasive squamous cell carcinoma and keratin formation. And here is the keratin (INDICATING). The reason I showed you the nostril with the dead skin on the outside of the nose was because I wanted to show the formaldehyde has made this a very abnormal malignant tissue now with malignant cells, and they're making this abnormal sloughed off epithelial layer inside the respiratory tract and that's not a good thing, that's going to obstruct the air flow.
Q. For the court's edification, this is the Holmstrom, et al, 1989 study, Histological Changes in the nasal mucosa in Rats after Long-term Exposure to Formaldehyde and Wood Dust?
A. Right.
Q. That's been provided to the court as part of the bench book.
A. Right. In this study of note, in the rats that were exposed to both wood dust, which is also a Group 1 carcinogen, and formaldehyde, they saw many with emphysematous changes in the lung tissue. In the formaldehyde rats they saw two that had emphysematous changes in the lung tissue. That is of concern

because rats are nose breathers only. Humans are nose and mouth breathers, so it was a bit of a concern to me to see the emphysematous changes. It's not anything that you can make a big statement on, but it's something that we know from toxicological studies what little things can mean a lot when you look at animal studies like the thalidomide and things like that.

Okay. So that was just to show you that's what that tumor is producing, and it's now a bizarre type of tumor without normal cells and not even stratified squamous.

Next. The next study is on all three studies that I'm going to show and was shown at my deposition, and all of the pictures that I'm showing are from those studies. This is the Holmstrom Histological Changes in the Nasal Mucosa in Persons Occupationally Exposed to Formaldehyde Alone or in Combination with Wood Dust.

This is a picture of one with the formaldehyde alone. And this is the study that ATSDR, the Agency for Toxic Substances and Disease Registry, used in determining its minimum risk level of 8 ppb. This is what happened in the workers in this study after they had formaldehyde exposure, and basically the exposures began at 40 ppb and the average was 240 ppb. And so ATSDR used this, if you give me the next slide, here is the normal on the left. The normal respiratory epithelium from a textbook, histology textbook; here is the same slide from an article.

We refer to this change from the normal respiratory

epithelium to the stratified squamous as metaplasia. It means a normal tissue in an abnormal place.

Next slide.

MR. D'AMICO: Wait. You have a question on this?

MR. WEINSTOCK: Yes. I want to be clear, those two pictures are not from the same study; is that correct?

THE WITNESS: Yes, I am still on that study, I'm still on the Holmstrom study that ATSDR had used.

MR. WEINSTOCK: Go back to the past slide.

THE WITNESS: Go to the last one.

MR. WEINSTOCK: Those two pictures are both from Holmstrom?

THE WITNESS: No. I said this is from a histology text, this is from Holmstrom. On the left is from the histology text, on the right is from Holmstrom, but we're still in that same study.

BY MR. D'AMICO:

Q. You're showing the difference between normal pseudostratified ciliated columnar epithelium and now after exposure to formaldehyde?

A. Correct. The metaplasia, correct.

Q. Let me stop you there also. You mentioned the ATSDR, the Agency for Toxic Substances and Disease Registry, the ATSDR. Did they publish a toxicological profile for formaldehyde?

A. Yes, they do.

Q. And is it ATSDR's mission to serve the public by using the best

science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to exposures of toxic substances such as formaldehyde?

A. Yes.

MR. MILLER: Objection, foundation.

THE COURT: Why don't you lay a foundation for the question. I'll sustain.

MR. D'AMICO: Yes.

BY MR. D'AMICO:

Q. Describe for the court, what is the ATSDR?

A. The Agency for Toxic Substances and Disease Registry has the mission of really working for the people. They do elaborate toxicological profiles where they review voluminous amounts of literature. They say they can't get everything, but they get a lot -- you know, really, I think the one that I -- this one has over 1,100 references in it. And they do a compilation.

And then they choose select studies that they think are profound statements about the toxicology of the compound and they develop what they call minimal risk levels; that is, for chronic inhalation of exposure 365 days or more, you have -- they say that non-cancerous health effects 8 ppb is the cutoff level. Above that, you may develop non-cancerous health effects. They use this study to determine those non-cancerous health effects and that 8 ppb.

If we can go to the next slide I can show you --
Q. Wait. We're laying a proper foundation.
A. Oh, okay. I'm sorry.
Q. Hold on, don't jump ahead, hold on.
A. Is --
Q. Wait, wait, let me ask a question. Hold on, please.
Is the ATSDR the lead federal public health agency responsible for determining human health effects associated with toxic exposures?
A. It's the lead information center to disseminating information to communities, physicians. They do their toxicological profile and develop these minimal risk levels to -- and they're not regulatory in nature, but they are for residents, they are for communities.
Q. And as a toxicologist, are you familiar with the toxicological profiles published by the ATSDR, in particular the one on formaldehyde?
A. Yes.
Q. Is it something as a toxicologist that you rely on regularly?
A. Oh, yes.
Q. Is it generally accepted in the relevant scientific fields of toxicology as a leading publication and one that can be relied on for authorship and authenticity?
A. Yes.
Q. Okay.

MR. D'AMICO: That's the predicate, your Honor.

THE COURT: All right.

BY MR. D'AMICO:

Q. Thank you, ma'am. Okay. Now, please, if you'll continue.

A. All right. Next slide. These are the observations that ATSDR used in rendering its minimal risk level of 8 ppm --

Q. Billion.

A. Billion. They found at above 8 ppb you had loss of cilia from the normal respiratory epithelium. You initially had goblet cell hyperplasia, that means overgrowth, that means too much mucus so you really have trouble beating those cilia up if you're just kind of imbedded in mucus. So first you have too much.

Then you lose both the cilia and the goblet cells and you have replacement of this normal respiratory epithelium with cuboidal or squamous cell metaplasia, that means normal tissue in the wrong place, which we just saw. And so they took this and they made -- they took the average concentration in the workers studied, which was 240 ppb, and they made a correction for -- they used the lowest observed effects level so they corrected by a factor of three; and then human variability, not everybody has the same reaction at the same concentration, so they gave that a factor of 10. So they divide the 240 ppb by 30 and you get 8 ppb, that's how they calculate. And that's their chronic minimal risk level of 8 ppb.

Q. Now, this Holmstrom 1989 study on the Histological changes in

the nasal mucosa in persons occupationally exposed, what levels did the exposures begin at?

A. Forty ppb. And these are biopsy, if I didn't make that clear, it's on the slide, these they actually took biopsies of the workers' nasal mucosa.

Q. Was there a statistically significant increase of histological changes from normal tissue that was observed in these workers?

A. Basically they were looking at -- there was a statistically significant increase of histological changes.

Q. Yes, okay. I think another slide is coming up?

A. Next slide. This is the next article. There are three human articles, and this is Edling, Occupational exposure to formaldehyde and histopathological changes in the nasal mucosa. As a toxicologist and in accordance with the Reference Manual on Scientific Evidence of the Federal Judiciary Center, you want to see multiple studies finding the same thing, and so I've included three human studies.

Here on the left is the nasal respiratory epithelium cylindric cells with cilia, normal, from the article by Edling and also given at my deposition. And here you see again a metaplasia, you have the wrong type of tissue in the place.

And when you have the -- even though at this point it's still a normal tissue, but you can't -- it cannot do the function, it's damaged, it cannot do the function of protecting the lower lung of getting allergens and dust and particle and toxin out of

that respiratory tract. Damage has been done. The reason these are not the normal tissue is the electrophile has hit this so hard that we've lost it. And so the body in an attempt to respond has responded with something else.

Q. Now, this Edling study, this was published on Occupational exposure to formaldehyde and histopathological changes in nasal mucosa, it was published in the British Journal of Industrial Medicine?

A. Yes.

Q. Is that a recognized journal in the field of toxicology?

A. Yeah, it's one of the oldest ones, because Britain really had occupational medicine before we had it developed over here in the early part of the century.

Q. I think it's important to point out for the court that Edling actually performed two millimeter nasal biopsies on 72 men --

A. Correct.

Q. -- who worked at this particle board processing plant, correct?

A. That is correct.

Q. And exposure of the men were in the range of, what, 81 ppb to 894 ppb?

A. Correct, correct. And 59 had metaplasia. But if you go to the next slide I think I have six of them had what we call dysplasia, the next couple of slides. This is -- well, this is Boysen, we started with another one. Okay. Go ahead. This is the next study.

Q. I want to say with that.
A. Go back to Edling. With Edling we had -- this is metaplasia, but it does have six of them had what I'll show you in the next slides, something called dysplasia where we now -- we have an abnormal tissue and that occurred here, I don't have a picture of that at this point.
Q. Of the 72 men that had nasal biopsies, is it true that only three had normal ciliated pseudostratified columnar epithelium?
A. That's correct.
Q. Only three of 72 had normal, everybody else had damaged epithelium?
A. That's correct.
Q. In ranges of 81 ppb to 894 ppb?
A. That is correct.
Q. Okay. Next.
A. Then the third and last study of the human nasal biopsies, this is the "Nasal mucosa in workers exposed to formaldehyde: a pilot study." This is the British Journal of Industrial Medicine also, 1990. On the left you see the normal respiratory epithelium, on the right you see the damaged stratified squamous epithelium.
If you go to the next slide --
MR. D'AMICO: Do you have a question?
MR. WEINSTOCK: I'm sorry. Again, are these photographs both from the Boysen study?
THE WITNESS: This is from the Boysen study on the right,

the damaged epithelium, and was provided at my deposition. This is from the same histology text.

MR. WEINSTOCK: On the right?

THE WITNESS: On the left.

BY MR. D'AMICO:

Q. What you did is you got slides of a normal anatomy to compare it to the slides that were provided in your deposition?

A. Right. I did not think defense counsel, you know, had a lot of histology, or plaintiff counsel either, so I thought maybe I would put the normal from a histology text just so you can, your eye could see the difference immediately. Here you have the rectangular structure, here you have your stratified squamous (INDICATING).

MR. WEINSTOCK: Were you able to get the same magnification?

THE WITNESS: No, I don't think they are the same magnification. It's just for illustrative purposes that you see the rectangles here, you see it's a circular arrangement, and you can also read what the caption is.

BY MR. D'AMICO:

Q. Okay. Next.

A. Here we have a slide that has a normal, again, the same picture of the normal respiratory epithelium; here we have, again, the damaged epithelium which is more -- you begin to see a thin layer of dead cells on the top of this stratified squamous epithelium.

And the next slide shows you a dysplasia which I have been referring to. Here is the normal, here is -- this is an abnormal epithelium, the epithelium is so damaged that now it's making abnormal cells. This would be a premalignant type, it could be a premalignant type state. Right now we're just saying it's a dysplastic cell, it's an abnormal tissue.

Q. All right. Now, this Boysen study published in 1999, nasal mucosa in workers exposed to formaldehyde: a pilot study. Is that also in the British Journal of Industrial Medicine?

A. Yes. And there were 28 workers, nine of them had a hyperplastic nasal mucosa, and three had this dysplasia.

Q. As well as keratinizing stratified squamous epithelium, was that also described?

A. Right. In there we're beginning to see it here and in the last slide.

Q. Just so we understand you, again, could you explain for us the term metaplasia and dysplasia?

A. Metaplasia is when you have a normal tissue but it's in a wrong location. So it's substituting for what should be there, which means the damaged tissue can no longer perform the functions that it was set up to do, such as the pseudostratified ciliated columnar epithelium of protecting the respiratory tract.

Q. Are you finished with that part of the slides?

A. Uh-huh. Yes, I'm good.

Q. What does all of this tissue change mean for the children

exposed in the temporary housing units, and how does dose and duration affect those calculations?

A. Well, these are changes that are well documented as a result of the damage for the electrophile on the normal tissue of the respiratory tract. Now, if you're asking specific to the children, we have no nasal biopsies on the children, that would be the only way we could see this. We have their symptoms.

But basically they would be losing their cilia that would allow them to keep particles and dust and mold spores and other allergens out of the respiratory tract. They would either have an increase in mucus which would hold the antigens in and make it more efficient for producing allergies or asthma. They would then lose this structure and not be able to perform any of those functions to protect their little lungs at the bottom. Things would more efficiently go to the lungs where they might not get there previous to that.

You would have loss, as I said, the normal epithelium. Carbon based toxicants such as formaldehyde increase the infectivity of bacteria, so they could have more upper respiratory infections, as well as lower respiratory infections.

And then formaldehyde does something very unique. It hits a particular gene, p53 tumor gene; and when it does, the response to the cell, because it recognizes DNA damage, is -- it can be many things, but one of the things it does is called apoptosis. It's a toxicologist world with apoptosis. This is when the cell tells

itself we've been hit, let's die in an orderly fashion. And so apoptosis can occur and you'll have cell death. In a small child where their lungs are still developing, this could affect the cytoarchitecture of those delicate alveoli in the lungs. And then of course dysplasia can lead to a premalignant or malignant tumor.

Q. You mentioned apoptosis. What is that, Doctor?

A. I put a few slides because it's such a strange word and most people aren't familiar with it. It's orderly programmed cell death. It's the body's attempt to get rid of a damaged cell before it would cause, as opposed to necrosis. I always describe necrosis if you popped a balloon and you released a lot, all of the cell contents and then you're going to have an inflammatory reaction which is not good for the body.

Apoptosis, if we go to the next slide, is an orderly way for cell death. Here is a cell that's beginning to go through apoptosis and it breaks down into little blebs, membrane bound blebs -- next slide -- and those blebs can now be orderly phagocytized by macrophase which has the job of doing that.

Next slide. And this illustrates, why is this a benefit? Well, here is chemotherapy which is an agent that does that because you don't want all of those cancerous cells that you're killing to just pop like a balloon and cause inflammatory reaction then you have more disease. So it's an orderly way to kill the cell and get rid of it.

Q. Can you give us an example of this apoptosis with formaldehyde?

A. Well, basically formaldehyde is known to do this. It hits that p53 gene and so it is known to do that.

Aging people, an example would be in aging. We have a lot of endogenous, that means made within our body under normal circumstances; and we have a big enzyme system that rapidly, the half life is a minute each, rapidly takes care of it in the blood, okay. But then, of course, it's going into tissues as cross-links and it's going to be excreted. But with the elderly, formaldehyde requires aldehyde dehydrogenase to break it down, and they begin to lose that as they get old; and it is believed that what's happening is they can't handle it and you have increased apoptosis, they can't get rid of it or break it down rapidly and so it's believed to be a part of the aging process in organ failure where the organs are losing their normal cellular content.

Q. In your report you compare the concentrations of formaldehyde in the trailers to the minimal risk levels of ATSDR. Why did you choose ATSDR levels as opposed to some other governmental regulation?

A. Because they are specific for residents, for community people. OSHA is the regulatory arm for the workplace. NIOSH is the scientific arm for the workplace. Now, NIOSH is, you know, basically makes recommendations to OSHA and then OSHA takes those recommendations in consideration, but also considers the fact that in a workplace a worker is given personal protective equipment, such as respirators, particular protective personal wear, as well

as industrial hygiene, monitoring and industrial hygiene methods to control emissions in a workplace. Whereas residents have none of that. So ATSDR is more applicable to residents who don't have respirators, don't have personal protective equipment, and don't have industrial hygiene controls.

MR. WEINSTOCK: Objection, your Honor, to the foundation. I believe Mr. D'Amico referred to ATSDR as a regulation and was asking about other regulations. I don't believe ATSDR is a government regulatory agency.

THE COURT: I think she already testified, Dr. Williams had testified when you laid a foundation in connection with Mr. Miller's objection, so I'll sustain the objection as to the characterization. I don't think that it was consistent with what I understood Dr. Williams' explanation of ATSDR to be.

BY MR. D'AMICO:

Q. Let's explore that a little bit. NIOSH isn't a regulatory board, is it?

A. No. It's an academic scientific component that makes recommendations to OSHA for workers.

Q. And OSHA is the regulatory branch of that scientific chain?

A. Right. OSHA decides what level they will allow in the workplace for the workers.

Q. And the ATSDR has no governmental or regulatory authority, correct?

A. No, it has none. It makes recommendations, it gives minimal

risk levels. Now, a lot of those minimal risk levels you will see in state, in local like DEQ and those who are in charge of making state regulations do use for the community residents, they do base -- a lot of them are based on the ATSDR, but there is no regulatory enforcement with ATSDR.

Q. Right. And my question, although inartful, what I was attempting to elicit, the reason you chose ATSDR as opposed to a governmental regulatory standard such as set forth by OSHA is for the reasons you stated?

A. Correct.

Q. What criteria did ATSDR use for its chronic MRL of 8 ppb?

A. Well, I had them on the slide. They use the loss of cilia, they use the hyperplasia of the goblet cells, and they use the metaplasia, the change or the epithelium was damaged and changes from the respiratory epithelium to the stratified squamous epithelium or cuboidal epithelium, that's what they used at 8 ppb. What they tried to do is find the first change of non-cancerous health effects and that's where they set it to try to give guidance not to use levels above that because then you may see those changes.

Q. Is formaldehyde --

THE COURT: Mr. D'Amico, we're about an hour in.

MR. D'AMICO: I'm about 45 minutes is what we have.

MR. MEUNIER: You're an hour into it.

THE COURT: You're an hour into the hour and a half that

we had allotted for examination. I am just giving you a reminder. You can go as long as you want up until the 90 minutes.

MR. D'AMICO: Then let's speed it up. Thank you for the reminder, Judge.

BY MR. D'AMICO:

Q. The formaldehyde, is it a sensitizer?

A. Yes, it is.

Q. Is there an authority or citations or any studies that support your contentions that formaldehyde is a sensitizer?

A. Yes. The Wantke article published in the Clinical & Experimental Allergy, 1996, Exposure to gaseous formaldehyde induces IgE-mediated sensitization to formaldehyde in school children.

And there's the Krzyzanowski which is Chronic respiratory effects of indoor formaldehyde exposure, where he's found that significantly greater prevalence rates of asthma and chronic bronchitis in children with formaldehyde exposure levels at 60 ppb. In the Wantke study it was it was at 43 ppb.

Q. In Wantke, that is an Exposure to gaseous formaldehyde induces IgE-mediated sensitization to formaldehyde in school children, is that the title?

A. That's correct. And he was at levels of 43 ppb, 69 and 75 ppb.

Q. 43 ppb to 79 ppb.

A. 75 ppb.

Q. Where was that published, Doctor?

A. I gave that reference, Clinical & Experimental Allergy, 1996, Volume 26, pages 276 to 280.

Q. And if we can look to the bottom at the conclusions. I don't know if the court can see it. Do we have a copy of it that we can hand to the court, Brandi?

THE COURT: I've gotten a copy of the slides.

MR. D'AMICO: Your Honor, I have a copy. I don't know if you've seen this. May I approach? It's hard to see on the ELMO, we didn't put it into the slide presentation.

THE COURT: Do we have a copy for counsel?

MR. D'AMICO: It was cited in their -- their expert's cited to these studies in their reports.

MR. MILLER: Are you marking this as an exhibit, Frank?

MR. D'AMICO: Yeah, we'll mark it as an exhibit, that's fine. Patricia Williams 1. They were cited to by the defendant's experts.

MR. WEINSTOCK: No, don't do that. Just pick a random number.

THE COURT: I think we were following chronologically.

MR. D'AMICO: Oh, okay. Well, whatever the next exhibit.

THE COURT: Whatever is next number on the list.

MR. D'AMICO: Exhibit next, your Honor.

THE COURT: Tell us what number it is. I've got, oh, it was through letter F.

MR. WEINSTOCK: P-80 I believe is the next number.

MR. D'AMICO: P-80.

THE DEPUTY CLERK: What is it, P-80?

MR. D'AMICO: Eighty, eight zero, yes.

BY MR. D'AMICO:

Q. If we can look to the conclusion on the first page at the bottom, Doctor. "Conclusion: Gaseous formaldehyde, besides its irritant action, leads to IgE-mediated sensitization. As children are more sensitive to toxic substances than adults, threshold levels for indoor formaldehyde should be reduced for children."

Please discuss that for the court and explain the significance of these findings.

A. Well, I think that with the IgE sensitization and the asthma, asthma is very debilitating to a child, and he is basically saying that we know that it produces IgE-mediated sensitization, that's your classic form of bronchial -- that's one type, way that bronchoconstriction can occur through formaldehyde.

Q. And did you look at the parameters of this study to see if it met scientific muster in your opinion?

A. Oh, yes, absolutely.

Q. You find it to be reliable?

A. Yes.

Q. You also mentioned another study, the Chronic respiratory effects of indoor formaldehyde exposure by Michael Krzyzanowski, correct?

A. Correct.

Q. And that was in Environmental Research, 1990?
A. Correct.
Q. And I think we already provided the court a copy of that. What were the conclusions of that study?
A. That the effects in -- let's see. That significantly greater prevalence rates of asthma and chronic bronchitis were found in children from houses with formaldehyde levels starting at 60 ppb up to 120 ppb. And the effects of asthmatic children exposed to formaldehyde below 50 ppb were greater than in healthy ones.
Q. Did it also find, Doctor, that the diseases diagnosed by a physician, asthma and chronic bronchitis, were more prevalent in houses with higher formaldehyde levels, for instance, the prevalence rates of chronic bronchitis was related to formaldehyde levels measured in various locations in the houses --
A. Yes.
Q. -- however the log-linear analysis revealed that all of these relations were due to increase prevalence rates of the diseases in residents of houses with high over 60 ppb levels of formaldehyde in the kitchens. Is that correct?
A. Yes, I said that, yes.
Q. What is the significance of that?
A. Well, the significance is that formaldehyde can cause asthmatic -- asthma in children.
Q. Okay. What levels of formaldehyde was associated with asthma in children in these articles?

A. Well, you have in the Wantke article it started, the lowest was 43 ppb; in the Krzyzanowski article it started at 60 ppb; and in the Rumchev, which is a third article, it started at 49 ppb.
Q. Did those articles also stand for the proposition that children are affected more seriously by low-level exposures than adults?
A. Yes.
Q. Explain that to the court, why is that a fact?
A. Well, children are a more susceptible population. ATSDR recognizes that, EPA recognizes that, so does IARC. They inhale more air for body weight and more frequent breathing than an adult, so they can have more contaminant reaching the airways where the asthma could be provoked.
Q. Does formaldehyde cause bronchoconstriction?
A. Yes. One way is with the IgE sensitization which we talked about. There is another way for that to occur.
Q. I think you have a slide that demonstrates this.
A. I do?
Q. Yeah.
A. I had already mentioned that when I talked about -- okay. The other pathway, we talked about the smooth muscle here and that, of course, when that constricts the asthma, the wheezing, the obstruction of air flow.
Next slide, please. This is the pharynx and the nasal cavity, and the other way that is not IgE-mediated is a trigeminal vagal reflex. I know those are big words, but these are cranial

nerves that come from inside the brain and it's the trigeminal nerve that innervates the nasal passages. And when the irritant effect hits that nasal passages, the trigeminal nerve sends sensory impulses into the brain and sends -- the vagal then is a motor to all of those little smooth muscles by those cartilaginous rings, and they contract and they do that to protect the noxious agent from getting down into the lung. So you have the bronchoconstriction in that way, too.

MR. D'AMICO: In connection with the testimony, we would also like to mark and identify as P-81 the Michael Krzyzanowski article that was referred to by Dr. Golden. It's not part of our bench book, that's why we're attaching it.

THE COURT: Any objection from counsel?

MR. WEINSTOCK: Your Honor, at this point I assume we have a fairly relaxed standard for what we're putting into the record. I mean, normally things like studies we both put in have not been objected to, so I am not going to start that now, it's a bench hearing.

THE COURT: That's fine.

MR. D'AMICO: And it's referred to by their experts also.

BY MR. D'AMICO:

Q. Dr. Williams, in 1999 were you as the director of the Occupational Toxicology Outreach Program the recipient of funding for a medical intervention program for asthma through a consent decree in federal court involving Bayou Steel Corp. in St. John the

Baptist Parish?
A. Right. I received $163,000 to implement a one-year asthma study of adults and children and basically an intervention program.
Q. What was accomplished for those children in that intervention program?
A. Well, for both adults and children I had a computer program developed to help them recognize the symptomology of the respiratory diseases so that they could be diagnosed in the emergency room. They were using it as their doctor instead of having a doctor and history is required. So that was the first thing.

The second was a camp where we taught them how to recognize their asthma triggers. I had 1 to 1, maybe a 1.2 to 1 ratio of medical personnel and respiratory therapists to each child because these were severe asthmatics, they had never even spent the night away home. We thought them to recognize their triggers, we thought them all about asthma, and for the first time some of them were able to go swimming, play football, went into the woods to look for their asthma triggers. It was a remarkable accomplishment of showing if you understand the disease and you learn how to manage it, you can prevent it debilitating your life.

After that I took, when that was over I took that program to our pulmonary care clinic because I didn't want to lose what we learned, and we put it into play for all of our patients on a routine basis with our physicians.

Q. Doctor, what were the results of medical intervention program?
A. If you'll switch to the last slide -- there -- go to the next one. Go to the next one, please. We measured --

MR. WEINSTOCK: I'm sorry, this one we just flat out object to because we haven't seen any of this before, we haven't gotten any of the documentation, we've never gotten a chance to cross-examine the doctor about any of this.

THE COURT: Is this part of the opinion that was originally submitted to counsel, Mr. D'Amico?

MR. D'AMICO: It's part of her original opinion, but she discussed it in her report and she was questioned about it at her deposition.

THE COURT: Wait. That's exactly what Mr. Weinstock is telling me didn't happen. Where is this? Show me in --

MR. WEINSTOCK: This data was part of her report?

THE COURT: Wait, Mr. Weinstock. Show me where, Mr. D'Amico, show me where it is in the opinion. Pull out a copy --

MR. D'AMICO: Okay. I don't know if the actual data was in there, but the opinion does express these opinions. But that's all right, we'll withdraw it. For brevity sake I don't want to belabor the point. We'll take it off.

BY MR. D'AMICO:

Q. Doctor, have you seen the Children's Health Fund, Legacy of Shame, The On-Going Public Health Disaster of Children Struggling

in Post-Katrina Louisiana?
A. I have read it.
Q. You've read that. And that has been admitted by the court already. I'd like you to look at the urgent recommendations as stated on page 14. And tell the court if you concur with those and if you believe that a medical intervention class as we've, subclass as we've proposed for the children, in your opinion would benefit them based on your experience with Bayou Steel case.
A. Oh, absolutely. And even more so with that and what we did in Shreveport, it certainly raised their quality of life and saved healthcare costs. 117 patients we saved $212,000 just on their lack of going to the emergency room and doctors visits in only a ten-month period.
Q. Under the Urgent Recommendations, can you see at bottom: "The data supporting our sense of urgency in addressing this ongoing public health crisis effecting Katrina displaced children is compelling. We implore state leaders and other public officials to recognize this crisis as a priority and a matter for urgent action. To meet the immediate medical needs of these children and address the challenge of reintegrating all of the displaced children and families in the Gulf region, the following actions must be taken:"
Do you agree, Doctor, with the suggestions and urgent recommendations here as spelled out in this study?
A. Yes, I do.
Q. For brevity sake, the court has a copy of it and we won't go

through each and every one. But I assume that's true of the all of the urgent recommendations, Doctor?

A. Yes. It was a good recommendation.

MR. D'AMICO: Judge, my clock shows we have 15 minutes, I've gone an hour and 15 minutes with this witness. I would like to save it. Thank you. Tender the witness.

THE COURT: All right. You will have the opportunity to redirect if you want. But the 15 minutes remaining, I've actually got a little bit more, 18 minutes.

MR. D'AMICO: I have 20, 18, every second counts.

THE COURT: All right. But that's remaining for all witnesses, including any redirect you would like to have with Dr. Williams. Mr. Weinstock, would you begin.

MR. WEINSTOCK: Good morning, your Honor, again.

CROSS-EXAMINATION

BY MR. WEINSTOCK:

Q. Dr. Williams, Andy Weinstock for the manufacturing defendants. Doctor, you're aware that there was a Daubert challenge to your testimony?

A. Yes.

Q. Did you review the challenge that the defendants prepared?

A. Yes.

Q. And the plaintiffs filed an opposition to that challenge?

A. Yes.

Q. Have you reviewed that document as well?

A. Yes.
Q. Okay. I would first like to start by asking you a few questions regarding class.
MR. WEINSTOCK: Your Honor, we do have a slide show but it's really not a slide show, it's just blown up portions of her report and testimony, if necessary. It's not anything no one has seen before, with the exception of some impeachment that may or may not come up.
THE COURT: Okay.
MR. D'AMICO: Objection. Is that a question? That seems like argument.
THE COURT: No, I think it was --
MR. WEINSTOCK: I think it was a statement to the court as to what we're doing.
THE COURT: -- stating to me what his intentions were with regard to the examination, so I'll overrule it. Go ahead.
BY MR. WEINSTOCK:
Q. Would you agree with the following statement: There are large individual differences in the normal population and between hypersensitive and sensitized people?
A. Yes. It's a bell shaped curve. Any type of response is going to have individual differences. You have on one end the hypersensitive, on the other end the not sensitive.
Q. So the answer is you would agree with that statement?
A. I would agree with that statement.

Q. In fact, you wrote that statement in your report, correct?
A. That is correct. That's a toxicological fact.
Q. Would you also agree with this statement: There are several indoor environmental sources that can result in human exposure to formaldehyde, including cigarettes and tobacco products and smoke, furniture containing formaldehyde resins, adhesives containing formaldehyde used for plastic surfaces and parkay, carpets, paints, disinfectants, gas cookers and open fireplaces. Would you agree with that statement, Doctor?
A. Yes.
Q. And, in fact, you wrote that statement as well in your report, did you not?
A. That is correct.
Q. In the opposition to your Daubert challenge, on page 8 the plaintiffs state: "Defendants," which I guess means me and others, "disingenuously mislead the court as to what constitute Dr. Williams' opinions. Dr. Williams clearly lists the opinions she is offering on page 34 of her affidavit as follows:"
Is that correct, are the opinions you're giving this court on page 34 of your affidavit?
A. They are. And also the general -- and also if you look with the general causation is inherent to it and that's earlier than page 34. I have like -- I think it's page 5 through 8, somewhere in there, if you just wait a minute, with the general causation methodology. And of course there is a general causation opinion

that there are, there is sufficient scientific evidence to support the symptomologies and health effects of formaldehyde in the scientific literature.

Q. So this statement is incorrect, there are more opinions than those just on page 34; is that correct, Doctor?

A. No. If you'll let me pull my affidavit, it's inherent to it. You just talk about location.

Q. Do you need a copy of page 34, Doctor?

A. No. I need this. No, it's also repeated on 34, I wasn't sure. It does include it.

Q. And if we can go to -- is it correct on page, in Document 924 that your use of studies was merely illustrative and did not form the basis of your opinions?

A. What?

Q. Is that a correct statement? Is it correct that your use of studies was merely illustrative and did not form the basis of your opinions?

A. The use of the studies was the basis of my -- of my references, my 2,500 references contained in 52 that I've listed forms the basis for my general causation opinion.

Q. So that statement is incorrect?

A. I didn't write that statement. I don't know. I haven't see --

Q. I am just trying to get to what we're here about.

A. Right.

Q. This is something that's been suggested to the court, and

you're telling us that that's an incorrect statement; is that right?
A. If you're forgetting that I made general causation, that study -- I don't like that statement, I didn't write it.
Q. Fair enough. If we can go to your opinions then on page 34. And it's hard to read, but, your Honor, it is in P-24. And if we can, I'll read it, but, first, "The plaintiffs have numerous symptoms and/or asthma and/or allergies that are common to the plaintiff population and typical of the scientifically documented adverse health effects caused by formaldehyde." I've read that correctly?
A. You have read that. And that's the general causation statement.
Q. Second: "The plaintiffs have the potential for extensive toxic exposure as a result of their exposure to formaldehyde in their residential environment." Did I read that correctly?
A. You did.
Q. Third, there are -- I'm sorry, see, I was going to read that one wrong. Third: "There are completed exposure pathways that are capable of producing toxic exposures to formaldehyde with resultant adverse health effects in the plaintiff population." Did I get that one right?
A. That is correct.
Q. Fourth: "The adverse health effects reported by the plaintiffs are consistent with those documented in the scientific literature

to result from exposures to formaldehyde."
A. Yes. And that's also the general causation.
Q. "The appearance of symptoms and/or asthma and/or allergies are temporally associated with the contaminated residential environment of the plaintiff population as listed on the plaintiff fact sheet."
A. That is correct.
Q. And last but not least: "Given the IARC classification of formaldehyde as a Group 1 Human Carcinogen and the scientifically documented literature demonstrating the strength of association of formaldehyde and cancer, along with the documented measures of formaldehyde exposure - the plaintiffs have a legitimate fear of cancer."
A. That's correct.
Q. Which one said, "and the plaintiffs need an education program for asthma"? Is that on this page or is that part of your general causation?
A. No, that is not. That was asked in the deposition and answered.
Q. So that's not an opinion you've given on page 34, correct?
A. No, I did not write it down on page 34.
Q. You reserved the right to submit any additional affidavit if deemed necessary.
A. Yes.
Q. Have you submitted any additional affidavits?
A. No.

Q. Let's go to the studies, if we can. Briefly. Hopefully. First, you state that the relative risk, in talking about the Hauptmann study, which is D-251, and that is the --

A. Just a minute. All right. Which study?

Q. Hauptmann.

A. H-A-U-P-T-M-A-N (SIC) or Holmstrom? I don't have a copy of the Hauptmann.

Q. H-A-U-P-T-M-A-N-N.

A. I don't have a copy of that with me. I'll have to see what you have there.

THE COURT: Is there a copy handy that we can give to the witness?

MR. WEINSTOCK: Yes, sir, your Honor. If I can approach, your Honor.

THE COURT: Yes.

MR. WEINSTOCK: I am going to give you copies of both of them and we can talk about them in conjunction.

BY MR. WEINSTOCK:

Q. You stated that the relative risk for the highest category of peak exposure, that being above 4 ppm or 4,000 ppb, was 2.9 (SIC) for all leukemia and 3.46 for myeloid leukemia, is that correct, on page 17 of your report --

A. I didn't make any statements in my deposition.

THE COURT: Let him finish the question, Doctor.

THE WITNESS: Oh, okay.

BY MR. WEINSTOCK:
Q. On page 17 of your report, did you not report to us that the relative risk for the highest category of peak exposure above 4 ppm or above 4,000 ppb was 2.46 for all leukemia and 3.46 for myeloid leukemia?
A. That came from IARC, yes. I reported -- that's from IARC 2004, I didn't go to the individual, I was doing a compilation of IRAC's information.
Q. So if I'm understanding correctly, you've cited the Hauptmann reports but you have not reviewed the Hauptmann reports?
A. IARC cited the Hauptmann report.
Q. You've cited part of the IARC report --
A. Correct.
Q. -- of Hauptmann in your report, but you have not reviewed the individual Hauptmann paper?
A. I've read it, but my -- in this particular report this was giving a compilation of IRAC's presentation of Hauptmann's articles.
Q. Just so I am clear so I understand, the relative risk that you found that you pulled from IARC was for those in the exposure group with peak exposures above 4,000 ppb, is that correct, for leukemia and myeloid leukemia?
A. I would have to go back and look at these. I was just reporting from IARC to show their evidence that they used to classify this as a Group 1 carcinogen. I wasn't reevaluating

IARC's evaluation.
Q. If you would turn to page 17 of your report, which is P-24.
A. I have it.
Q. Okay. Did you not state the relative risk for a highest category of peak exposure above 4 ppb -- I'm sorry, 4 ppm was 2.46 for all leukemia and 3.46 for myeloid leukemia?
A. That's correct.
Q. Okay.
A. That is from IARC 2004. Not my language, their language.
Q. Do you reject their language?
A. No. It's in my report.
Q. Okay. There we go. Next sentence. "Based on eight cases, a significant excess mortality from nasopharyngeal cancer was observed among formaldehyde-exposed workers in comparison with the national population (standard mortality ratio 2.10; 95 percent confidence interval, 1.05 - 4.21)." Correct?
A. That is what IARC says.
Q. But there is a footnote to that page, is there not?
A. Well, not in IARC. IARC basically was giving positive findings that they used in making their Group 1 carcinogen classification.
Q. So you're not aware, or until this moment and until you read my brief, you were not aware that the exact confidence interval we're talking about actually goes below 1.0?
A. You're saying IARC made an error? I am not aware that IARC has made an error.

Q. I am saying that in the Hauptmann paper the exact confidence interval was reported below .1 at the bottom level.
A. I really did not use it in the capacity of criticizing Hauptmann. I used it in the capacity of showing which studies, which confidence intervals IARC used to render this a Group 1 carcinogen. I did not render an opinion other than the fact that IARC has classified it as a Group 1 carcinogen and I concur and that's it.
Q. You concurred without reviewing the study?
A. I concur with IARC's elaborate monograph and their considerations, yes, I do concur.
Q. I guess my question then would be, other than handing the judge the IARC study, you're not making any expert evaluation of that study; is that right?
MR. D'AMICO: Objection to the classification as the IARC study, it's not a study.
THE COURT: Go ahead and rephrase it.
BY MR. WEINSTOCK:
Q. Other than handing the judge what IARC did with formaldehyde, you offer nothing but to -- you offer no expertise on what's written in there because you haven't looked at the underlying data?
A. No. I looked -- IARC has 803 references in its monograph. They have an advisory committee that is a worldwide representation of advisory committee. I am not making any specific causation here, I am not making any opinions at all on cancer other than to

say that IARC has presented, studied ad nauseum all of the data, with its flaws or missing or whatever it is they have looked at, and they have given, rendered it a Group 1 carcinogen.

I am not doing any specific causation. I have not rendered any opinions on cancer. If I were, then I would be going beyond what IARC and looking at individual articles.

Q. Are you aware of any travel trailer in which the levels were found to be 4,000 ppb?

A. I am not, no.

Q. But nevertheless, the portion of IARC you selected to represent to the court involved the relative risk for peak exposures above 4,000 ppb, that's the portion you lifted from IARC and gave to the court; is that correct?

A. There are many, many studies on cancer that I put in this from IARC. And as I said, my -- I am not interested in rendering opinions on cancer at this time.

Q. And these nasopharyngeal, the eight deaths actually turned out to be seven, are you aware of that, that one of them was reclassified?

A. I have not. I have not gone into the specific articles concerning cancer because my testimony is not involving that. My testimony is only involving that I concur with IARC's extensive review of all of the literature. And literature will have always some considerations that weaknesses, strengths, that's literature. That's science.

Q. If we can turn to the Stellman study. Did you cite portions of the Stellman study in your opinion?
A. IARC has included in their monographs the lymphohematopoietic SMR of 3.44 and the leukemia of SMR of 5.79 with confidence levels for both exposures to formaldehyde and wood dust.
Q. There was a column next to the exposure just to formaldehyde; is that correct?
A. Excuse me?
Q. There was -- you cited the column with formaldehyde plus wood dust, correct?
A. I did, right.
Q. There was a column right next to it -- keep going, it's there -- there was a column right next to it with formaldehyde exposure only, correct?
A. No. I cited IARC, I am not citing that column or that study. That's the Stellman study itself. I cited IARC. And only for illustrative purposes to show that they had voluminous information to review and consider all aspects of all of these articles in rendering their Group 1 carcinogen classification.
Q. On page 34, are you telling us that your opinion that the plaintiffs have a reasonable fear of cancer is solely because of what IARC said? You've reviewed no other papers, you've drawn no other conclusions from these papers, and you're not familiar with these papers, is that what you're telling this court?
A. No, it's not what I'm telling this court. I am telling this

court I concur with the Group 1 classification that IARC has rendered of a carcinogen as a toxicologist. Any time you have a DNA reactive carcinogen you know that you have the potential to form a mutant cell that will become a malignant cell. As a toxicologist, once you see the extensive DNA reactivity of a compound you know that it is capable of forming a cancer.

So it's not just what IARC has said that I concur with them. I think the toxicokinetics are extremely important and they're also in the IARC monograph beautifully done.

Q. And we sat here and you showed us where ATSDR got all of its levels from, correct? You went back and looked at those papers, right?

A. No. ATSDR did not do -- IARC did, you said ATSDR.

Q. ATSDR picked an MRL, yes? They calculated an MRL, isn't that what you told us?

A. They picked a particular study out of their 1,100 plus studies to calculate an MRL.

Q. And you looked at that study --

MR. D'AMICO: Objection, your Honor, objection. It's a mischaracterization. The ATSDR MRL's refer to the non-cancerous risks. He's been asking her about the cancer studies in IARC and now he is trying to infer that ATSDR --

THE COURT: Well, I am going to overrule it because I think that the witness can certainly make that clarification if it's necessary. I'll certainly allow her to do that in response to

the question.
BY MR. WEINSTOCK:
Q. And Mr. D'Amico, to clarify his concern, I am not talking about what cancer and which studies you looked at and which studies you didn't. I'm talking about your methodology. When you looked at what ATSDR did, you went back and found the studies on which they relied, correct, isn't what we saw this morning?
A. Right. Because I was interested in testifying on non-cancerous health effects, not interested in testifying on the cancers, but wanted to make sure that I could put into for completeness the IARC classification of formaldehyde as a Group 1 carcinogen.
Q. But when you came back and looked at IARC, you chose not to look at any of the underlying data behind their decision?
A. If I am going to make a specific causation on cancer I certainly will. But that is not my purpose here, that is not my opinion. None of those are my opinion.
Q. Just so I am clear, as we sit here today, you are not giving the opinion that formaldehyde is a carcinogen because you have not done the underlying work; is that right?
A. No. I am concurring with IARC that it is a Group 1 carcinogen because I have read it from cover to cover in the manual, in the monograph that IARC reports. It puts the data, flaws as well as strengths, it discusses them. Some of the articles I have read but not for purposes of this trial to be ready to present it here, but I read them on a regular basis.

But based upon that, based upon their Group 1 carcinogen, I concur with that, after reading their monograph and many of the articles I have already had knowledge of. But I am not rendering a cancer opinion here, so I am not going to do the work on the cancer opinion when I am not rendering a specific causation opinion at this time.

Q. I think that's where I started. You are not rendering an opinion on cancer today, correct?

A. That is correct.

Q. Okay. You follow the Bradford Hill criteria; is that correct?

A. I followed the original Bradford Hill criteria as incorporated into the Federal Reference Manual on Scientific Evidence, which, of course, Rothman has also updated those Bradford Hill; and they're not criteria, Bradford Hill didn't call them criteria, they are points for consideration. And, yes, that is the methodology required for a causal opinion.

Q. And one of those is consistency?

A. Consistency is -- well, consistency has a connotation today that consistency is you see the same effect in many different studies.

Q. And that's what you reported in your report, right?

A. I showed you three different studies on the damaged epithelium of the respiratory tract because -- and I said that when I showed them -- that is one of the things you are looking for.

Q. And you put in your report consistency. Is there a consistency

repeated observation of an association in different populations?
A. Correct.
Q. And I think you said during Mr. D'Amico's examination that according to the federal judiciary guidelines, you need multiple studies; is that correct?
A. I said -- I gave three studies, yes.
Q. Would you agree that your methodology when it comes to selecting studies is to only look for those that prove an association?
A. No. You already pointed out some that said different things. No. You look in there and I have some that don't. I have an extensive -- and so does IARC and so does ATSDR. ATSDR has over 1,100 studies and many of them don't prove an association, that's why it's such a wonderful reference.

No, I don't just look for those, I look at both.

Q. Have you ever testified otherwise?
A. Have I ever testified otherwise what?
Q. Have you ever testified that all you look for are studies that show an association?
A. I testified that I look for studies that show an association. I don't think the word all is, you know, I don't recall ever saying all. I would have to see what the question was to make that statement. But I look at the voluminous amount of literature. Sometimes depending on what the issue is at hand, I may be presenting a preponderance of those that prove the case, but that

doesn't mean that I haven't looked at the others.
Q. Am I correct that you consider negative studies to be meaningless?
A. IARC makes a statement in the front of their -- negative epi studies cannot prove the no. You cannot take a negative result, that's a cardinal rule of epidemiology, and prove that something isn't. You can't prove a negative. And that is standard. So that is correct. You cannot make that conclusion.
Q. And I don't -- I am not concerned about IARC's methodology, I am concerned about Dr. Williams' methodology.
A. My methodology is the same as the methodology in epidemiologies. You can't prove the no, you can only say we have not found results because of the nature of epidemiology. If you do say that negative result proves that you are giving epidemiologically incorrect information.
MR. WEINSTOCK: Your Honor, may I approach?
THE COURT: Yes.
MR. D'AMICO: What page are you going to?
MR. WEINSTOCK: I don't know. If we can go to page 132.
BY MR. WEINSTOCK:
Q. This is your answer, "That is the cardinal rule of epidemiology, all I look for were epidemiological studies and I look for those that would prove an association."
A. Well that's correct. That's just what I told you. If you're looking for epidemiology, you've got to find positive studies. You

can't -- the negative cannot prove the no. So that is an absolute correct statement.

Q. If we can continue. Next slide. Same page. "I chose were articles that would prove and showed an association. Since epidemiology is by design, negative studies are meaningless."

A. Correct.

Q. "They do not mean there is no association. They strictly mean they did not show no association."

A. That is absolutely correct in what I said.

Q. And that is -- I just want to make sure that is your methodology as we stand here today?

A. That is the nature of epidemiology, sir. You cannot prove the no. You can only -- you must look for positive associations. That is expressed in epidemiology texts, that is expressed in the beginning of IARC --

Q. I just want your methodology.

A. That's not just my methodology, that is the methodology of the state of science.

Q. So if we had three studies and two showed an association and one showed no association, the one, as you said with no association, is meaningless; correct?

A. Correct. And IARC also says if you see an abundance of negative epi studies but you have one with a positive association, then you have to look at that positive association.

Q. And that's your opinion. So if we had --

A. That's not just my opinion.
Q. If we had ten studies and one was positive and nine showed no association, you would opine, got to go with the positive, the negative is meaningless. Correct?
A. Correct. And the thalidomide debacle were children were born without limbs there were a lot of negative studies.
MR. WEINSTOCK: Objection, your Honor. I got an answer to my question. Can I get the next one out?
THE COURT: Yes, let's just stick with the question, ma'am. There will be an opportunity for redirect it counsel chooses, but let's not get argumentative, either one of you, let's not get argumentative. Stick with the question. Answer the question and move on to the next one.
BY MR. WEINSTOCK:
Q. And if we had a million studies and one showed an association, 999,999 showed no association, because they're meaningless, you discount all of that and you just go with the one, correct? Is that what you just said?
A. You would have to recognize the one. It's the design of the epi studies. If you could do a million studies trying to locate the etiologic vector of AIDS in a million bottles of blood to prove that it was transmitted through the blood, and they would all be negative because you have to find that person with AIDS that has the virus in the blood. That is absolutely correct.
Q. Another Bradford Hill, what did you call them, points of

emphasis, not criteria, would be dose response?
A. Well, either dose response or biological gradient. A dose response can only be done in mostly experimental would be, for the most part in animal studies. Sometimes if it's -- a long time ago, decades ago you could do a dose response in humans. Sometimes we do see dose responses in epidemi but it's usually a biological gradient.
Q. And that's what you put in your report, that dose response, biological gradient is necessary, correct?
A. That is correct.
Q. The more of something that's hazardous, the more likely you are to get the effect, correct?
A. It depends. There are many, many dose response for every chemical. It's not just one dose response for a chemical. So you may see a dose response at certain concentrations for a particular chemical, you're making the assumption that what you're looking for is a response that would be elicited. No, you don't see dose responses with allergic sensitization because of the nature of the allergic sensitization; and you don't see dose responses per se with the -- and the hormonal, the very, very small levels of environmental estrogens and hormones because that's at such small levels you may not be able to demonstrate it.
Q. Would you agree with the following statement: "If the dose of the toxicant is low, only a few DNA molecules will be changed. And it is likely that the body's defense mechanisms will be able to

repair the damage, particularly in healthy adults with a net result of no observable damage."?

A. I agree with that statement but I take it into more to the cellular level as I've already said. If the same cell gets more than one hit, then it's probably not going to be able to handle that kind of a damage and it won't be able repair it. Whether it can go into apoptosis and destroy itself or whether it goes on to divide is the question.

Low doses -- certainly the higher a dose the more likely you are could have multiple hits in the same cell.

Q. And in the studies either you reviewed or IARC reviewed, or some of the ones we saw today, the lowest level of any association between or claimed association between childhood asthma and formaldehyde was 40 ppb; is that correct?

A. I think it was 49, I am not sure. It's somewhere in the 40s.

Q. It was not 1 ppb?

A. None of the studies went that low, no.

Q. It was not one molecule?

A. For asthma, no.

Q. Right. And that's the point, for asthma we're not talking about a single molecule?

A. No, we're talking about a sensitization, it's a totally different process.

Q. If we can talk about asthma for a moment. I think you reviewed the Children's Health Fund Study, correct?

A. I did.
Q. And on page 10 it stated that: "According to parents, rates of clinically-diagnosed asthma among their children increased from 18% to 26% since the hurricane, a nearly 50% increase in prevalence." Is that correct?
A. I'm having trouble seeing it.
Q. Page 10 if you're having trouble.
A. Page 10, yeah, I'm having trouble seeing that one. All right.
Q. Is that correct? Is that what --
A. That is what it says, yes.
Q. The parents reporting asthma is 26 percent, correct?
A. Yes. It was a report, yeah.
Q. But on the same document on page 13 -- let me know when you get there. First full paragraph, maybe second. Are you there? Same document, page 13.
A. Okay.
Q. The asthma rate was fairly typical at 11 percent. When the doctors diagnosed asthma and they reviewed the records as opposed to the parents reporting it, the asthma rates had not changed. Is that correct?
A. That is probably the only sentence that I wouldn't say I disagree with, but I have to do my own research on that because the asthma rate by CDC when I did the Grand Bois study and a few years after was 5.4 percent, that's a high number. I'm not sure, I don't know where that number came from.

Q. So you disagree that asthma -- 11 percent is the correct level for asthma?
A. Eleven percent is higher than what CDC published at the end of the 1990s, so I don't know if we're having an increase in that -- that was CDC that published it. So I don't know the difference in the two numbers and that would be the one thing I would question to look further at it.
Q. Well, whether we're talking about 5 percent or 11 percent, that's a lot different than 26 percent parent reported, correct?
A. Well, the parents are reporting 20 percent, that's what they're reporting.
Q. And parents aren't doctors, most of them, yes?
A. A parent is more in a position to know when their child is having difficulty breathing at night, wheezing, you know. The parent is the key to tell the pediatrician what's going on with their child, so they're very, very credible.
Q. The parent's more credible than the doctor when it comes to diagnosing asthma?
A. The doctor needs the input from the parent to make the diagnosis of asthma in a small child. The child can't talk, so the parent is used for these children are not verbal yet to give them the information they need to help and to make diagnoses and assist the children.
Q. You referred us to the Wantke study that you reviewed, P-80, on childhood asthma.

A. Okay.
Q. I think you told us that the way, the mechanism by which asthma makes an impact on -- I'm sorry, formaldehyde makes an impact on asthma is increased IgE levels.
A. That's one way. And that's what this article is addressing.
Q. That's what this article was studying?
A. That's correct.
Q. And towards the -- you see the section on results on page one?
A. Yes.
Q. The end of the last of that paragraph, I believe it's the last full sentence, "However, elevated IgE levels of formaldehyde did not correlate with symptoms." Is that correct?
A. Right.
Q. How long have you suffered from asthma?
A. I don't have asthma.
Q. Even after all of that work you did with formaldehyde as a lab person?
A. I have a skin sensitization, I can't wear eye shadow or certain eye liners, make my eyes swell and close and tear. I have more of the skin type reaction from the asthma. No one in my family has a history of asthma. I obviously don't make IgE. You're genetically programed to make IgE. I'm sure if I did I would have it.
Q. Referring to the non-cancer effects other than asthma. Did you attend a meeting with Dr. Shellito, the plaintiffs' experts?
A. There were a couple of meetings that he wasn't the only person

there.
Q. Have you reviewed Dr. Shellito's report?
A. Yes, I did.
Q. Do you agree that when you're removed from the trailers or from the vicinity where you're getting formaldehyde, there should be a return to baseline for most of the effects from formaldehyde, non-asthma. Would you agree with that statement?
A. Well, you're asking the wrong person because I no longer have contact with formaldehyde, and I still -- formaldehyde is present in so many things that basically you react, once you have -- if you have some type of sensitization, whether it's IgE or otherwise, and you come into -- that's the problem, once you're sensitized, you come into it in an every day world, as I do, and I have the same reaction as I had when I was standing over the cadaver and I haven't been with a cadaver for many years.

So that is the problem because it is so ubiquitous, once you are sensitized, you have a real problem for life.
Q. If Dr. Shellito in his report, which is P-21 on page 5, stated: "Removal of the resident from the housing unit and the formaldehyde should result in a lessening of asthma symptom s and a return of preexisting disease to baseline." Based on your personal experience you would disagree?
A. No. He said a lessening of asthma symptoms, certainly I agree with that. A lessening. I mean, I don't come in contact with some of triggers that start my contact dermatitis. The same with a

child with asthma. They are not going to have an every day 24/7 exposure once they're out of the trailers, that's what he's referring to and I agree with that.

Q. Asthma symptoms, not a lessening of asthma. What he said was -- he wasn't making any opinions about asthma, to your knowledge, was he?

A. He was talking about it, a lessening of asthma symptoms, you just read it.

Q. Asthma symptoms --

A. Correct.

Q. -- as opposed to actually diagnosis of asthma?

A. Well, diagnosis happens once, the symptoms happen many times. You start having the wheezing, the bronchoconstriction, the chest tightness, that's what he was talking about. A lessening of that because you're out of the 24/7 environment and I agree with that.

Q. But you would agree that wheezing, shortness of breath, tight chest, as he said, could be caused by many, many other things other than formaldehyde?

MR. D'AMICO: Your Honor, I just object to this line of questioning. She is not Dr. Shellito, she is not offered as an adult pulmonologist.

THE COURT: Well, if she can answer it I am going to allow her to answer it. I think both she and the statement that Mr. Weinstock is citing to are expert opinions being offered by the plaintiffs in this case. So if she can comment on it, fine; if

not, then she can so state.

THE WITNESS: I'm sorry, I lost it. Would you repeat the last question that you were asking?

BY MR. WEINSTOCK:

Q. You would agree that asthma like symptoms, shortness of breath, wheezing, chest tightness can be caused by many, many other things other than asthma?

A. Well, you have many triggers, you don't have one trigger.

Q. So when he says asthma symptoms, that's not necessarily -- and he certainly answered the question that way -- that you have asthma and it increases it or decreases it, there are symptoms, asthma-like symptoms that may or may not return to baseline?

A. Once you have asthma, you have asthma for life. When you come in contact with your triggers, you will have the asthma symptoms.

Q. You've given an opinion that one molecule can -- exposure of one molecule of formaldehyde can result in cancer; is that right?

A. No. I gave the toxicological knowledge that a DNA mutation, it only theoretically takes one DNA mutation that is not repaired that can be, if it is eliciting an -- if it is going to elicit a cancer, that's all it would take because that's what we know with a DNA reactive carcinogen.

Q. One molecule of formaldehyde can cause the DNA damage you're referring to?

A. Theoretically one molecule, one mutation that is not repaired or that in a cell that does not undergo apoptosis or that does not

cause other problems that the cell cannot survive, theoretically can cause the mutation. And if it persists and it divides into daughter cells, into a clone, then that is what the gene is turned on for that cancer formation.

But that's a theoretical evaluation. We know that the risk increases with multiple hits of the same cell.

Q. Doctor, is it correct that every one who has inhaled formaldehyde has some damage?

A. Yes, I think it is. I think this is quite obvious. These workers, this is a reactive electrophile. This thing comes in and it does damage. It's the nature of the molecule, it's the unfortunate nature of the molecule. It does damage and it hits that tissue and you see the tissue damage on the slides that I showed and the studies I showed.

Q. One breath of formaldehyde and that causes damage, correct?

A. I didn't say one breath of formaldehyde, I said -- I never made a statement with one breath of formaldehyde.

Q. Everyone who has come in contact -- I'm sorry. Everyone who has inhaled formaldehyde has some damage?

A. I said that a cross-link, if a formaldehyde molecule hits a tissue, it forms a cross-link and that is damage.

Q. Do you remember giving this question and answer: "Backing up a little bit, Doctor. I believe earlier you said that everyone who has inhaled formaldehyde has some damage."

A. Right. If you're inhaling formaldehyde, it is a reactive

electrophile. It is going to hit the tissue, it is going to damage the tissue. Now, what extent, you know, that you have to look at biopsies for.

Q. I'm sorry if I am a little dense. Is one breath not enough?

A. This is a breath (DEMONSTRATING).

Q. One breath of formaldehyde, is that enough or not?

A. If it hits the tissues, if the formaldehyde -- on a molecular basis, if the formaldehyde makes contact with a cell that has electrons, it is going to form a cross-link. A cross-link is damage. I have seen the damage at a one cell level under the microscope.

Q. And then for everybody who breathes it in, whether it's one breath or 1,000, has damage?

A. If you are breathing in formaldehyde at the cellular level, you have cross-linking. I have looked at that cellular level of cross-linking under the electron microscope because I used to do just that.

Q. And just so we're clear, I don't want to be accused of mixing and matching, the damage we're talking about is DNA damage that can ultimately lead to cancer?

A. No. The damage we're talking about with those cells is either -- if the cell membrane, it can be at the DNA level but it doesn't have to be. Those were cell membranes that were hit. Those were total changes from the cuboidal cell with the cilia. The cilia have no DNA inside of them, that's the cell membranes

that were being hit.
Q. Go back to 236. Doctor, did you give this answer in your deposition: "If the one molecule is in its reactive electrophile form comes in contact with any part of a cell, it's going to combine, it's going to cause damage. Now observable damage, you know, no. Not unless that observable damage becomes later on a clone of mutant cells has become a cancer." Isn't that the cellular damage you're talking about today?
A. That was the cellular damage I was talking about in that question. The cellular damage that I talked about throughout that deposition was not just DNA, it was cell membranes, cilia are hit, cross-links are formed, they're destroyed; membranes are hit, cross-links are formed, they're destroyed. You can also have the DNA hit.
Q. But if I am understanding your prior testimony, we don't have a study that suggests, for example, for asthma that you see it below 40 ppb -- 49 ppb? I think you corrected me.
A. I think 49 ppb was the lowest. Now, we did see in one of the studies in children already diagnosed with asthma below I think it was 50 ppb, I think it went as low as 30 ppb, we saw an increase in the bronchoconstriction.
Q. Forty-nine ppb, is that one breath or more than one breath in residential settings?
A. You know, in a residential setting you're in 24/7 breathing. One breath is a fraction of a minute.

Q. We talked earlier about cigarette smoke containing formaldehyde.
A. Right.
Q. And are you familiar with the --
A. Wait, I'm sorry. Did you just say cigarette smoke contained formaldehyde?
Q. Containing formaldehyde.
A. Oh, okay.
Q. Formaldehyde is a component of cigarette smoke, and that's what you put in your report, correct?
A. Well, it can be, yes, it is. It's used as a preservative.
Q. Are you familiar with the Surgeon General's 1979 report that states: "Mainstream cigarette smoke contains as much as 214 ppm of formaldehyde."?
A. We know that cigarette smoke has formaldehyde and many other things also.
Q. And in the tox profile you referred to, office buildings that permit smoking had as much as 600 ppb of formaldehyde; is that correct?
A. Smoking is a source of formaldehyde and in some of the studies the smoking is, exacerbates the situation with the formaldehyde.
Q. And would smoking ten cigarettes a day lead to the damage you've talked about from breathing in formaldehyde to cause the cellular damage to cause the DNA cross-links?
A. We know that smoking -- smokers lose the cilia on the

pseudostratified ciliated columnar epithelium, so, yes, you see some of the same patterns in the smokers.
Q. Have you ever testified otherwise?
A. I don't think I've ever testified with smoking and formaldehyde.
Q. If you can go to the Acres deposition, page 49. "Dr. Philip Cole taught me one of my graduate level courses in epidemiology at Tufts University."
A. Correct.
Q. "And he did some of those earlier studies, and he presented that ten cigarettes there could be no association below ten cigarettes a day, a day, a day."
A. Right.
Q. "Q. Ten cigarettes per day? A. Correct. Q. There is no association? A. That's correct."
A. To lung cancer.
Q. "Q. To what? To lung or any of the cancers."
A. And that is correct and that has been published.
Q. The ten cigarettes with formaldehyde in it, that's not a problem below ten cigarettes, correct?
A. I didn't say that. This is about lung cancer and ten cigarettes a day is the cutoff in the studies, Silcoff and Philip Cole, this is well published. Above ten cigarettes you begin to see the association with lung cancer.
Now, formaldehyde, I've not seen any studies that bring it

down to how many cigarettes a day with the actual loss of the cilia, et cetera, I just know that that is what happens when you do smoke.

Q. You said or any of the cancers.

A. For the lung cancers.

Q. Well, in fact, Ms. Acres suffered from pancreatic cancer, correct?

A. No. Her husband died --

Q. Her husband died from pancreatic cancer.

A. Pancreatic cancer, that's correct. That's correct.

Q. And do you remember the opinion you gave regarding the exposure to formaldehyde as a risk factor for his pancreatic cancer?

A. I don't recall it, you'll have to point out formaldehyde because I don't remember.

Q. Let's go to page 167, I'm sorry, if you don't mind. "Q. What article have you produced to us that supports your association with or between formaldehyde and pancreatic cancer?" You looked for it and then you said, "Here it is, 6.9. Occupational risk factors for pancreatic cancer and formaldehyde exposure. And it is a moderately increased risk. It describes --"

A. Wait, let me.

Q. This is taken from the article, associated with a moderately increased risk of pancreatic cancer. So if I am understanding correctly, cigarette smoke by Mr. Acres when you've been retained by his lawyers is not a problem below ten cigarettes, but one

molecule of formaldehyde from a travel trailer, that's the killer, right?

A. We're talking about cancer, counselor. When I talked about the molecule for molecule reaction, the cross-linking, that was the mechanism of action. That's two different things and I am not talking about a cancer when I am talking about the molecular mechanism of action with the formaldehyde.

It could be the mechanism of action for a cancer, but this is certainly not anything to do with that. This is looking at cigarette smoking as regards to pancreatic cancer. We are not discussing pancreatic cancer, I've made no opinions on pancreatic cancer. Obviously there are studies that associate formaldehyde with pancreatic cancer. I didn't even recall it, but it's a pretty strong association.

But what I'm talking about was the cross-linking is indiscriminate, that's the toxicity of this molecule. If it hits a molecule with electrons, it is going to form a cross-link. A cross-link is damage, it's damage.

Q. Doctor, I am going to give you one more chance to explain it to a pretty dumb lawyer. Can one molecule from formaldehyde cause cancer or not?

A. I have made no -- I said theoretically a DNA reactive carcinogen in toxicology, we know the potential is there. That is not usually the case. One hit can be repaired or apoptosis can occur.

But theoretically, one mutation is all that is needed to cause the cancer, and that is known.

Q. Unless that molecule comes from ten cigarettes a day smoked by Mr. Acres?

A. Unless that molecule comes from -- we're talking about non-cancerous versus cancerous. If the hit is successful and we do know evidently I've looked at studies that show that pancreatic cancer can be caused by formaldehyde. It is not one of the cancers that IARC has ruled on.

Q. Doctor, the formaldehyde we breathe in the air, is that the same molecule of formaldehyde that our body makes?

A. We have what we call is endogenous formaldehyde, it is the same that we make on a daily basis when we are having cellular metabolism, when we are having, taking medication formaldehyde is made and handled very rapidly within the blood stream within a minute, the half life. It will be broken down, and I've already showed where it goes in the tissues, cross-links, et cetera, in the urine, in the feces, and off as CO_2. That's correct.

Q. Just so I understand your answer, the formaldehyde you breathe in, the molecule is the same as the formaldehyde your body makes in normal metabolism?

A. The difference is you're taking that formaldehyde in from the outside and so as it comes into the body you're causing damage. When it's in the body, it's being made endogenously so it's not causing harm because we have enzymes. If you make urine, you don't

get sick. If you drink urine, you get sick because you're not supposed to be drinking it. You put it in through an abnormal location.

Q. Doctor, did you give the following testimony in your deposition: "The formaldehyde that's naturally present in the human body, is that the same formaldehyde that is in ambient air? Correct, it's the same molecule."

A. Well, I said it's the same molecule. But I also said if you're bringing it in through an abnormal location, you're inhaling it, it's not the same pathway. We're making it endogenously and the body handles it. The body handles a lot of toxic compounds, it knows how to handle iron, it knows how to handle lots of toxic compounds.

But when you're bringing it in from the outside, that's not the same thing as the handling, the packaging, the rapid deterioration of it when it's formed in the body in the blood. You're drinking urine making yourself sick instead of just making urine and excreting it.

Q. Does your body use formaldehyde for normal metabolism?

A. It is a normal metabolic process, that is correct. But when the enzymes -- I've already said when the enzyme systems breakdown, then you have a problem.

Q. Does your body use urine for normal metabolism?

A. You're not using urine, you're making urine and getting rid of unwanted substances from the body. That's what urine is.

Q. If I take two molecules of formaldehyde from the human body, one that was breathed in the air and the other that was made by the cell, can you tell them apart? Can anybody tell them apart? Can the body tell them apart?
A. The molecule is the same.
Q. But to you it's somehow marked or scarred because it came in from the outside, correct?
A. No, not to me. That's what the scientific body of knowledge is very, very profound and correct that as it's coming in that respiratory tract, I've already showed you the damage it does, that's not where you want to bring it in. Making it inside of your body and handling it properly and getting it broken down quickly is normal. But breathing it in 24/7 and causing damage to the cells as you're breathing it in is not.
Q. You talked earlier about the MRL's being 8 ppb?
A. The chronic MRL.
Q. Chronic MRL. And as I understand it, you're familiar with the portion of ATSDR where background, the background level, the outside level in certain urban areas is 16 ppb or twice the MRL; is that correct?
A. I don't recall exactly what it was. I would have to see it. But in urban areas it is higher.
THE COURT: Mr. Weinstock, you've used about an hour of time.
MR. WEINSTOCK: I have maybe four minutes left, your

Honor, but I appreciate it.

THE COURT: It's up to you. Like I said, you don't leave much time for the other witnesses, but maybe we don't need that much time.

MR. WEINSTOCK: I hope not.

BY MR. WEINSTOCK:

Q. "A. In urban areas, it's anywhere from .8 ppb to 16 ppb."

A. Right.

Q. That was your answer at your deposition?

A. Yeah. I haven't looked at it, but that's correct.

Q. And you don't dispute that today?

A. No.

Q. If we can put up the next slide. Judge, this is coming from the plaintiffs' presentation -- you know what, I'm not going to do that here, I'll do this as part of my closing piece. So that means that we're done with that.

One last point. Who is Lynn Eric Williams?

A. Lynn Eric Williams, Sr. or Jr.?

Q. Junior.

A. Junior is my son.

Q. Lynn Eric Williams, Jr. is your son. Is Lynn Eric Williams one of the attorneys that represents a plaintiff in this MDL?

A. He has a cancer case and he is not a part of the class cert -- I mean, I don't know the mechanics of a class certification, but he doesn't do class certification, he does individual --

Q. He's got a suggested leukemia case that's in this MDL, correct?
A. I don't know. I really don't know.
Q. Have you discussed Mr. Geathreaux with him?
A. No, I don't discuss -- I haven't at this point discussed it. I think he has a couple of people, but I am not quite sure.
Q. And you have consulted with your son in the past on cases, correct?
A. Oh, I always, you know, if -- I can't serve as his expert witness, but I will serve as his consultant when appropriate.
Q. So if he is a member of the plaintiffs group, you could not consult as one of their experts, is that what you're saying?
A. I am not his consultant at this time.

MR. WEINSTOCK: That's all I have. Thank you.

THE COURT: All right. Thank you, Mr. Weinstock. Any follow-up -- I see Mr. Miller. Did you have anything?

MR. MILLER: The government has some questions, please.

THE COURT: Certainly.

MR. D'AMICO: I keep forgetting about the government in this case.

MR. DINNELL: Your Honor, Adam Dinnell for defendant United States.

CROSS-EXAMINATION

BY MR. DINNELL:

Q. And, Dr. Williams, I want to talk with you briefly about manufactured housing units. All right. You understand that by

manufactured housing units I'm talking about mobile home units?
A. Well, I know there are different distinctions between the difference, if you'll let me pull my --
Q. Right. You understand that manufactured housing units are regulated by the Department of Housing and Urban Department, HUD?
A. Yes.
Q. Isn't it true that in regulating mobile homes, HUD has issued a targeted indoor ambient formaldehyde level?
A. Yes.
Q. And this has come up in the past in your deposition, right?
A. Yes.
Q. You've seen that HUD target level, correct?
A. Yes.
Q. And you know that it's .4 ppm?
A. Yes.
Q. .4 ppm is 400 ppb, right?
A. Yes.
Q. I want you to take a look at what's been submitted as Government Exhibit 86, we're going to put this up on the board. This is the first page of G-86, HUD-1 is the document. And this is a citation to the Federal Register and this is HUD regulation on manufactured housing titled Rules and Regulations, Department of Housing and Urban Development. Can you see the first page there?
A. I really can't read it. But as long as -- I'm sure somebody will let me know if you're not reading it right. Go ahead.

THE COURT: Do you have a copy you want to let her see?
MR. DINNELL: Sure.
MR. D'AMICO: Can we have a copy of it, too, Judge?
THE COURT: No, it should be in the exhibit book. It's No. 86 in the book.
BY MR. DINNELL:
Q. Doctor, do you see the first page there of G-86?
A. Yes.
Q. Do you see the paragraph titled Summary?
A. Yes.
Q. Now it says that, "HUD is revising its manufactured home construction and safety standards to improve the safety and quality of manufactured homes." Did I read that correctly?
A. Yes.
Q. And then it says, "Standards limiting permissible amounts of formaldehyde emissions from plywood and particle board are being added." Correct?
A. Yes.
Q. Now I want you to turn to page, HUD-7 of G-86.
A. Page seven?
Q. Right. You got it?
A. Yes.
Q. Okay. Do you see down at the bottom there's a paragraph titled (D) Targeted Ambient Level?
A. Yes.

Q. That paragraph reads, "The Department has concluded that an indoor ambient formaldehyde level of .4 ppm provides reasonable protection to manufactured home occupants. The Department has determined that the plywood and particle board standards will result in indoor ambient formaldehyde levels of not greater than .4 ppm," and then it goes on. Do you see that section?

A. Yes.

Q. And again, .4 ppm is 400 ppb when you convert it, right?

A. Correct.

Q. Now, let's look at HUD-10. Do you have HUD-10 up?

A. Yes.

Q. I am in the last paragraph, and it states, "The Department," meaning HUD, "has concluded that there is insufficient medical and scientific evidence to substantiate more than minimal health benefits when formaldehyde levels are reduced below .4 ppm." Do you see that?

A. Yes.

Q. Now, when the government sets values like this, they have to take into consideration both health, safety, but also political factors and economic factors; is that right?

A. That is right.

Q. And you disagree with the HUD standard?

A. I sure do.

Q. Okay. And why is that?

A. Well, because you are certainly ignoring the people on that

bell shaped curve at 400 ppb. You still have irritation to the eyes, tearing of the eyes at 400 ppb is the lowest, irritation to the eyes 8 ppb, headaches 20 ppb, nausea/vomiting 20 ppb, difficulty -- let's see. Diarrhea, 20 ppb, wheezing, shortness of breath, persistent cough, tightness of the chest, all 400 ppb; bronchitis four -- throat irritation, 81 ppb, laryngitis -- not laryngitis. Dizziness, 200 ppb; those are in my report as the lowest end on that Gaussian or bell shaped curve. So you're really ignoring the susceptible population when you make that determination. And since you said it concerns money, economics and politics, but really more economics I think than anything.

Q. And the government decided that .4 ppm would be that standard, right?

A. For their purposes.

Q. And that standard is still in effect to this day, correct?

A. As far as I know it is.

Q. And I just quickly want to take a moment to talk about responses to formaldehyde concerns, okay. We're going to look at G-91.

A. I don't have a 91.

MR. DINNELL: May I approach, your Honor?

THE COURT: Yes, go ahead and give it to her.

THE WITNESS: Oh, you mean another exhibit.

MR. DINNELL: Got it?

THE WITNESS: Yes.

BY MR. DINNELL:
Q. G-91 is a document titled Important Information for Travel Trailer Occupants, correct?
A. Correct -- well, let me see if that's the same, yeah.
Q. The cover page --
A. Yeah, I saw it.
Q. Have you seen this document before?
A. No.
Q. Were you aware that the government had issued this brochure to residents of travel trailers?
A. No.
Q. Now, I want you to turn to that page that actually has the text on it, and on the far right side there is a paragraph titled "What can I do to reduce my exposure to formaldehyde in my travel trailer." Do you see that?
A. Yes.
Q. In that section FEMA made four recommendations as the how to reduce formaldehyde in a travel trailer. Do you see those?
A. Yes.
Q. The first method was increase ventilation, correct?
A. Yes.
Q. The second method, keep indoor temperatures moderate; do you see that?
A. Yes.
Q. Third method, lower the humidity. And then fourth method, do

not smoke inside, correct?
A. Right.
Q. And specifically, that first one, increase ventilation states, "You can reduce your exposure to formaldehyde by bringing more outdoor air into your home. Open windows and doors whenever possible." Is that right?
A. That's what it says.
Q. Right. Now, you would agree that increased ventilation inside a residence can effect the levels of formaldehyde, correct?
A. Increasing the ventilation can reduce them.
Q. Now, we talked earlier about the ATSDR toxicological profile, correct?
A. Correct.
Q. And you said that it's voluminous, comprehensive -- the leading information center for information about center substances, correct?
A. Well, it's a leading document for -- that really, it relates to communities, but I mean, it's a leading scientific document, but they often try to word things in the beginning for lay community people.
Q. I want to take a look at that, that's G-84, and this is the ATSDR toxicological profile.
MR. DINNELL: May I approach, your Honor?
BY MR. DINNELL:
Q. And you've identified this ATSDR toxicological profile as one

of the documents that you reviewed in your work on this case; is that right?
A. That's right.
Q. You've read it cover to cover?
A. This is -- oh, wait here it is. Okay. Yeah.
Q. Got it?
A. Yes, I found it.
Q. And you've read the profile cover to cover during your work on this case?
A. I have read the profile. It has some areas that are redundant, so if I am hitting another redundant area I may not read that exact --
Q. But you've cited to this document in your work?
A. Yes, I have covered it extensively.
Q. And the toxicological profile is issued by the ATSDR like you talked about earlier, right?
A. Yes.
Q. It's a government agency and is a peer-reviewed document; is that right?
A. Oh, yes.
Q. Now I want to direct your attention to the portion of the toxicological profile that discusses how to reduce or respond to formaldehyde concerns. It's page ATSDR-25.
A. That's page 25 up there?
Q. And that's page 25 is the coded page number, ATSDR 25.

A. At the bottom (INDICATING)?
Q. That's right.
MR. D'AMICO: Page six at the top.
MR. DINNELL: Right.
THE WITNESS: Okay. Got it.
BY MR. DINNELL:
Q. Now, in the second paragraph on this page, the ATSDR reports, "Formaldehyde is usually found in the air." And then it states, "Opening windows or using a fan to bring in fresh air is the easiest way to lower formaldehyde levels in the home and reduce the risk of exposure to your family." Correct?
A. That is what it says.
Q. And you'd agree with the ATSDR that in indoor environments opening windows or using a fan can successfully lower formaldehyde levels?
A. In the air. It says in the air. It doesn't address the formaldehyde that has dissolved on the, in the water of the pacifier or the baby's bottle or that has been absorbed into the carpet and is -- you know, it doesn't address that. It's talking about this is the way we get it out when it's in the air. It's not addressing some of the major areas that I think concern the need for the children.
Q. But ventilation can help get formaldehyde out of the air, right?
A. In the air, if it's in the air, yes.

Q. And ventilation is what was recommended in the FEMA brochure that we put up on the board earlier, right?
A. It's a band-aid approach. It can certainly, you know, allow air to circulate to the extent that it can -- I mean, my impression of these trailers they don't have these French doors that you can hold wide open. So it's limited for air to be able to flow through that. I've seen little windows, correct me if I'm wrong, and they have a better ventilation. But some ventilation, I wouldn't be too optimistic how much.
Q. And ventilation is an approach recommended by the ATSDR?
A. Well --
Q. You just read it.
A. It's a statement that if it's in the air and you get fresh air in you're going to reduce it, and it's talking about that component that's in the air, but it's not addressing, as I said, the concerns that I have with drooling babies and pacifiers and baby bottles that would be dissolved in the water that they're having their own ambient environment.
Q. Let's look at one more document here, we're going to go to G-89, it's an EPA document titled An Introduction to Indoor Air Quality.
A. In here (INDICATING)?
MR. DINNELL: I'll bring it up to you. May I approach, your Honor?
THE COURT: Yes.

BY MR. DINNELL:
Q. Do you have G-89 in front of you?
A. Yes.
Q. And that's an EPA document titled An introduction to indoor air quality, correct?
A. Yes.
Q. You've seen this document before?
A. No, I have not seen this before.
Q. But you're familiar with using EPA materials on indoor air quality?
A. Yes, I do.
Q. And they're a reputable source for any kind of indoor air contaminant issue; is that fair?
A. They give reputable information, yes.
Q. Did you see the paragraph titled Steps to Reduce Exposure?
A. On what page?
Q. That's on page EPA-3, I'm sorry.
A. All right.
Q. Now, the EPA lists three steps to reduce exposure to formaldehyde. Do you see that?
A. Yes.
Q. The first one is use exterior grade pressed wood products. Do you see that?
A. Right.
Q. I want you to focus on the second and third steps to reduce

exposure to formaldehyde. "(2) use air conditioning and dehumidifiers to maintain moderate temperature and reduce humidity levels." Did I read that right?

A. Correct.

Q. And you see three, "increase ventilation, particularly after bringing new sources of formaldehyde into the home." Is that right?

A. That's correct.

Q. So the EPA has also suggested ventilation as the means to reduce formaldehyde levels, right?

A. Correct.

Q. And ventilation, again, was the same thing suggested in the FEMA brochure that we talked about earlier?

A. Correct.

Q. Now, let's look at one last document. We're going to go to G-92. All right. Doctor, G-92 the front page says Fleetwood Pioneer, correct?

A. Yes.

Q. And down below it says FEMA owner's manual near the bottom of the page. Do you see that?

A. Yes.

Q. Now, you see the coded page numbers down at the bottom, Fleet 30(b)(6) and then the number?

A. Yes.

Q. We're going to go to No. 11. You've got it?

A. Yes.
Q. Page is entitled Important Notices, right? Do you see that?
A. The yellow highlighted portions, is that what you're asking me to read?
Q. Right. We're going to focus on these first two warnings here. And all three of these warnings are similar, so let's just look at Warning No. 1 for right now. It reads: "This product is manufactured with urea-formaldehyde resin. Formaldehyde vapor may in some people cause headaches, eye, nose and throat irritation and aggravation of allergies and respiratory problems such as asthma. Proper ventilation should reduce the risk of such problems." Is that right?
A. You read it correctly, yes.
Q. Now, do you have any idea how many residents chose to vent their units in this case?
A. No, I have no knowledge of that.
Q. And you said earlier that venting can affect the levels of formaldehyde present in a housing unit or indoor airspace; is that right?
A. If there is true ventilation, yes.
Q. And ventilation is one of the methods suggested by the ATSDR and the EPA to reduce formaldehyde levels; is that right?
A. As a transient solution to reducing transient time periods of ventilation of formaldehyde levels, how long can you keep your windows open with a small child, I don't know.

Q. But, yes --
A. Ventilation is effective at that period in time that you're ventilating reducing the levels in the air.
Q. So ventilation is a means of effectively reducing formaldehyde levels; is that right?
A. Some of it, not all of it.
MR. DINNELL: No further questions.
THE COURT: All right. Thank you. All right. You all have about 11 minutes, on the defendant's side, to present two witnesses if you want to re-evaluate that.
MR. WEINSTOCK: Your Honor, we're only presenting one witness. And I have no trouble, if it's all right with you, if they take time from what would be our closing argument.
THE COURT: Okay.
MR. MEUNIER: Well, that bares -- Judge, we have 17 minutes left, as I appreciate it.
THE COURT: That's about right, yeah.
MR. MEUNIER: And if I understand the rules, we can now redirect and use some of that 17, or we can save that --
THE COURT: You can redirect with this witness or you can save it for --
MR. MEUNIER: Or save it for cross. So I guess I needed to know if the defendants are truly going to put on a witness and I'm hearing that they are.
MR. WEINSTOCK: Yes. Sorry. Yes.

THE COURT: Okay. All right. Any redirect for Dr. Williams?

MR. MEUNIER: We will have very brief redirect.

REDIRECT EXAMINATION

BY MR. D'AMINCO:

Q. Doctor, you were shown a document by the government relative to the HUD target levels for formaldehyde emissions and indoor air. I believe that was published in 1984, correct?

A. Correct. I don't have it in front of me.

Q. In your opinion, should it be revised to reflect the current state of science on the --

A. I'm sorry.

Q. The HUD --

A. The HUD document that he just showed, okay.

Q. Yes.

A. I'm sorry, I was thinking of another one. Go ahead. I didn't get your question.

Q. You said you disagreed with it.

A. I said it didn't solve all problems.

Q. Right, right. Should it be revised in your opinion?

A. Definitely. I think there are, there should be many things stated more directly to the formaldehyde that children would be more likely in their mouthing activities and their floor activities and their salivating activities to come in contact with.

Q. A level, target level of 400 ppb. Is that predicative of

health effects with the current state of scientific knowledge about inhaled formaldehyde by children?
A. I listed several symptoms that it would -- it's certainly well above what we see in the studies with children with respiratory effects.
Q. All right. I would like to now turn your attention to your report. And Mr. Weinstock asked you about your opinions you stated on page 34. Do you have your report in front of you, Dr. Williams?
A. Just a second.
Q. If you would, if you look at page 29, under Section 10.0, Medical Intervention for Asthmatic/Respiratory disease population consisting of Education, Management and Treatment Programs.
A. Right.
Q. While it's true that you do not mention it in your conclusions on page 34, you do discuss it at pages 29, 30 and 31 of your report?
A. Yes, I do.
Q. If we can look at the Wantke study. You were asked about specific increases in asthma and what the Wantke study found. If we could -- let me tell you what, I'll skip that. I want to save some other time.
See Dr. Shellito's report, you were asked to look at his deposition, do you recall that?
A. Yes.
Q. And they were talking about a return to baseline for adults.

Isn't it true that Dr. Shellito deferred to a pediatric specialist on the effects of formaldehyde in children?
A. Yes, he did.
Q. And he was talking about a return to baseline in the adult population?
A. Yes, he was.
Q. And we're asking for a subclass to be certified for children, correct?
A. I believe that's what you're asking for.
MR. D'AMICO: That's all I have, Judge.
THE COURT: All right. Thank you, you can step down, Dr. Williams.
THE WITNESS: Thank you.
THE COURT: Thank you. All right. Mr. Weinstock.
MR. HINES: Your Honor, may it please the court, Richard Hines on behalf of the defendants. We would like to call Dr. H. James Wedner.
THE COURT: Please raise your right hand.
(WHEREUPON, H. JAMES WEDNER, M.D. WAS SWORN IN AND TESTIFIED AS FOLLOWS:)
THE COURT: You may be seated. Please state and spell your full name.
THE WITNESS: My name is H. James, J-A-M-E-S, Wedner, W-E-D-N-E-R.

VOIR DIRE EXAMINATION

BY MR. HINES:
Q. Dr. Wedner, would you introduce yourself to the court. Tell the court where you live and where you work and what your position is.
A. My name is H. James Wedner, M.D. I am from St. Louis, Missouri. I am professor of medicine and chief of the Division of Allergy and Clinical Immunology in the Department of Medicine at Washington University School of Medicine. I am the Training Program Director for Allergy and Clinical Immunology of the Training Program in Allergy and Immunology at Washington University School of Medicine. I am the director of the Asthma and Allergy Center of Washington University, and I am the chair of one of the IRB's, which is the human experimentation committee, for the Washington University School of Medicine in Washington University combined human experimentation consortium.
Q. And can you tell the court, the particular group, the human experimentation program you work on just very quickly what that entails?
A. Well, every university has to have an IRB and we have one of the largest in the country. We have four what are called new protocols IRB's and six review protocols. So every human experimentation protocol that is done at Washington University or the School of Medicine has to be presented to one of the four new protocol IRB's. And they present the plan, it has to be scientifically sound, the consent form has to come to us, we have

to approve it, and you can't do any research unless we approve it.
Q. With respect to the clinical program that you're involved in and that you are the chief of, you evaluate and treat patients who complain from time to time of exposure to various indoor air pollutants, including formaldehyde, and have you had occasion to treat such or related such people?
A. Yes. Our program, like all allergy programs, sees both adults and children. My youngest patient is currently two, my oldest patient is currently 102.
MR. HINES: Your Honor, I don't want to go through his entire CV, it's part of Exhibit D-228, but just very quickly.
BY MR. HINES:
Q. You were educated in both undergraduate and medical school at Cornell, you interned at Barnes which is Barnes Hospital at Washington University, St. Louis. And if we could just put that in context, where does in the great hierarchy of medical schools, where does Washington University in St. Louis School of Medicine sit?
A. According to U.S. News and World Report, we're currently third.
Q. And who is ahead of you?
A. Harvard and Penn.
Q. I take it you're board certified and members of appropriate organizations?
A. Actually, because when I started doing this a long, long time ago I did only research, I am not board certified. But I have a

certificate from the people who certify that you have to be board certified to train others, that that's okay. So I never took the boards.

But I belong to all of the other groups and I am a fellow of the American Academy of Allergy, Asthma and Immunology.

Q. And you serve on the editorial and peer review boards of various peer review journals?

A. I have, yes.

Q. And, in fact, you have authored a series of studies, and I just want very briefly for you address the inner city asthma program that you were involved with and the study just very briefly.

A. Back in 1990, the National Institutes of Allergy and Infectious Diseases set up the first of a series of inner city asthma programs. The first one was called the National Cooperative Inner City Asthma Study, or NCICAS, which was designed to ferret out what we initially thought would be the cause of the significant rise in asthma within the inner city. And there were seven sites chosen, of which Washington University was one, and I was the principle investigator of that.

MR. HINES: Your Honor, at this time it would like to offer Dr. Wedner as an expert in the field of immunology and allergy.

THE COURT: Any objection? Any desire to question this witness?

MR. REICH: If I may voir dire the witness briefly, your

Honor?

THE COURT: Sure.

TRAVERSE EXAMINATION

BY MR. REICH:

Q. Dr. Wedner, you are not a pediatric immunologist, are you?

A. I see patients both adult and pediatrics, yes.

Q. Is there a specialty for pediatric immunology and allergy?

A. No. You have to be, show competency in both. In order to be board certified or to have a certificate as I do, you have to be competent in both. If you start off being trained as an internist, then 20 percent of your training in allergy and immunology has to be with children; if you start off as a pediatrician, then 20 percent has to be in adults.

Q. What percentage of the patient population that you would have occasion to see clinically would constitute pediatric patients?

A. At the asthma center, approximately right now about 30 percent of all of my patients are under the age of 12. At our other clinical setting, about 15 percent are under the age of 12.

Q. Have you had an opportunity to evaluate clinically any of the children living in the FEMA trailers?

A. I have not.

MR. REICH: I have no further questions at this time.

THE COURT: All right. Thank you.

DIRECT EXAMINATION

BY MR. HINES:

Q. I note in your affidavit that because of the wide --

THE COURT: Let me ask before you proceed. Is there an objection that the court should consider to this witness's, this witness being admitted as an expert in the field of immunology and allergy, which I think is what he is being offered as?

MR. REICH: No, your Honor.

THE COURT: All right. Thank you. Go ahead.

MR. HINES: Thank you, your Honor.

THE COURT: The court will so accept him and will go ahead and proceed with the opinion.

MR. HINES: Thank you, your Honor.

DIRECT EXAMINATION

BY MR. HINES:

Q. Dr. Wedner, I noticed in your affidavit you say that because of the wide use of formaldehyde that there is a large body of medical literature investigating the alleged health effects of formaldehyde?

A. That's correct.

Q. My question is this, did all of that literature start post-Katrina?

A. Oh, no. The interest in formaldehyde started probably back in 1975 actually the first papers.

Q. And when did you, Dr. Wedner, first review the literature on formaldehyde?

A. It was starting in late 1981 and then into 1982.

Q. And tell the court, if you would, the scope of the literature that you, in fact, reviewed.
A. I reviewed what was the world's literature at that time.
Q. And since 1981-82 when you first became involved with the literature on formaldehyde, have you maintained that interest over the years?
A. I have.
Q. And with respect to the irritant and alleged allergic properties of formaldehyde, has the state-of-the-art of the medical literature changed significantly since 1981, 1982?
A. The state-of-the-art has progressed only in the sense that there are more papers showing basically the same thing.
Q. In Dr. Williams' report and as we heard this morning, she has listed a panoply of symptoms that she says is common to virtually all of the putative plaintiffs in this case. Among those are laryngitis, eye irritation, cough, chest tightness, wheezing, headache, nausea, vomiting, diarrhea, skin rash, asthma-like symptoms, and serious lung damage.

My question is this, do things other than formaldehyde cause these symptoms?
A. Oh, of course.
Q. And even without any exposure to formaldehyde, would you expect to see these symptoms occurring in this population?
A. In any population, and in particular any inner city population like the ones that we continue to study now, these would be a

common series of symptoms that we would see.
Q. From the standpoint of the clinician, what would the clinician have to do in order to diagnosis whether or not a particular symptom is related to alleged formaldehyde exposure?
A. Well, there are a number of things you would have to do. First of all, you would have to verify the symptom, you would have to make sure that the patient actually had what was alleged to be. You can't just accept that. Second of all, you would have to verify exposure. And third of all, you would have to eliminate other common things in the individual's environment which could cause the same symptoms.

For example, if you lived in an environment that was very dusty, if you lived in a bad outside environment where there was high levels of ozone or particulates, in the inner city there are cockroaches, there is rat allergen, there is mouse allergen, there are people who are in close quarters so you could have a high level of upper respiratory infections. All of those would have to be eliminated before you could focus on a single, whether it's a single allergen or a single irritant or any single factor, be that formaldehyde or any other.
Q. Let me change the subject for just a moment. One of the big questions confronting this court is whether or not formaldehyde causes asthma and/or whether formaldehyde aggravates preexisting asthma in an otherwise atopic individual, especially children. My question to you is this, sir: Does formaldehyde cause asthma or

aggravate asthma symptoms in an otherwise atopic individual?
A. Let's break it into two questions. One is, is formaldehyde in and of itself able to cause asthma? And the answer is there is no compelling evidence that asthma -- that formaldehyde causes asthma. First of all, there is no good mechanism by which it should be able to cause asthma.

And second of all, the studies are very unconvincing that at any significant ambient concentration it does cause individuals, and this includes children, to have asthma. So that's point one.

The second is, does it cause individuals who have asthma to wheeze more, and that is no also. And it's been shown in two ways: In adults, what people have done, and that's been done starting way back in the early 80s and onward, is they've taken individuals who have diagnosed asthma, put them in chambers and literally exposed them to medium to high concentrations, we're talking 3 ppm, of formaldehyde and they don't wheeze. And this included individuals who thought they had formaldehyde induced asthma. And when they masked the odor of the formaldehyde, it didn't make them wheeze.

So as far as we know, formaldehyde is not a cause or an exacerbater of asthma.

Q. Once you have asthma, by the way, I heard something from Dr. Williams this morning, once you have asthma, do you automatically have asthma for life?
A. Actually you don't. If you develop -- there are several

classes of people who wheeze, and this is very important for children because we have what are called early wheezers, and these are the children who wheeze before the second year of life. And early wheezers generally fall into two classes, some of the early wheezers, indeed most of them, actually stop wheezing. And whether or not they truly have asthma or not is something open to question. But they lose their wheezing and they're actually normal, usually for the rest of their life or at least as far as they have now been study which is out to 18 years.

Some of those early wheezers and then the younger group from two on will then begin to start to wheeze, and those would be called childhood asthmatics. And if you do appropriate studies, you can show they have asthma. Of those individuals, about half of them will lose their asthma somewhere around puberty, between the ages of 10 and 14, and they will literally lose their sensitivity to methacholine or histamine, they will not show any asthma symptoms.

Now, unfortunately of that group some of them will re-acquire their asthma later in life between the ages of 25 and 40, but there is a group who developed asthma as a child and then lose it and they never have asthma again.

THE COURT: Counsel, you've used the time that was allotted. We will allow you to go into the half hour for closing argument if you choose to do so. We'll also allow the plaintiffs that as well. The plaintiffs have about 14 minutes left of their

examination time. So you can proceed with that caveat.

MR. HINES: Thank you, your Honor, we will be very brief.

BY MR. HINES:

Q. Another big question that is confronting this court is whether formaldehyde can sensitize adults, and not only adults but especially children, and whether or not that sensitization could trigger other allergic reactions as opposed to just an allergic reaction to formaldehyde itself. Do you have an opinion as to whether or not formaldehyde can act as such a pathogen?

A. Okay. If we talk about sensitization, very briefly there are four kinds of sensitization: One involves T cells and that was the kind that you just heard about where somebody can't wear eye shadow and that has nothing to do with asthma. That's a skin reaction, it's called a type four reaction. And we see it all the time, it's very, very common. About 30 percent of everybody will have a patch test positive to formaldehyde. Everybody in this room.

Sensitization in the IgE sense making you allergic can be shown in one very interesting situation where formaldehyde touches blood, you can develop IgE, and that was shown way back in 1981 -- actually the first paper was in '78. But those individuals who had IgE, there is no correlation between the IgE and whether or not they're symptomatic. So the IgE is basically inconsequential.

And that's also been shown in two studies in children where they developed really low levels, RASS scores about 1.3, which is very low, to formal proteins and there was no correlation

between the IgE and the symptoms. So it's not a good sensitizer. In most people it's not a sensitizer at all, but it doesn't cause disease.

Q. Thank you. My last subject is this, your Honor, as we move briefly through. You described earlier your work in the inner city. You have been heavily involved in inner city work with children. There will be a slide presented in closing by the plaintiffs that if children have symptoms, they deserve treatment. In fact, the plaintiffs have asked this court for a children's subclass where the court would intervene on behalf of the children.

Would such a subclass based on your experience with children, based on what you know about allergy and immunology, would such a program be efficacious for those children?

A. Probably not. The problem with asthma, particularly asthma in a group --

MR. REICH: Objection, your Honor, it's beyond the scope of his expertise, no foundation.

THE COURT: Do you want to respond to the objection?

BY MR. HINES:

Q. Let's go back to your foundation. Can you tell the court the work you've had with children and the funding you've had to work with children and with asthmatics and what you've seen from those studies and compare and contrast that with what's being asked in this case.

A. Okay. The initial National Cooperative Inner City Asthma Study

was a large study, as a matter of fact at the time it was the largest asthma study of children that had been done. And remember that the incidence of asthma in the inner city currently is running between 12 to 14 percent.

Q. Let me interrupt. So when we saw this morning that the Legacy of Shame article by the Children's Health Fund reported that the children in New Orleans and Baton Rouge that have been studied, in fact, had 11 percent. Would that be what you would expect to find?

A. Absolutely. Within statistical error that was probably exactly what I would have expected from that kind of a population.

So the question was, here you have the inner city at let's say 11 percent and you had suburbia at 7 to 8 percent. Why? And that was the idea of this study. So it was a two-part study: The first was we naively said, okay. There must be a factor and so we did a huge study in seven cities to find the factor that caused inner city asthma to be so high. What we learned was there was no factor but that for every child there was something that was different for that child that made them have asthma more than somebody else.

We then designed an intervention which was the first intervention that actually statistically worked that had ever been done on children. And that was an intervention designed toward each child. And remember, the number one cause of an increase in asthma in the inner city is psychological. We all thought it would be mites and it wasn't mites; we all thought it would be

cockroaches and it wasn't cockroaches. The number one was psychosocial.

So our intervention used social workers and it was designed to, first of all, find out what's wrong and then fix it. If you don't have a doctor, we got you a doctor. If you had problems at school, we fixed the problems at school. We looked at your environment and we fixed that, if possible. We gave you bed covers. If you had a cat we got the cat out of the house if possible. We did one of everything but it was designed for every single child.

If you do the same thing to every child in any cohort, there have been study after study after study before NCICAS that showed that doesn't work. So that's the first thing.

The second thing is you can't focus on one factor. You can't say we're going to select a group of children based on a single questionnaire filled out by a parent, which all they, all they do is check a couple of boxes, you're not selecting the right cohort. If you want to do a study and you want to do it right for the children in this area, you have to pick them all. You can't just say, okay. If your parent checked off the right box, you get to be in a study; and if you parent forgot to check off a box, you can't be in the study, you can't get the intervention, that's just not right.

MR. HINES: Thank you, your Honor. Thank you that's all we have.

THE COURT: Thank you. Y'all have 23 minutes left.

MR. REICH: Thank you.

CROSS-EXAMINATION

BY MR. REICH:

Q. Dr. Wedner, you understand that you are at the class certification stage of this case?

A. Yes.

Q. And you certainly recognize that there may be other experts in your field who have different opinions as you may have regarding whether formaldehyde is a risk factor for asthma?

A. There may be, sure.

Q. In fact, the American Academy of Pediatricians recognizes asthma as a risk factor, correct?

A. They list it as a potential --

Q. Formaldehyde as a risk factor for asthma --

A. No, they list it as a potential risk factor.

Q. And potential simply means that there is an opportunity for asthma to be induced from formaldehyde exposure into some people who experience exposure, correct?

A. No. It means there is a possibility that it might cause asthma but we don't know.

Q. Doesn't it, in fact, mean that a linkage has been shown in the scientific literature that formaldehyde can induce asthma but that there may be genetic and environmental factors that will determine the extent of the outcome?

A. Well, you're testifying, not me. That's not what I believe it to be.

But what it says it's potentially a cause of asthma, I think what they mean is we don't know. There is some literature that suggests an association but that association is not proven.

Q. And in 2007, recently, the National Heart, Lung and Blood Institute and the National Asthma Education and Prevention Program determined that formaldehyde is a risk factor for asthma, correct?

A. No. They said exactly the same thing as the Academy of Pediatrics, they said it's a potential risk factor.

Q. And that was based upon the review of medical literature demonstrating that persons exposed to formaldehyde are at increased risk for developing asthma?

A. Not necessarily.

Q. All right. Now, I noticed that you prepared an affidavit and your affidavit referenced a number of studies, including adult studies and a few children studies. But for some reason the Wantke study, which was displayed to the court earlier, was absent. Were you familiar with that study?

A. Yes, I was. I am not sure why it's not there, but.

Q. And in the Wantke study, if I may place it on the ELMO.

THE WITNESS: Can I get a copy of that?

THE COURT: Do you have a copy of that for the witness?

THE WITNESS: It's almost impossible to read it from here.

THE COURT: It sure is.

MR. REICH: I have a copy, I should.

THE WITNESS: Thanks.

BY MR. REICH:

Q. In this study, school children were evaluated who were exposed to particle board containing formaldehyde; is that correct?

A. Yes.

Q. In one particular school. And there were three different measurements taken and those measurements were in the ppb 43, 69 and 75; is that correct?

A. That's correct.

Q. And approximately 40 percent of the children who were exposed at those levels at the particle board formaldehyde containing school room developed formaldehyde specific IgE antibodies, correct?

A. Well, they developed a low level RAST tighter, yes. Not formaldehyde, formyl. So the way you do this is you take formaldehyde and you couple it to a protein. Nobody makes antibodies to formaldehyde, it's too small. So this is a hapten protein conjugate and the antibody is actually made against the hapten protein conjugate. So the way they do the RAST is they hook the formaldehyde to a protein and then hook the protein up to the solid phase.

So to call these actual formaldehyde antibodies is scientifically incorrect, it's actually an anti-formyl IgE.

Q. The study indicates, and in fact concludes, that 40 percent of

the exposed children developed formaldehyde specific antibodies, is that the language in the study?
A. That's their language, but that's incorrect.
Q. You disagree with the characterization of that language?
A. Correct.
Q. And the same children who were relocated to another school and placed in school rooms that did not have the particle board containing formaldehyde but had exposure levels nonetheless in the low 20 ppb range or so, did not develop these IGE-mediated antibodies, true?
A. Say that again, the ones who were transferred?
Q. Yes.
A. No. The ones that were transferred just had a lowering of their IgE levels.
Q. Not the control group. But when the children were then put into another environment without the particle board --
A. Correct.
Q. -- they did not have the IgE-mediated antibodies, correct?
A. No, they just went down.
Q. And they went down significantly according to the report, true?
A. Well, statistically significant.
Q. Yes, there was a statistical significant decrease in formaldehyde specific antibodies, according to the paper that you have before you, the Wantke study, correct?
A. Correct.

Q. And the Wantke study was a peer-reviewed publication, true?
A. Right. The problem with the study is, as I pointed out before, is there was no correlation between the level of IgE antibody and symptoms, as they say here. However, elevated IgE to formaldehyde did not correlate with symptoms, so it was irrelevant.

It's like if you're allergic to something and it's not there, that's irrelevant. If something's there and you're not allergic to it, that's irrelevant. So they had antibodies at very low level, a RAST score of 1.7 is almost irrelevant. If you had a RAST score of 1.7 to something, you probably wouldn't be very sick. Nonetheless, it didn't correlate with your symptoms, so we would conclude as a clinician that's not significant to you. If you came to me and said I think I'm allergic to something and your IgE level didn't correlate with your symptoms, we would go look for something else.

MR. REICH: Objection as non-responsive, your Honor, I didn't have a question pending. But I'll move on.

BY MR. REICH:

Q. There have been other studies, some of which you have cited in your report, such as Krzyzanowski and Rumchev. And those were studies that looked at children as well, correct?
A. Yes.
Q. And in the Krzyzanowski study, at levels of formaldehyde approximately 60 ppb there was a significantly elevated level of asthma in those children who received such exposure. True?

A. As they presented the data. But there's a problem -- you can --
Q. Is that true, that's all I'm asking?
A. That's true -- show me the paper so I can make sure I'm looking at the same paper.
Q. All right. I'll show it to you.
A. Let me trade you papers.
Q. And if you look at the summary, you will see in the first paragraph, and I'll read to you, "significantly greater prevalence rates of asthma and chronic bronchitis were found in children from houses with formaldehyde levels 60 to 120 ppb than in those less exposed, especially in children also exposed to environmental tobacco smoke." Now environmental tobacco smoke, of course, will contain formaldehyde, correct?
A. Huge amounts, yes.
Q. And in addition to the diagnosis of bronchitis and asthma by physicians in that population of children that was exposed, wasn't there also a decrement in a type of lung function study known as PEFR, pulmonary expiratory flow rate, correct?
A. Correct.
Q. And you're familiar with PEFR studies?
A. Yes.
Q. The twenty-two percent decrement in this case between the exposed and the unexposed children was considered to be statistically significant, true?

A. Well, interestingly there was also --
Q. Can you answer that question?
THE COURT: Let's answer the question.
THE WITNESS: Yes, correct.
BY MR. REICH:
Q. And, in fact, in your affidavit you indicated that with regard to the children's study, there was no statistically significant findings. Your statement in your affidavit turned out to be absolutely incorrect. True?
A. Not true. I mean, it's easy to read an abstract from the front of a paper and say that's what it says, but then you have to read the paper. You have to go through and look at the data.

And in point of fact there are some problems with this paper. If you do work with kids, you have to look at where they're exposed and what it all means. So if you look at, for example, the bedroom, particularly the subject's bedroom, which is where you spend, if you think about it, about a third of your life. So the most important room for a child is their bedroom. And as a matter of fact, the second iteration of the asthma study showed that if you clean up a child's bedroom and forget about the rest of the house, that's very important.

So it showed, for example, in table three, that that's one area that there was no statistically significant correlation, particularly with bronchitis.

So if you tease the paper apart rather than just reading

the abstract, which is a nice abstract I will admit, but if you look at the data and you look, for example, at this decrease in peak expiratory flow rate, the morning peak expiratory flow rate went down in non-asthmatics as well as asthmatics. So it didn't have anything to do with asthma, it had to do with just breathing.

So you have to tease apart the paper, and I did not falsify in my affidavit, I simply read the paper and not the abstract.

Q. Bronchitis and asthma are significant concerns to children, correct?

A. Of course.

Q. And a 22 percent decrement in peak expiratory flow rate is a significant measurement, is it not?

A. If you're looking at it in terms of why it went down. But if you're saying it's an asthma response and the non-asthmatic kids went down the same as the asthmatic kids, then it has nothing to do with asthma.

Q. Let's talk about one other study, the Rumchev study, which is in the bench book, Plaintiffs' Exhibit No. 36. You're familiar with the Rumchev study, correct?

A. Yes.

Q. And would you like a copy of it?

A. Sure. I may have it but it's easier for you to give it to me.

Q. Sure. Rumchev made a determination that asthma levels increase based upon respiratory questionnaires, as well as pinprick testing

at levels of 60 micrograms per cubic meter and greater. 60 micrograms would be approximately 48 or 49 ppb, correct?
A. Right.
Q. Now, let's just go to some of his findings. Take a look at figure three, please, of the Rumchev study. Figure three shows 95 percent confidence levels and it correlates odds ratios with formaldehyde levels. And you see the horizontal line where the odds ratio is one, if you go above one that means you have a statistical excess, correct, at the 95 percent level, true?
A. Yes.
Q. So when you're at 50 to 59 micrograms per cubic meter and 50 would be approximately 40 ppb, true?
A. 50 would be approximately 40.
Q. Okay. And 60 would be about 48 or 49 ppb. You have a statistically significant correlation there between formaldehyde levels and development of asthma in children that were studied in the Rumchev study, true?
A. Well, the answer to that is yes and no. If you look at the paper carefully, you'll see -- leave it up. If you analyze the data you'll see that the first two points are actually from 10 to 29, they're 20; and the next one is from 30 to 49, which is 20; and the next one is from 50 to 59, which is only 10. And the reason they did that is because if you did it 50 to 69, you would have actually eliminated all but about two kids. That point would have been statistically insignificant and then the two children that

would have been in the next point would have also been statistically insignificant.

So they log-linear transformed the data to make it fit statistically. It's a statistical trick to make statistical data. You can do almost anything with statistics. And so that's really pushing your data.

The interesting thing was that was the only thing that changed. So if you have to log-linear transform your data and then change the intervals to make the data look good, I am not real sure.

And the other thing is, in response to a reader's question in a later issue of the journal, basically Dr. Rumchev said he really hadn't proven that formaldehyde was a cause of asthma.

Q. Now, have you had occasion --

THE COURT: Counsel, you're a minute or two into your closing. Go ahead.

BY MR. REICH:

Q. As part of your work in this case, did you have occasion to read the 1999 publication ATSDR toxicological profile for formaldehyde?

A. Yes.

Q. And are you aware that the ATSDR tox profile states that Wantke and Krzyzanowski studies demonstrate that children respond much more sensitively to formaldehyde than adults?

A. Yes.

Q. And would you agree with that?
A. No.
MR. REICH: I have no further questions, your Honor.
THE COURT: All right. Thank you. Any redirect?
MR. HINES: No, your Honor.
THE COURT: Anything from the government?
MR. MILLER: No, your Honor.
THE COURT: All right. Thank you. Doctor, you can step down.
MR. MEUNIER: Your Honor, can we confirm the amount of argument time remaining per side?
THE COURT: I have 27 minutes on the plaintiff side and 23 minutes on the defendants side. Would you like to reserve some for rebuttal?
MR. MEUNIER: We may want to reserve some of our 27 for rebuttal. Why don't we say 20 on our initial argument and seven for rebuttal. And we will actually have two attorneys taking part in the 20-minute segment, Paul Dominick and Frank D'Amico. Mr. Dominick will go first.
THE COURT: And with regard on the defendants side, Mr. Weinstock and Mr. Miller or Mr. Dinnell, how do you all want to handle your time left?
MR. WEINSTOCK: I believe Ms. Boyle is going to make an argument for the government approximately five minutes and I'll take the rest.

THE COURT: Okay. Good. You'll have 18 minutes and we'll have 5 minutes from Ms. Boyle.

All right. Whichever of you wants to start. Go ahead.

MR. DOMINICK: May it please the court, your Honor, Paul Dominick for the PSC. My cocounsel has given me five minutes, so I'll move quickly.

Your Honor, I am here to discuss our request for an economic loss or property damage subclass in this case. And the basic claim here is that the plaintiffs, the hurricane victims did not receive habitable safe housing. As the court will recall in the court's order ruling on the government's motion to dismiss, page 37 of that order, the court noted that an individual's qualified for FEMA assistance if the housing that the person was in was uninhabitable, meaning that the dwelling was not safe or sanitary or fit for occupancy. And the court went on to note on the next page that the displaced residents whose housing was uninhabitable were entitled to habitable housing.

FEMA and the manufacturers, your Honor, were to provide habitable housing. The manufacturers knew that it was the purpose of FEMA in procuring the travel trailers for the hurricane victims and it was their duty to provide habitable housing. It's our contention that those who were qualified for assistance by virtue of their housing being unsafe were actually provided unsafe housing.

The predominant common issue in the subclass, your Honor,

would be were the hurricane victims provided safe and habitable housing, that's the simple question. As discussed in our brief, the Fifth Circuit in McManus v. Fleetwood case had certified a class of plaintiffs that alleged that their motor homes were not suitable for the ordinary purpose for which they were sold. The cause of action in that Texas case was breach of implied warranty.

And I believe in this case, your Honor, it's a similar type case. These travel trailers were not suitable for the purpose for which they were sold by reason of the fact that they were not habitable.

THE COURT: And you say that uniformly regardless of manufacturer, regardless of the time within which that particular unit was manufactured, and regardless of whether it was a mobile home, a no wheels versus a wheels, what we've come to call wheels and no wheels travel trailer?

MR. DOMINICK: Well, I think there could be some distinctions as far as the proof as far as those things, but I don't think that those individual issues would be unmanageable in this particular case. I believe the common issue, it would be more important to resolve that common issue in one setting. If you didn't do that in one setting, then you've got a real risk -- say individual cases against Gulf Stream for example, you would have a risk of individual determinations, you know, habitable for this person, not habitable for the next person. So I think that's a reason that would, this subclass should be certified.

The plaintiffs suffered immeasurable economic loss, your Honor. When they received their travel trailers, they gave up their right to rental assistance for substitute housing. FEMA determined that the amount of financial assistance on an average rental rates, which were set at nearly $800 a month, so the damages determination in this case would not preclude certification. Damages for each individual would be simply mathematical or formulaic calculation, the average rental rate times the number of months that the unsafe trailers were inhabited.

THE COURT: Well, now when you say that though, we had some information in connection with the government's motion that, in fact, rental assistance wasn't particularly what was desired, I am not speaking on behalf of the people who lived in the units, but rather some of the political entities and the local and state leaders, in fact, wanted not so much rental assistance because the property wasn't there to be rented, but rather wanted people to live in the community.

MR. DOMINICK: Correct.

THE COURT: In a damaged community, I mean there's nothing to rent or very little to rent at the time. So how would that impact your argument that they gave up their right to rental assistance and would be entitled to recover for it?

MR. DOMINICK: Well, that really gets away from the issue, your Honor, because what the local governmental entities assumed was that they were going to be in safe housing. And the fact is

they weren't in safe housing. So if they had a choice between unsafe housing for our residents and financial assistance, I believe the choice would have been financial assistance, your Honor.

The claim against FEMA the court also noted FEMA failed to warn, was there a failure by FEMA to warn or take other action after notice of the problem based upon policy or litigation strategy. That's another issue that would be common, I believe, to the entire class. You look at the time frame of what FEMA had notice of, the question is, you know, when should they have acted, what should they have warned, and the warning should have gone to everybody in the class, not just a few, it should have gone to all of the victims.

Again, you've got a risk of inconsistent adjudications when you go individual cases, did FEMA have a -- what was the failure to warn in this case, what was the failure to warn in the other case?

THE COURT: Let me ask you this. With regard to out timeline, which we tried to highlight in ruling on the government's motion, would we not have people who may have perhaps lived, I don't know if anyone lived in a unit prior to March of 2006, lived in it and moved out, as opposed to somebody who moved into a unit, say, sometime after the government was giving these informational brochures, such as the one we covered I think today, or referenced today on cross-examination of Dr. Williams. Some people moved in

to units after the government was supplying the information and the warning type disclaimer.

MR. DOMINICK: Correct. And others stayed in the units after that time period. So as to the government, there may be a shortened time period for the people who were in the units during that time period when the warnings should have been given.

As to the manufacturers though, your Honor, you have the same common issue, was the housing provided to the hurricane victims through FEMA habitable and safe. They challenged the certification based on the fact of whether plaintiffs had a valid warranty cause of action. Your Honor, that's a pending motion and the motion's to dismiss. I don't have time to get into that. We do have valid warranty claims in this case.

And the other issue was raised with the individual issues that would be raised by state law. Your Honor, even assuming there are individual issues of state law and the court chooses not to apply federal common law, in this particular situation, you're only talking about four states. The classes that are not certified are nationwide classes based on varying laws. So I think there would be in this particular situation that would be totally manageable, and I think it would be appropriate for the court to follow the logic of the Fifth Circuit in the McManus case and certify an economic loss subclass.

THE COURT: All right. Thank you.

MR. D'AMICO: Your Honor, I now come before you still this

morning to request that the court certify a second subclass of children who have been exposed to the elevated levels of formaldehyde in the temporary housing units. If we could go to our first quote, please, Brandi. "Children are more vulnerable and susceptible to exposures from toxic substances, including formaldehyde, because they're still growing and developing. Any child," as we see here, "who lived in a travel trailer which exceeded the ATSDR minimum risk levels for the correspondent period in which they resided in the trailer, and who manifested any symptom of formaldehyde exposure during the time in which they resided in the trailers."

That is the class definition that we're proposing. The footnote for the levels for acute exposure are 40 ppb, that is a time period of 0 to 14 days; intermediate exposure of 30 ppb at 15 to 364; and chronic, 8 ppb, that's for 365 days plus. That comes directly from the ATSDR, those are the minimum risk levels as established.

Obviously the experts disagree on whether or not those levels can cause harm, that's what the trial is about, that's what the class certification trial would be about. If the jury doesn't believe us, we don't get a class certified; if the jury believes our experts, then we do get a class judgment.

What we're asking you to do today is to certify the class based on the overwhelming evidence that these children are at risk. In fact, the historical knowledge about formaldehyde has been known

since the 70s and 80s, as already been conceded by the defendants in the case.

Manufacturing regulations, as they were testified to, HUD regulations do not apply to travel trailers, and they were target levels. As Dr. Williams testified today, they were only target levels and they do not, in her opinion, guaranty any health benefits to the more sensitive children in this case.

We've already gone over quote four the ATSDR's mission. Formaldehyde in travel trailers as we've seen is not regulated by HUD.

Quote number five, if we can, "This recreational vehicle has been designed for short term and recreational use. It was not designed to be used as a permanent dwelling. If you intend to use your recreational vehicle as a permanent dwelling, it could cause your carpet, drapes, upholstery, and other interior surfaces to deteriorate." This is illustrative out of Forest Rivers Owner's Manual.

Not only were the travel trailers not designed for extended residential occupancy, the manufacturers knew of it and warned of it. The problem is many of the residents never got those owner's manuals and never read those warnings until after the government sometime in June of '07 started handing out those flyers which we saw today.

Statement of formaldehyde from building materials, quote six, and I am trying to rush through it, Judge, because of the

hour. Obviously I would take more time if we had more time.

We did go over the CDC final report and quote number eight, in we can, Brandi. "In this study, travel trailers had significantly higher average formaldehyde levels than did park models and mobile homes. A higher proportion of travel trailers than park models and mobile homes also had formaldehyde levels greater than 100 ppb or greater than or equal to 300 ppb. Compare the 97 ppb average, which Dr. Golden talked about in his affidavit, with a recent 184 home residential study cited by the CDC in its report that found outdoor ambient air levels of formaldehyde at 3 ppb. 17 ppb for home indoor air and 16 to 25 for trailers.

The trend since the 70s when the Consumer Safety Products Safety Commission first started regulating it and then later HUD, has been a downward trend on indoor ambient air levels because of concern about formaldehyde and breathing it in. The problem is, Judge, most of the studies that they cite to, and I think they even conceded that, relate to adults. And children are not just small adults. A child's lung reacts differently and all of the credible studies on the child exposure show that they react much more severely. And in much lower levels.

"Temperature," quote number nine, Brandi, "relative humidity, ventilation, and age of house also contribute to differences in measured formaldehyde levels. In longitudinal studies, formaldehyde emission rates were nearly constant for the first 8 months after construction, and then began to decline."

Now, this is significant. Why? Because the testing that the CDC did was two years later. Admittedly in their own report they say it's an underestimate of the true values when they first moved in. It's our belief that the levels were greatly higher, and the studies show and the defendants' experts even agree that with every 12-degree increase in temperature, you have a doubling effect of the emission rate. Add humidity in there, most of the studies they cite to relate to a 50 percent or less humidity level. When the humidity rises, emission rates also rise. In the CDC study, you know they tested in December and January when it was around 50 degrees. Compare that to 85 degrees and you have instead of an average of 97 ppb, 2 years later, it jumps to 800 ppb. Coincidentally the same is measured in many of these studies.

THE COURT: Doesn't that beg the question then, if someone who lived, whether it's a child or an adult, who let's say moved into an EHU in November of 2005 and perhaps under whatever circumstances was able to move out of that unit in April or May of 2006 would surely not be situated the same as someone who moved in, let's say, in February of 2006 and moved out in December 2006 or January of 2007.

MR. D'AMICO: That's right.

THE COURT: Because of the fact that there is an intervening summer that according to all of the testimony we've heard and all of the material you all have submitted makes a great deal of difference.

MR. D'AMICO: It does, it does. The point about our subclass though, your Honor, is whether it caused or exacerbated a preexisting asthmatic condition or respiratory condition is of no moment. The fact is, if a child with a preexisting asthma moved into a trailer and their preexisting asthma was exacerbated, as the Child Health Study showed us, they need treatment. They lost many of their doctors, they moved out. Most of the public assisted medical treatment centers, such as Charity, are no longer in existence, they're lost to medical care.

THE COURT: So you're speaking of this subclass for children solely as a function of damages?

MR. D'AMICO: No, as an interventional fund so that they can get treatment. The difference is we're not going to make a damage award. We're not concerning ourselves with, what is the value of that child's claim. What we're concerned about is the health crisis that's been created and who is going to pay for it.

Do the already overtaxed Medicare and Medicaid systems pay? I recently read an article where the state Medicaid system is facing a $450 million shortfall. The health study has called on the governor to provide assistance to these children. We believe it is more equitable and more reasonable to ask the defendants who are responsible for causing the damage in the first place to pay for it.

THE COURT: Yeah, but you see that's -- you're kind of leapfrogging the liability issue by stating that there should be,

as a component of damages, a class wide resolution, particularly with regard to the impact that children have suffered before we even get to the issue of liability. Seems like you're arguing strictly a class relative to a damage award.

MR. D'AMICO: Let's go on our trial plan, Brandi, to the last slide. What we're suggesting, your Honor, and I realize that class certification states we have to give you a trial plan, so this is what our proposal is.

What we would do is not go into a damage trial first. What we would do is try the cases serially, one at a time, against each manufacturing defendant. For instance, Gulf Stream would be the first trial, they manufactured 50,000 of the trailers. That manufacturer defendant plus FEMA, obviously we've filed an underlying petition naming the four no bid contractors but they haven't been added in yet. If they are ultimately added in, they would also serve as additional defendants.

The second part of that would be a class wide evidence of medical causation only, not damages, concerning formaldehyde inhalation or other modes of exposure. The third issue --

MR. WEINSTOCK: I'm sorry, your Honor, I will let him continue, just note my objection. I don't believe I've ever seen this document.

MR. D'AMICO: This is our trial plan. I'm arguing it, it's not in evidence.

THE COURT: I'll let him use it as a demonstrative

exhibit.

MR. D'AMICO: It's a demonstrative, that's all it is, Judge.

THE COURT: I wanted you all to share that prior to today, but.

MR. WEINSTOCK: Go ahead. You're running out of time, go ahead.

MR. D'AMICO: Okay. You're so thoughtful. Third, our issue would be class wide evidence concerning whether the conditions and/or the mechanisms of injury suffered by the plaintiffs are common to all potential class members, regardless of whether their injuries were caused or exacerbated by formaldehyde.

Fourthly, if the defendant is found liable, the court with the help of the answers to the jury questions, the parties, and expert testimony and/or consultation, will fashion a remedy, including the following issues: One, qualification criteria for individual class members, a format of a treatment remedy, the cost of the treatment remedy, allocation of cost of the remedy among the liable defendants, and management of funds for the treatment remedy. The beauty about this --

THE COURT: Why would I not be able to do that as part of a mass joinder procedure?

MR. D'AMICO: The problem with a mass joinder is who pays for the ongoing child care that is a crisis situation now. We would have to have serial trials of bellwethers for each

manufacturing defendant only to get individual awards for those individual members. This would be a totally separate subclass, nothing to do with the damage trial, that would create a situation like the vaccine fund or like the Costano or the tobacco litigation cessation fund, or the program that Dr. Williams testified about in Judge Lemmon's court where a fund was created to get intervention and education for the asthmatic children. Hugely successful, making a great impact on the children who are suffering now.

As the health study pointed out, the funding is going to dry up in March of '09 and that's only a study. As Dr. Wedner just testified, study is nice; but to just study and not provide treatment is unethical. Dr. Paris in his supplemental affidavit addresses that issue and says, look, I've been hired by the government to study the issue, but that's not enough. What do I tell this child after I diagnose him and study him and say you're sick, you have asthma, good luck, go find help some place.

There's a crisis that exists now. And the only equitable thing to do would be to certify a class -- and look, if we lose on the causation, they walk away, they never funded. If we lose on whether or not these are common mechanisms of injury common to all of the class members, we don't recover. We have to prove all of those issues.

I'm reminded that I have five minutes, I should probably save some of it --

THE COURT: You're 20 minutes is going to end in about a

minute. So go ahead and wrap up and then we'll save the balance of the time for rebuttal.

MR. D'AMICO: Thank you, your Honor.

THE COURT: All right. Thank you. All right. Which of you would like to go first? Mr. Weinstock.

MR. WEINSTOCK: I'll go first. Your Honor, my presentation is going to change dramatically on what I planned based on what the plaintiffs have done today.

Very briefly, when we talk about class certification, and I can't really say it better than Niko Fischer orchestrated it in 120 pages that I know you've read, but one way of looking at it is there are the factors under Rule 23, commonality, typicality, adequacy of representation, numerosity, and all of these things seem very simple. Plaintiffs, oh, common question of law in fact, that's no problem; typicality, that's no problem.

When you overlay the predominance requirement, these problems become insurmountable. What common question predominates this litigation? There is none. If we took them at their word and we tried a plaintiff and we tried, you know, Mr. X -- let me rephrase. If we tried John Smith. He would have to prove he was exposed to a level of formaldehyde that caused his particular illness, and that that illness is more likely than not related to that exposure and not something else in his medical record. And that's what Dr. Shellito told us. Their doctor, not mine.

And what would that tell you about his twin brother who

lived in the same bunk -- in the bunk bed below? Absolutely nothing. Because his twin brother who may have the exact same symptoms would have to show that he was exposed to a level of formaldehyde that was possible of causing the disease in him. And that disease is more likely or that illness is more likely related to formaldehyde than anything else in his past medical history.

So it seems common because we're trying similar cases, but trying one does not solve the problem of trying the second case. One cannot represent the other. And when you overlay predominance, it disappears.

THE COURT: But isn't it true that in many, I mean, you pick an MDL, pick a class action, aren't there always going to be certain differences with regard to damages that wouldn't necessarily permit the court from having a trial relative to certain of the liability issues?

MR. WEINSTOCK: Always, your Honor. But here is the problem. It's not a damage issue, it's a medical causation issue. You hit the nail on the head when you asked them, you skipped liability. They've got to prove medical causation for one plaintiff which has nothing to do with medical causation for any of the other plaintiffs. It's an individual question and it can only be tried by an individual, it can only be tried with that individual's doctors taking the stand, with that individual trailer's understanding of the levels of formaldehyde that that individual would be exposed to and that could it be related.

And again, it wouldn't have any impact or solve any -- give us any shortcut to his twin brother in the next bunk. And Dr. Shellito acknowledged that because it's right.

We also heard this morning about an economic class and the theory that the plaintiffs are entitled to rental assistance pursuant to that class. In Mr. Miller's brief, the federal government's brief there is a Ridgeway case decided in January of 2008 that says point blank you don't have a constitutional right to rental assistance. And if you don't have a right to rental assistance, nothing's been taken from you.

Now what they're arguing is, hey, we have a property right. We briefed it very extensively. You have to be the purchaser, you have to be the buyer to have that right. If I can phrase it, how do you have a claim for property damage when you own no property? At least none involved in this litigation. The federal government, if anybody, has that right, they certainly haven't asserted it.

And it wouldn't solve the problem anyway, because again, what are they trying to say? They're trying to say that the trailer is not proper housing. Assuming we accept them, that's the question. Why is it improper? It's improper because of the levels of formaldehyde in the trailer. Okay. Is the same level -- they've sat here and argued all morning that children are affected at different levels. Does the same level make it defective for a 50-year old male as a five-year old child? So the level alone

tells us nothing. We have to go back through the steps and decide is it inappropriate for this plaintiff because it could medically cause this plaintiff's problem. Because if it didn't medically cause any problem in the plaintiff, there is nothing wrong with the housing.

The national cancer study -- I'm sorry, the National Children's Fund study they've been talking about shows that there's no increase incidence in asthma. I mean, I objected to it but I thought about it afterwards, can I not object to this one sentence where it says that the incidence is no higher? If the incidence is no higher, how do you attribute the incidence that was there pre-Katrina and post-Katrina to a formaldehyde level when it hasn't changed. Again, not parents' complaints but what the doctors say.

And that's why this always is going to come down in a lot of ways, medical causation, which is an individual question.

There's a slide they haven't shown you, and it comes from the supplemental report of Dr. Stein that I first saw yesterday. And it's the last sentence and I thought it was going to be their bang, bang finish.

MR. D'AMICO: Ran out of time, sorry. Sorry, Andy.

MR. WEINSTOCK: That's all right.

MR. MEUNIER: Go ahead and tell the Judge what it is.

MR. WEINSTOCK: I do want to tell the judge what it is.

THE COURT: I was going to say, it might be Mr. Meunier is still sitting here waiting for his opportunity.

MR. WEINSTOCK: It says, "if children have symptoms they should be treated." It might be the worst idea I've ever heard in my life, whether it came from a doctor or somebody else. Think about what they're saying, your Honor. The child not has a diagnosis of asthma but has a symptom of asthma, they should be treated. How are you going to treat a child with shortness of breathe or wheezing? You're going to give them steroids. We're just going to give steroids to anybody that has a symptom? We're going to stunt their growth, we're going to delay their development because they have a symptom of wheezing. We're not going to treat the disease, we don't care, we just want to treat the symptom.

What if that child had a tumor that was causing the shortness of breath? Let's not do an X-ray and see if there's something else wrong, give them steroids, see if that reduces the wheezing. If you had a tumor and you got steroids, it would reduce the wheezing and we would wait a little bit longer to find out that you had a tumor. You don't treat symptoms, that's why you diagnose and then you treat.

Now, they're going to say, oh, no, Mr. Weinstock, you're taking this out of context, that's not what we meant. We meant you treat the symptoms of asthma once it's diagnosed. Okay. I agree. Let's go back to individual causation, medical causation and diagnosis. We're right back where we started. You can't just leapfrog medical causation and say, oh, we're going to treat everybody that was a child that lived in a FEMA trailer. They

skipped a few parts there, a few steps.

Another point the plaintiffs have made over and over again is this is not about specific causation, it's about general causation. That's not correct. General causation just gets you in the courtroom. If the claim here was the trailers have too much oxygen in them, we wouldn't have been here very long because there's no epidemiological study that suggests too much oxygen is a problem. So the idea that there may be some papers out there, general causation paper just beats summary judgment on a class wide basis, it does not get them to certification.

But even if that's the case, even if that's what they're seeking, they've asked the wrong question anyway, they asked the wrong question a general causation, because the correct question is not are there health consequences of formaldehyde. The real question is, are there health consequences to the effects of formaldehyde in these trailers. And the only way they can get to everybody in their class is the one molecule theory, the one breath theory that Dr. Williams espoused.

That goes to cancer, but Dr. McGwin tells us you can't get to cancer unless you have an exposure level of 4,000 ppb, which we do not see in these units. So the cancer issue is gone. I am cracking up here. Mr. D'Amico is agreeing with me, he says, that's cancer, that's cancer.

MR. D'AMICO: We're not talking about cancer.

MR. WEINSTOCK: That's right, we're not talking about

cancer, so we don't have uniform injury because the one molecule theory is a cancer theory. We already heard there is a threshold for asthma, she didn't see a study below 49 ppb, it doesn't mean at 50 we all get it. That just means they didn't see anything below that. You got to get above that and you got to keep going and you got to see where do we see a number. Dr. Wedner says keep looking, you'll never find it.

Your Honor, I would like to finish with a quote from somebody smarter than me, which is many. Somebody said, "As for each plaintiff involved in this litigation, the evidence will undoubtedly differ. Just as the individual claims will differ. For instance, some plaintiffs will not have suffered any symptoms from alleged formaldehyde exposure. Furthermore, those who do claim to have suffered side effects will surely differ as to which side effects each suffered and to what extent those side effects manifested."

And that's in your opinion, Document 717, pages 42 and 43. I can't say it more succinctly than that. So I'll just go ahead and quote your record. Thank you, your Honor.

THE COURT: All right. Thank you. Wait. Ms. Boyle. You're always leaving the government out.

MR. D'AMICO: Always cutting into my time.

THE COURT: Seems like when we were here on their motion to dismiss you were very conscience of them being here. Now they're still in and nobody's looking at them.

All right. Go ahead, Ms. Boyle.

MS. BOYLE: Good afternoon, your Honor. Just very briefly with respect to the United States.

And with respect to sub-classes specifically because that is what's been addressed primarily today. First, no child is proffered as a class representative with respect to the United States. And this applies over and above the objections that the private defendants have made.

Secondly, no class representative or no person who has sued the United States has claimed any property damage on his or her administrative claim form. And, in fact, Ms. Peugal (PHONETIC) is the only person who is proffered as a class representative as to the United States. But neither she nor any of the other named plaintiffs has claimed property damage. And this is a jurisdictional prerequisite.

Finally, as the private defendants have stated, there has been no requisite ownership interest or loss of use in any of the alleged property in the claims in this case. And the Federal Tort Claims Act provides that state law provides the substantive standard under which such a loss would be reviewed. And certainly, Louisiana, for example, state law provides there must be a requisite ownership interest.

And then finally, as the private defendants pointed out, the Ridgley decision out of the Fifth Circuit would bar any such constitutional claim as well as the Federal Tort Claims Act which

provides that based on a certain set of facts, if a tort claim is brought under the Federal Tort Claims Act, that is the exclusive remedy as opposed to any constitutional claim.

With respect to issue sub-classes, it's clear from the advisory committee notes, as well as the Manual for Complex Litigation, for example, at pages 129 through 130, that any issue subclass still or liability subclass still needs to advance the question of liability with respect to any subclass. And this applies over and above all of the other Rule 23 factors.

So, for example, in the Costano case which was cited by the Plaintiffs' Steering Committee today, that actually was decertified at the circuit level in the Fifth Circuit I believe, and that court specifically found that the district court did not discuss the alleged core liability issue, for example, of knowledge on the part of the defendant with respect to cigarettes. And that is very similar to some of the core liability issues that are being alleged in this case against the federal government. And there's no reason why to the extent there is any common question concerning knowledge or concerning any course of conduct that could not be resolved in a mass joinder basis under Rule 42.

And, in fact, the facts of this case, which are cited in our briefs, show that, if anything, there was no common course and that FEMA's actions with respect to each family differed among families in response to whether or not a complaint was received with respect to formaldehyde, and in many cases there was none. In

many cases FEMA responded promptly, or many cases there may have been a complaint after a person moved out of the trailer or there may have been an offer to move the person which was not accepted for various reasons for the situation of that particular family.

And finally, the Plaintiff Steering Committee today mentioned again the regulatory definitions of uninhabitable contained in the Stafford Act, and I would just highlight for the court that federal statutes and regulations do not create a private right of action and that those definitions apply to other legal questions besides the way in which they were used today. And the reasons for that are stated in the United States' motion to dismiss, which was filed this past spring.

And as a factual matter, with respect to the flyers that FEMA began issuing, I believe that was done in June of '06 as opposed to June of '07, that's just a factual matter to correct for the record.

THE COURT: I think that's what the evidence was as reflected in the order and reasons that we pinpointed a date in June of '07 where at least in some quarters the initial disclosure of information by way of a flyer occurred somewhere, some particular group of people.

MS. BOYLE: Yes, your Honor. And then finally with respect to legal reasons why a class may not be maintained against the United States, and I will just briefly highlight them and then rest on our briefs, unless the court has any further questions.

First, the court may not certify a class where it lacks jurisdiction over the claims of the putative class members. And this is well established through cases such as Amcam, and it's not alleged in this case that the putative class members have satisfied the exhaustion requirements of the Federal Tort Claims Act, either by initiating claims or by deeming their claims denied and filing suit in district court.

And even assuming some subset of those persons did possess claims with proper subject matter jurisdiction, a large number of individualized determinations still would be necessary to resolve whether or not the court would have jurisdiction over those person's claims, regardless of the FTCA's exhaustion provisions, for example, the statute of limitations provision, the legal sufficiency requirements, as well as the discretionary function exception, which is addressed in this court's order of October 3rd.

THE COURT: But some of the proposed class reps have already submitted their Form 95 and would have satisfied that requirement for FTCA jurisdiction; isn't that correct?

MS. BOYLE: No, your Honor. The United States' position in this regard is that the administrative claims requirement provides -- well, excuse me, yes, there are, we believe, 19 persons who have exhausted their administrative remedies and who have exercised their option under 2675(a).

THE COURT: But then couldn't we define a class? One of the component parts of class membership would be those who have

satisfied the Form 95 filing requirements and dispositional requirements, wouldn't that be a way to define the class such that those that you're claiming the court has no jurisdiction over would not be so included? I am not saying that's the most practical thing to do, I am just saying that if we're going to talk about who is qualified as a class rep, we have someone, a few people who would satisfy that requirement.

MS. BOYLE: Your Honor, that would not be appropriate for the following reasons: It's inappropriate to define a class of unascertainable membership. And in this case, there's been no evidence proffered as to who has exhausted -- and it's the United States' position that exhaustion for the purpose of being included in a class means that a claimant who has filed and who has not received any disposition after six months may file suit under the statute in this court or he may allow his claim to remain pending with the agency and the regulatory, the statute and the congressional intent and the scheme, the statutory scheme show that the agency still possesses the authority to settle that claim or any number of claims.

And so in order to cert a class -- and moreover, that person's claim still would be subject to the discretionary function provision, still would be subject to the statute of limitations because the Federal Tort Claims Act has its own statute of limitations, irrespective of American Pipe, still would be subject to legal sufficiency requirements. And so that type of definition

would simply be -- the United States' position is there would be no jurisdiction to make that definition. But even regardless of that, that that would be unworkable in the class certification context.

THE COURT: Okay.

MS. BOYLE: And I would just point the court's attention as well to the case of John v. National Security Fire and Casualty Co., where the court rejected a similar type of inquiry at the Fifth Circuit level with respect to class certification, as well as the Amcam case which found that the proper remedy where the court may have jurisdiction as to some members but not others was simply to deny the class.

THE COURT: Okay. All right. Thank you, Ms. Boyle.

MS. BOYLE: Thank you, your Honor.

THE COURT: All right. You've got about seven minutes of rebuttal time.

MR. D'AMICO: Thank you, your Honor. Property damage claims as it relates to the, that subclass that we're proposing, Judge Duval in the McWaters case has carefully reasoned an entitlement and addressed all of the constitutional issues involved in that. We would urge the court to reflect on Judge Duval's decision because he has analyzed this and gone over many of the steps.

It's perplexing to us, your Honor, that FEMA knows who the recipients of the FEMA trailers are and they won't divulge the names so the class is unascertainable in size? We could craft a

class very easily to only include those persons who have satisfied the administrative requirements, filed their Form 95s and exhausted all administrative remedies before they could qualify, so those arguments are nonsensical.

And as Judge Duval has already pointed out, there is a due process requirement because there is a property right that vest wants you're determined to be entitled. The McWaters case we find compelling.

Now, the class deposition as my counsel has said, class includes all found by the court following appropriate notification to have filed Form 95 claims; and two, evidences intent to proceed with the litigation as a class member.

I would like the court now to look at the definition for the proposed subclass for the medical intervention and treatment fund. I think what the defendants are doing is confusing the issues of cancer and a medical monitoring fund with what we're proposing, which is not a medical monitoring fund at all. It is a fund to be created for any child who lived in a travel trailer which exceeded the ATSDR minimum risk levels for the correspondent period in which they resided in the trailer. That means they have to have exhibited a manifest injury while living in the trailer -- during the time they resided there. And we would have to show that the levels they were exposed to exceeded those as promulgated by the ATSDR.

If we don't prove it, we don't recover. That's what the

trial is all about, but there's certainly a workable way to do it. The alternative is to go through -- we have 140,000 trailer residents. Do we go through 140,000 trials to get a fund established so that these children can get treatment? When? Ten years from now? It's not workable, the judicial economy doesn't work.

The only way we can satisfy the medical crisis as outlined by Dr. Heidi Sinclair and as evidenced in her testimony before Congress is to create a fund now. The emergency exists now. And who is going to pay for it? Either the state government or the federal government, unless we create a fund by the perpetrators who are negligent and caused the injury in the first place.

THE COURT: But it seems like we don't even, from the testimony today, we don't have any type of agreement with regard to what the legal standard, what is going to be found as the -- I'm focussing where you have ATSDR minimum risk level as though that's the benchmark that is to be followed.

MR. D'AMICO: Right.

THE COURT: And I don't think we have any uniformity of agreement with regard to that. As a matter of fact, that's been disputed since Day 1 in this case.

MR. D'AMICO: Exactly. And that is a merits based decision, you don't have to go there today. That's what the trial is about. That addresses the merits of is the ATSDR level actually predictive of anything. If the jury doesn't believe it, if they

say, look, ATSDR is purely speculative, we don't agree with it, they throw it out. It doesn't apply.

It's case management. This is not -- what they're talking about is merits, what we're talking about is case management.

THE COURT: Well, but it sounds to me again like you're talking about not just case management but you're talking about damages, you're talking about a subclass of people that will be awarded some benefit under the authority of the court.

I'm all in favor of case management and I think it's a great idea as it's laid out on paper, but it gets, as we pointed out already or I asked you already, kind of climbs over the liability requirement. But also it seems to insert a standard that is very much in dispute at this point in order to qualify somebody for a court sanctioned benefit.

MR. D'AMICO: Okay. This is what we propose, let's go at it again. Try the cases serially (one at a time) against each manufacturing defendant. For instance, Gulf Stream and FEMA, for determining fault and liability on statewide basis. In other words, the same jury would apply the different state laws and say whether or not that state law allows recovery for the proposed remedy. The same jury so that there would be consistency would be decided it as to Gulf Stream for each of the four states involved and FEMA.

Second, class wide evidence of medical causation concerning formaldehyde inhalation or other modes of exposure would

be put on by expert testimony and the jury would decide who to believe. If they believe the defendants are right and it takes 800 ppb before you get any kind of aggravation of any symptoms and we don't prove 800 ppb existed, we lose, we go home.

But if we prove it can occur as low as 30 or 40 ppb to aggravate an asthmatic condition and that child's preexisting asthma was aggravated by 30 or 40 ppb, and if we prove to the jury's satisfaction that it actually exceeded those levels, then we recover, then that fund is created and anybody who comes to court who can show they resided in the trailer, they had exacerbation of a preexisting asthmatic condition, and their trailer exceeded those levels, they're in.

Third, class wide evidence concerning whether the conditions and/or mechanisms of injury suffered by the plaintiffs are common to all. That's what Dr. Williams was trying to explain, the mechanism of injury, the way this electrophile comes into the body and affects the tissue, the molecules. Not talking about a DNA change, which they seem to be confusing the issues, we're talking about at a molecular level this electrophile binding to those molecules and causing cross-links, causing actual manifest injury.

Now, they say, well, what happens if Johnny had symptoms and Bobby didn't have symptoms. That's simple, it's self-regulating. Bobby who had symptoms applies for medical treatment; Johnny who didn't, doesn't apply. We're not putting

money in the hands of anyone. What we're doing is we're creating a fund so that if Johnny has symptoms and Bobby doesn't, Johnny gets healthcare.

Fourth: If any defendant is found liable, the court, with the help of answers to the jury questions, the parties and expert testimony and consultation with experts will fashion a remedy, including the following issues: And that's what we're talking about like the vaccine fund where you have certify certain criteria exists before you can apply and benefit from it.

Qualification criteria for the individual class members would be defined: A format of a treatment remedy, such as what is appropriate. Andy was saying, well, what do we do? Do we just give out steroids to the kids? That's all part of the trial, that's a merits based issue and the jury will determine, yes, this is appropriate type of remedy or, no, it's not; or it may even be a judge function at that point.

Third, the cost of the treatment remedy. We would have to prove, to the extent that we could, how many are in a potential class and how many are claiming symptoms. If they're not claiming symptoms and don't need treatment, we don't need to set up a fund for them. Again, it's self-regulating. Allocation of cost of remedy among the liable defendants and management of the funds or treatment and remedy.

That's what we're proposing. Now obviously we would like to refine it some more. Obviously we would like some input. If

you determine, yes, I've seen that there is an ample record that there is a fact in dispute as to what level can cause it, but, yes, I believe that some reasonable minds can come to a conclusion that asthma or bronchoconstriction or respiratory problems can manifest from exposure to a certain level, that's for us to fight about at trial what the level is and what remedy is deserving.

THE COURT: All right. Thank you, Mr. D'Amico.

MR. D'AMICO: Judge, thank you for your time. I know you have things to do and we appreciate it.

THE COURT: Well, thank you all very much for all the preparation that went into this, both in the written materials as well as today. I do appreciate it.

The game plan from here will be, I mentioned some type of post trial memos, you don't have to file one if you don't think you need one. If you would like to file something you can. You don't have to use all of the pages if you feel like you've expressed clearly everything you need to express, then that's fine.

Please don't be repetitive. I would like, if you would, I'll give both the defendants, as well as the government, a 10 page limit and the plaintiffs will have I think I mentioned 15 pages total. What I would really like you to do is to maybe talk amongst yourselves as what you intend to cover. Mr. Meunier had suggested earlier that he wanted to discuss some exhibits and his objections to those exhibits. That's fine, as long as it's not repetitive of something I've already read.

I would like to get those from you no later than, today is the 2nd, why don't we say the close of business on the 10th, which is next Wednesday, with those page limits seems that ought to be very doable, get them to my by the 10th. All will be due at the same time.

I will tell you now, please don't ask for, "can I file something to respond to what my opponent filed?" The only way I would ever entertain that would be if there's an outright -- an opinion that comes down from the Fifth Circuit or the Supreme Court between now and then; or if there is an outright falsehood, which I would expect, of course, you to call your opponent's attention to, and I would not expect to have in the first place. But please try to work it out amongst yourselves, but I don't need duplicatory arguments beyond that because I have a great deal of material and I'll be prepared to rule and will do so as promptly as possible.

My goal and intent is to get a ruling to you all certainly before the end of the year. That's not a promise but it's certainly a goal, I would like to get that to you. We know you're waiting for it and that'll dictate the course of the case thereafter. Mr. Woods.

MR. WOODS: Yes. Your Honor, in responding to the objections raised to plaintiffs' exhibits, in conversations with Henry Miller, counsel for the government, there is some corrections that need to be made to the exhibit list.

THE COURT: Sure.

MR. WOODS: And so that we need to supplement the pretrial order with a correct list of exhibits and correct listing of objections.

THE COURT: Okay. If you'll go ahead and get together, and once you've got it resolved, go ahead to bring it to Amanda's attention, she'll make certain that the corrections are made in my book, both my pre-trial order as well as any exhibit book changes that need to be made.

Thank you all very much.

MR. MEUNIER: Thank you, Judge.

MR. WEINSTOCK: Thank you, your Honor.

THE DEPUTY CLERK: All rise.

(WHEREUPON, THE PROCEEDINGS WERE CONCLUDED.)

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REPORTER'S CERTIFICATE

I, Karen A. Ibos, CCR, Official Court Reporter, United States District Court, Eastern District of Louisiana, do hereby certify that the foregoing is a true and correct transcript, to the best of my ability and understanding, from the record of the proceedings in the above-entitled and numbered matter.

Karen A. Ibos, CCR, RPR, CRR
Official Court Reporter