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STATE OF TLLINOIS)
) ss:
COUNTY OF C O O K)

IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
COUNTY DEPARTMENT - LAW DIVISION

LAWRENCE KUBINSKI,	)	
	)	
Plaintiff,	)	
	)	
-vs-	)	85 L 09338
	)	
METAL LUBRICANTS COMPANY and	)	
MEDALIST CHAMPION SCREW COMPANY,	)	
	)	
Defendants.	)	

The continued discovery deposition of RAYMOND D. HARBISON, M.S., Ph.D., was taken by NICHOLAS W. DIGIOVANNI, C.S.R., Notary Public, pursuant to the applicable provisions of the Illinois Code of Civil Procedure and the Rules of the Supreme Court of the State of Illinois, pertaining to the taking of depositions for the purpose of discovery, at 20 North Clark Street, in the City of Chicago, Cook County, Illinois, commencing at approximately 10:10 o'clock a.m. on the 19th day of November, A.D., 1990.

There were present during the taking of this deposition the following counsel:

HILFMAN & FOGEL, P.C., by
Mr. Robert L. Fogel,

On behalf of the Plaintiff;

TRESSLER SODERSTROM MALONEY & PRIESS, by
Mr. Gary T. Jansen,

On behalf of Medalist Champion Screw Company;

CASSIDAY SCHADE & GLOOR, by
Mr. Bradford D. Roth,

On behalf of Metal Lubricants Company.

I N D E X

(witness sworn)

MR. ROTH: Would you state your name for the record, sir.

MR. HARBISON: My name is Raymond Harbison.

RAYMOND D. HARBISON, M.S., Ph.D.,

called as a witness herein, having been first duly sworn, was examined upon oral interrogatories and testified as follows:

EXAMINATION

by Mr. Roth:

Q What is your occupation?

A I am a toxicologist.

Q And what is a toxicologist?

A A toxicologist is an individual, a scientist, who studies the harmful effects of substances on the living system.

Q You've been retained as an expert in this case, sir?

A Yes, I have.

Q You've been retained oon behalf of the plaintiff, correct?

A I have been working for Mr. Fogel.

Q For what reason were you retained? What was the purpose of your analysis and evaluation in this

case?

A To evaluate the exposure of Mr. Kubinski and to determine whether or not that exposure could have resulted in the dermatitis suffered by Mr. Kubinski.

Q Were you asked to evaluate a specific chemical or substance with respect to that work?

A Yes, sir.

Q And what was that, sir?

A The substance was Metal Lubricants SV-6.

Q I think -- just as a correction, was it Metalite SV-6?

A That's the name of the product, right.

Q It's made by Metal Lubricants?

A Correct.

Q Any other chemicals that you've evaluated or assessed in this case?

A No, sir.

Q I just have a couple questions about your curriculum vitae.

I have marked -- I want to show you what's been marked as Harbison Exhibit No. 1. Could you review that and identify it for the record.

A Yes, sir. This is a copy of my curriculum vitae.

Q And it is composed of 27 pages, is that correct?

A That is correct.

Q Doctor, is it current as of today?

A There may be a paper or abstract which is not on here, but, I believe, nearly current.

Q With the exception of additional papers or abstracts, would it be accurate as of today's date in terms of the other material pertaining to your background?

A I believe so.

Q When did you receive your Ph.D. in pharmacology and toxicology?

A 1969.

Q You are not a medical doctor, is that correct?

A That is correct.

Q Is there a demarcation, Doctor, where toxicology stops and medicine begins?

A Medicine is the diagnosis of diseases. Toxicology is the determination of the causes of diseases.

Q Does toxicology include establishing causal relationships between exposure to certain substances and

certain physiological responses?

A Yes, sir.

Q Are you an industrial hygienist?

A No, sir, I am not. I use industrial hygiene in the practice of toxicology.

Q Are you an epidemiologist?

A I would use epidemiology in the practice of toxicology, but I am not an epidemiologist.

Q You rely on epidemiological studies in your analyses?

A I believe so, yes.

Q You are not a trained epidemiologist?

A That is correct.

Q On page 6 of your CV you indicate you were certified in general toxicology in 1982?

A Yes, sir.

Q Can you explain what organization does the certification?

A Yes, sir. It's certification by the Academy of Toxicological Sciences.

Q What is required for certification?

A It is a peer review process, submission of credentials and other information and reviewed by a peer group.

Q When was that certification first made available to toxicologists?

A I don't know the answer to that.

MR. FOGEL: Academy of Toxicological...

THE WITNESS: Sciences.

MR. ROTH: Q Are you on the board or do you occupy any administrative position with that academy?

A No.

Q Have you ever?

A No, sir.

Q Referring to your education and experience on page 5. I just want to go over a few of these, and the first one is about halfway down the page. It indicates that you acted as a toxicology consultant for Texaco, is that correct?

A Yes, sir.

Q Can you tell me what that was all about.

A I can tell you a little bit about it. As a consultant to Texaco I have reviewed toxicological studies performed for Texaco. I have reviewed the quality assurance, quality control of those tests. I have reviewed their product safety information. I have reviewed their material safety data sheets.

Those would be things that I have

done for Texaco.

Q What are the years of your consultation for Texaco?

A I can't tell you exactly, but it's certainly been about ten years.

Q Since 1980 or so, roughly?

A Roughly -- before that. Probably since about -- I would estimate probably about 1978.

Q Are you on a retainer with Texaco in the sense when they have something for you to evaluate they call you and talk to you about it, or have you completed your work for them?

A I still consult with Texaco.

Q Does your consultation pertain to any petroleum chemicals?

A It may, sure.

Q Did it -- has it thus far? We won't talk about the future, but has your consultation for Texaco evaluated the possible toxicological effects of petroleum chemicals in humans?

A Yes, it has.

Q Is there anything about your consultation with Texaco that you feel would be relevant to your work in this case?

A Not specifically, other than general knowledge of material safety data sheets, what information is supplied to customers, that information.

Q Did you evaluate specifically any refining byproducts, specifically mineral spirits for instance?

A Specifically, no.

Q I should ask you, before we go any farther, if you could tell me what Metalite SV-6 is.

A It is mineral spirits.

Q What type of mineral spirits is it? Are you able to define that any further?

A I can define it by its physical properties. It is mineral spirits that has a boiling point of around 150 to 200 degrees centigrade, composed of hydrocarbons, primarily aliphatic hydrocarbons.

Q What percentage of aliphatic hydrocarbons would Metalite SV-6 contain?

MR. FOGEL: Absent a chemist's analysis of a particular batch of Metalite SV-6 we run into the problem of the fact that Metal Lubricants purchased from a number of different suppliers various products also with other names, from Stoddard solvent to naphtha and so on; and the percentage breakdowns of aromatics and aliphatics and types of paraffins involved varies

slightly from product to product.

So since Metalite SV-6 is a hybrid, a combination of various forms, I think for you to ask for percentages out of the air is kind of tough to do.

MR. ROTH: Q Go ahead.

A That's tough to answer. I don't know specifically. The majority would be composed of aliphatic hydrocarbons.

Q You have reviewed material pertaining to SV-6?

A Yes.

Q You've reviewed the material safety data sheets and other product information that Mr. Fogel forwarded to you, correct?

A That is correct.

Q Do you have an opinion, Doctor, as to the percentage of aliphatic hydrocarbons that SV-6 was composed of?

A I would have to go back and look at that. I don't have an opinion at this time.

Q Would you agree -- I think you said it contains some aromatics, correct?

A It probably contains a small amount, yes.

Q But this is primarily an aliphatic. Would

you agree with that?

A I would generally agree with that, yes.

Q As long as we're talking about this, Doctor, is the degree to which SV-6 is an aliphatic as opposed to containing more aromatics important to your opinions in this case?

A I don't believe so.

Q What is an aliphatic?

A It is a strange chain hydrocarbon.

Q And how does it differ from an aromatic?

A Aromatic is a ring structure containing the carbons in a ring configuration.

Q SV-6, does it contain chlorinated hydrocarbons?

A I don't believe so.

Q Going back to your work at Texaco, sir, did you evaluate or analyze any chemicals or substances that you would characterize as mineral spirits?

A Specifically, I don't recall doing that.

Q You -- did you help them put together their material safety data sheets?

A I only reviewed material safety data sheets for adequacy of information.

Q And did you review any material safety data

sheets that pertained to mineral spirits or Stoddard solvents?

A Not that I specifically recall.

Q Going down a little bit further here, Doctor, you did some work for Occidental Oil. And to tell you the truth, I can't find it right out -- the first one on the page. Do you see where I'm referring to?

A Yes.

Q What did your work comprise of in that consultation?

A I reviewed the worker's safety in shale oil production facilities and the gaseous byproducts produced as a result of the shale oil production.

Q Did your work in that regard pertain to the potential hazards of inhalation?

A Yes, sir.

Q Did it pertain also to dermal contact?

A I don't recall dermal contact being a concern.

Q When's the last time you worked for Occidental Oil?

A Worked directly for Occidental Oil, I don't think I've worked directly for them since this time.

Q When was that?

A Probably --

Q Can you give me an estimate?

A Probably 1979, 1980.

Q Going on to -- we're still on page 5. You did some work for the American Petroleum Institute, six up from the bottom on page 5.

A Yes.

Q And that was with respect to -- was that with respect to developing comments to be submitted to the EPA concerning the ARCLA -- you have the Resource Conservation Recovery Act.

A That's not ARCLA. It's RCLA.

Q Excuse me.

Was that in order to develop the American Petroleum Institute's comments to them with respect to proposed regulations?

A Yes, sir.

Q Did it pertain at all to petroleum chemicals?

A Not that I recall specifically.

Q Did it have anything to do with mineral spirits?

A I don't believe so.

Q Page 6, Dr. Harbison, you did some work for Dow Chemical Company, four up from the bottom of page 6. Do you see that reference?

A Yes, I do.

Q Can you tell me what your work was for Dow Chemical with respect to that consultation?

A It was an evaluation of the health effects associated with exposure to trichlorethylene used as a degreasing solvent in an operation in Texas.

Q Triethylene is a chlorinated hydrocarbon, is that correct?

A That's correct.

Q Is it similar in its hazardous aspects to mineral spirits?

A It might have some similarities, and it also has dissimilarities.

Q When you were determining -- when you were evaluating health problems did they relate to dermal problems?

A I don't recall.

Q Did this primarily have to do with evaluating TCE for cancer causing propensities?

A No. I believe it was inhalation and dermal. I believe it was the pharmacological effects of

trichlorethylene and the dermatitis produced as a result. But I don't have a specific recollection of that.

Q What years did you do your work at Dow?

A No, I didn't work at Dow.

Q Excuse me, for Dow. I'm sorry if I said that.

A And I didn't do the work for Dow. I worked with an attorney who was representing Dow.

Q Oh.

A That would probably have been I would say early 1980s, probably '82, '83.

Q What conclusions did you draw with respect to the dermal effects of trichlorethylene at Dow Chemical?

A I don't recall specifically any of those conclusions.

Q Did you make any specific conclusion regarding the chemical you evaluated possibly causing dermatitis?

A I don't have a recollection of that.

Q Did you prepare any reports?

A I don't believe so.

Q Do you recall anything about your work for

the attorney representing Dow Chemical Company that would bear on your opinions in this case?

A I don't recall anything specific, no.

Q In reviewing -- just in general, Doctor, in terms of your industrial experience, have you ever been retained to evaluate the toxic effects of petroleum chemicals on the skin other than what you've told us about?

A I don't have a recollection of a specific involvement in the evaluation of petroleum products on the skin other than what we've talked about.

Q I should stop and ask you, Doctor, is your evaluation in this case limited to the potential injury to Mr. Kubinski's skin, or did it take on a broader analysis?

MR. FOGEL: I'm not sure -- do you understand the question?

THE WITNESS: I believe so.

A My focus is on the skin, or my evaluation is on the effects on the skin.

MR. ROTH: Q You didn't evaluate the possible toxic effects of mineral spirits in terms of inhalation?

A No, sir.

Q Or ingestion?

A No, sir.

Q So we're talking about dermal contact, correct?

A That's correct.

Q What is the Center for Environmental Toxicology?

A The Center for Environmental -- it's actually changed its name to the Center for Environmental and Human Toxicology. It is a center at the University of Florida which is a center to conduct research on the effects of chemicals on the environment and human health.

Q Is the Center for Environmental and Human Toxicology part of the University of Florida?

A Yes, sir.

Q You are the present director?

A Yes, sir.

Q How long was the center been in operation there?

A I would estimate about probably eight years.

Q And how many toxicologists other than yourself work at the Center for Environmental and Human Toxicology?

A Oh, there are about 20 to 25.

Q You have been a participant in a number of review groups that are set forth on your CV, correct?

A Yes.

Q Can you tell me in general what the work of a review group encompasses?

A Could we go to one or a couple specifically?

Q Sure. Let's start -- the most recent one I think is 1989 to present, the third one under summary of experience, National Institution of Drug Abuse, page 2. Do you see where I'm referring to, Doctor, the third one down under summary of experience?

A Yes, sir.

Q What would the work of that particular review group encompass?

A It reviews the extramural funding that the National Institute on Drug Abuse provides to evaluate the pharmacology and toxicology of substances of abuse.

Q Now going down to the one second from the bottom on the same page, 1986 to present. Can you tell me what subjects you evaluated as part of that review group?

A Subjects being chemicals?

Q Yes, sir.

A I'm not sure that's possible.

Q It's pretty broad?

A It's about five years of review of hydrocarbons, of chlorinated hydrocarbons, metals, essentially all substances that humans and other animal species would come in contact with.

Q Did you evaluate any -- mineral spirits or any petroleum chemical which is similar to mineral spirits as part of this particular review group?

A I don't have a specific recollection of mineral spirits. I'm sure there must have been some things similar to mineral spirits. I don't have a specific recollection of that.

Q Do you recall any part of this review group being undertaken to study the dermal effects of mineral spirits in humans?

A This group doesn't study effects. This group reviews grant or research proposals that are submitted to the national institutes of health, specifically the National Institute of Environmental Health Sciences. So it would have been, again, many chemicals that were reviewed. Specifically mineral spirits, I don't recall.

Q How about any of the other review groups that you've been a participant in, do you recall any proposals dealing with mineral spirits or similar petroleum products in terms of what effect they would have on the skin?

MR. FOGEL: Do you mean to include solvents such as mineral spirits?

MR. ROTH: To the extent that the doctor thinks they're similar.

A Well, serving on the National Institute of Occupational Safety and Health study review group, I am sure that we have looked at proposals to study the effect of mineral spirits and other petroleum solvents on skin.

Q Do you recall anything in particular, any specific proposal that you have as part of that review group?

A No, sir, I don't.

Q You also have a teaching position at the University of Florida?

A Yes, sir.

Q And that's -- you are a full professor in the departments of pharmacology and therapeutics, and as a matter of fact, a number of other departments as well;

is that correct?

A That's correct.

Q You also have a clinical professorship at the University of Wisconsin, correct?

A That's correct.

Q How often do you go up there to teach?

A I don't go up there to teach. Essentially that appointment was for the development of a continuing education program. And the interaction that I have is with the continuing education program, and I believe that's occupational medicine and public health.

Q Do you have any occasion to go up to Milwaukee to interact with them?

A Sure.

Q Do you actually -- when you talk about clinical professorship, do you do any teaching of students up there?

A No, sir, I have not, other than, again, developing educational materials for a continuing education program which is subsequently used for continuing education of physicians.

Q Prior to joining the faculty at the University of Florida in 1988 -- am I correct that's when you joined the faculty there?

A Yes, sir.

Q Did you have teaching positions anywhere else?

A Yes, sir.

Q Where would they be?

A University of Arkansas for Medical Sciences from about 1981 through 1988, Vanderbilt Medical Center from about 1971, '72 to about 1980, and prior to that Tulane Medical School for a period of about two years.

Q Do you now or have you ever personally taught courses on the potential effects of mineral spirits or other similar petroleum chemicals on the skin?

A It's been included and is included in the teaching that I do to medical students, yes.

Q Is that a part of your yearly course plan, there's always some discussion of that particular topic?

A There's always a discussion of the effect of particular solvents on the skin. It doesn't focus specifically on mineral spirits.

Q How many courses do you teach now, Doctor?

A Annually?

Q Yes, sir.

A It would be probably two. Medical students

I teach the second year. I teach toxicology, and also there are graduate programs which are given probably every other year, not every year.

Q In terms of the percentage of your work at the University of Florida, what percentage would be devoted solely to research activity?

A I would estimate that that's probably about 80 percent.

Q And is a part of your time devoted to administrative responsibilities?

A Yes, sir.

Q What would that be in terms of percent?

A Probably ten.

Q And what would the remaining ten percent have to do with?

A Probably teaching.

Q Do you have any interests in any subspecialty of toxicology?

A Interest being research interest or ...

Q Why don't we do it this way. Do you practice within any subspecialty of toxicology?

A I don't believe so.

Q Do you have a research interest in any subspecialty or subtopic of toxicology?

A I don't believe so.

Q Would teratology be something you have a specific interest in?

A I have certainly conducted research in teratology and continue to do that.

Q What is that?

A Study of the effects of chemicals on the developing organism.

Q Would that be prenatal?

A Yes, sir.

Q And what percentage of your research activities are devoted to teratology -- or excuse me -- to evaluations within the meaning of teratology?

A I'm not sure I could answer that.

Ever or this month?

Q How about in the last five years. We'll talk about current history.

A I would estimate maybe 10 percent, 15 percent.

Q In terms of your publications, Dr. Harbison -- I'm actually not going to go through each one individually. Does anyone ever do that, go through each one on your CV?

A No.

Q Doctor, do any of your publications -- and I'm excluding extracts for the time being -- have any bearing on the interaction of toxicity of mineral spirits on the skin?

MR. FOGEL: This is of the 105 -- more than that.

MR. ROTH: I see 118.

MR. FOGEL: 118 publications.

MR. ROTH: Q Take your time, Doctor.

MR. FOGEL: We're going to go to breakfast.

MR. ROTH: Q The question is whether mineral spirits has any toxic or harmful effect to the human skin.

THE WITNESS: A None of the publications deal specifically with a research of the effect of mineral spirits on human skin.

Q Do any of them deal with any effects of mineral spirits on the human body?

A No. There are no publications that specifically research the effects of mineral spirits on the human body.

Q Now I want to ask you the same questions with respect to the 105 abstracts you have included in your CV. Do any of them bear on the issue of whether mineral spirits or what the toxic effect of mineral

spirits would be on the human skin?

THE WITNESS: A I don't know of any of the abstracts that look specifically at the -- or reports specifically on the effects of mineral spirits on skin.

Q Do any of the 105 abstracts deal at all with mineral spirits or similar petroleum chemicals?

A The problem I'm having with that question is similar petroleum chemicals. Do you mean are any of these hydrocarbons?

Q Well let me narrow it down.

Why don't we stick to mineral spirits, how you previously defined mineral spirits in this case. Do any of your abstracts pertain to an analysis of that chemical?

A Of any constituent of mineral spirits?

Q Of the chemical you previously referred to as mineral spirits?

A Which was the aliphatic and aromatic hydrocarbons.

Q Correct.

A If you asked me the question about mineral spirits, the answer is no. There aren't any abstracts specifically that investigate the effect of mineral spirits on humans or on animals.

The problem I'm having with the question is that when you say other related substances, bromobenzene is certainly a related substance, although it is a halogenated aromatic which certainly does not occur in mineral spirits, chemically it could certainly be related.

Q Are you relying on any of the articles that you have published or any of the abstracts you have prepared as authority and as a basis for your opinions in this case?

A Well, I would rely upon the publications and the abstracts as a basis of my general toxicological knowledge. I'm not going to rely upon any one specifically as an authority for any specific opinion.

Q In terms of relying on these materials for your opinion relating to the possible harmful effects of mineral spirits on the human body, would you be relying on any of these articles or abstracts as authority to support your opinions?

A Isn't that the same question?

MR. FOGEL: Yes.

MR. ROTH: Q Are you telling me that you're relying on these articles and these abstracts as a basis for your expertise in toxicology in general?

THE WITNESS: A As a basis for my general experience and knowledge in the field of expert -- of toxicology. It's not the only basis or the only experience, but it is certainly a component part of.

Q Are you relying on any specific article as an authority for your opinions in this case as they relate to SV-6?

A I think I already answered that, and I said no specific article would I rely on as a specific authority. But generally the information I would rely upon as my toxicological information for my opinion.

Q Are any of your opinions in this case related to the question of whether or not a warning was necessary to be issued with the sale of Metalite SV-6?

A Yes, sir.

Q Do any of the articles or abstracts that you have contained in your CV relate to the issue of the requirement of warnings?

A I don't believe so.

Q You have published a few articles or prepared a few abstracts other than those contained in your CV, is that correct?

A Yes, sir.

Q Do any of those articles that are not

mentioned in the CV bear on the issues that we've discussed?

A The issue being warning?

Q The issue of warning. How about warnings?

A No, sir, I don't believe so.

Q How about the issue of whether mineral spirits is hazardous to human skin?

A No, sir.

Q Do you have any industrial experience in preparing material safety data sheets?

A Yes, sir.

Q And could you tell us what that experience is.

A I have prepared material safety data sheets for Aerotech, which is a corporation in Arkansas. I have reviewed material safety data sheet information for Texaco. And those are the ones I can recall.

Q What product were you dealing with at Aerotech?

A There were a variety of products. Essentially the products that were contained with the company, that is, that were used.

Q Were they petroleum products?

A I don't recall specifically petroleum

products.

Q Dr. Harbison, do you consider yourself an expert in the preparation of material safety data sheets?

A I would consider myself to have expertise in the preparation of material safety data sheets and to be expert in that field, yes, sir.

Q And do you consider yourself an expert, sir, in terms of when and when not a warning is required with respect to a particular product?

MR. FOGEL: Could you read the question back, please.

(Question read.)

THE WITNESS: A With regard to toxicological information, yes, I believe so.

MR. ROTH: Q What is the basis of your expertise in terms of preparing material safety data sheets and in terms of determining whether safety warnings are necessary?

A My general knowledge, experience, practice of toxicology, knowledge of regulations.

Q In terms of industrial experience, have we exhausted your industrial experience in developing warnings on material safety data sheets in terms of your

work for Aerotech and your work at Texaco; or is there more industrial experience that you've had in this area?

A Industrial experience including the review of material safety data sheets?

Q Yes, sir.

A Yes.

Q Can you tell us what that experience would be.

A I have reviewed those for PPG. I'm sure there are others. I just don't recall them.

Q What type of products were the subjects of the MSDS for PPG?

A They were chlorinated solvents.

Q And when you reviewed those for PPG, did you determine that the MSDSs were sufficient?

A Yes, I believe so.

Q When you reviewed them for Texaco, did you determine that the MSD sheets that were submitted to you were sufficient?

A No, I don't believe so. I believe that there were some changes that needed to be made.

Q What were the nature of the changes that you recommended on the Texaco sheets?

A I believe those were generally wording

changes, inclusion of some information that was not included in the material safety data sheet.

Q In terms of all your publications and all your abstracts, Doctor, have you ever had one that deals specifically with causes of dermatitis?

A No, sir.

Q Have you ever published an article or prepared an abstract dealing with the causes of psoriasis?

A No, sir.

Q Have you ever published an article or prepared an abstract dealing with the causes of skin injuries?

A No, sir.

Q Have you ever used mineral spirits personally?

A Yes, I believe so.

Q And what have you used it for?

A I've used it in painting, to clean brushes after painting. Those would be the things I could remember.

Q Was this on more than one occasion?

A Oh, I suspect it's been on more than one occasion, yes.

Q Just painting things around your house, just personal use?

A Yes, sir.

Q Did you always use gloves when you were using mineral spirits?

A It would depend on whether or not my hands would come in contact with the mineral spirits. Probably on most occasions they would not.

Q Have your hands come into contact with mineral spirits?

A I expect so.

MR. FOGEL: Are you talking about incidental contact?

MR. ROTH: Q Whatever contact.

THE WITNESS: A I assume it's in the context we're talking about here, which is using mineral spirits for painting purposes.

Q Right.

A Yes.

Q Was avoiding contact with mineral spirits something that you tried to do?

A Yes, I think I probably did.

Q Did you wear gloves when you were working with mineral spirits?

A I think you asked me that question. My answer was that unless I was going to contact the mineral spirits I did not wear gloves.

Q When you done -- when you knew you would have contact with mineral spirits, did you always wear gloves?

A I don't know that I always wore gloves.

Q Did you take any precautions to avoid skin injury as a result of contact with mineral spirits?

A Yes.

Q What precautions did you take?

A I didn't contact the mineral spirits for prolonged periods of time.

Q Do you have any industrial experience where you have actually observed workers in plants or industry working with mineral spirits?

MR. FOGEL: Versus solvents, generally?

THE WITNESS: A Yes, I believe so.

MR. ROTH: Q And where would that experience have been?

A At the Kelly Springfield tire plant in Tyler, Texas. That's the only one I can think of.

Q When would that have been?

A Probably about two years ago.

Q And were you doing consultation work as part of your reason for being at the Kelly Springfield plant?

A Yes, sir.

Q And what was that research directed to?

A Evaluating the effects of exposure to materials in the tire plant.

Q Was one of those materials you were evaluating mineral spirits?

A Not specifically, no.

Q And for what purposes were the people using mineral spirits at Kelly Springfield?

A I believe they were using them for cleaning purposes.

Q Did you observe the workers having contact repeatedly with mineral spirits?

A No, I did not.

Q Did you observe the workers there having contact with mineral spirits for durations that would be more than what you would characterize as incidental contact?

A No, I did not.

Q Did you observe the workers there having skin contact with mineral spirits?

A I don't recall that specifically.

Q Were the workers using gloves when they were working with mineral spirits at Kelly Springfield?

A I don't know the answer to that.

Q Did you observe any contact that you would consider a safety hazard in terms of the workers at Kelly Springfield using mineral spirits?

A No, I did not.

Q Does it matter to you whether or not they were wearing gloves or not?

A Sure.

Q And why would it matter to you?

A Well, it would prevent or limit exposure if gloves were being worn. If they were not, then exposure would be more likely.

Q If you would observe those workers not wearing gloves, would you consider that a safety hazard when they were working with mineral spirits?

A Well, it would depend on the activity that they have been or are engaged in, the length of that activity, all of the procedures that would be encompassed within that activity.

Q I take it that was not one of the aspects of the work down there that you were down there to

evaluate though, is that right?

A That's right.

Q Have you had any other industrial experience, Dr. Harbison, where you have observed workers dealing with petroleum-based solvents other than what you've told us about at Kelly Springfield?

A Petroleum-based solvents?

Q Yes.

A I don't recall any others specifically.

Q All right.

When you were at Kelly Springfield, Dr. Harbison, how long were you down there for your work?

A A day.

Q And how many hours of that day did you spend inside the area where you observed workers coming in contact with mineral spirits?

A It would have been a small amount of time. I couldn't estimate it.

Q Are you aware of the common uses of mineral spirits in industry?

A Sure.

Q What would they be?

A Used for cleaning purposes, as paint

materials. Those would be the uses I would be aware of.

Q Is mineral spirits used in degreasing operations?

A It can be.

Q And just again, other than your time at Kelly Springfield, you haven't personally observed these operations in industrial settings; correct?

A Degreasing operations?

Q You haven't observed the use of mineral spirits in industrial settings other than your trip down to Kelly Springfield, is that correct?

A I think you asked me that question, and I think I said that that's the one I could recall.

There may be others. I just don't recall them.

Q Okay.

A And -- I don't recall.

Q Can mineral spirits be composed of varying amounts of aromatics versus aliphatics?

A Didn't you ask me that question?

Q I don't think I did.

A Yes.

Q What is the range of aromatics generally found in mineral spirits?

A I think you asked me that, and I said I didn't know. It was a small amount, certainly lesser today than probably five years ago or ten years ago.

Q Is there an industrial reason why a company would like to limit the amount of aromatics in mineral spirits?

A Sure.

Q What would that reason be?

A Probably the primary reason is exposure to benzene.

Q Is that a human cancer-causing agent?

A Not necessarily.

Q It has been evaluated for that potential hazard though before, hasn't it?

A Sure, it has.

Q Is xylene an aromatic?

A Yes, it is.

Q Is that contained in mineral spirits to varying degrees?

A Maybe.

Q Has that also been evaluated as a possible cancer-causing agent?

A Xylene is, to the best of my knowledge, not a cancer-causing agent. I don't know where it ranks on

the categorization. I don't know where it is.

Q Individually, xylene has been evaluated in terms of possible harmful effects to humans though; is that right?

A Sure.

Q Is it possible to have mineral spirits containing no aromatics?

A I don't know the answer to that.

Q Are you familiar with the process by which mineral spirits is created?

A I believe so.

Q Can you tell us what that would be?

A It's a distillation of petroleum materials.

Q Do you have any more detailed information about how they go from the distillation of petroleum material and come up with mineral spirits?

A It's a distillation product. The product comes off at I believe 150 to 200 degrees centigrade.

Q What is the boiling point of mineral spirits?

MR. FOGEL: Asked and answered.

MR. ROTH: Q You did tell me that before. I didn't ask you that, but you told me that.

THE WITNESS: A I will tell you again. It's 150

to 200 degrees centigrade.

Q Thanks.

Does the percentage of aromatics in mineral spirits affect the degree to which it acts as a solvent -- affect its ability to act as a solvent -- excuse me?

A Not that I'm aware of.

Q Does the percentage of aromatics have any effect in terms of the industrial use of the mineral spirits?

A I don't understand that question.

Q Maybe I can clarify it.

Is there an industrial reason why a company might want a higher or lower amount of aromatics in its mineral spirits?

A Well, I think you asked me the question about the lower amounts.

Q Yeah.

A And one would want to have the lower amount of benzene. Higher amounts, I don't know any reason why one would want higher amounts; but there may be. I just don't know that.

Q Is the reason you want lower amounts related to potential health issues?

A It's related to potential exposure issues, exposure to benzene in compliance with benzene standards.

Q And there are established limitations for benzene exposure, correct?

A That's correct.

Q And in terms of benzene exposure, Doctor, are those limitations or restrictions related only to inhalation; or do they also extend to dermal contact?

A I am familiar with the inhalation. I'm not familiar with the dermal contact.

Q What is the effect of mineral spirits on the skin?

A Mineral spirits are a defadding agent. They remove the fat from cells affecting, the cell wall, and essentially affecting the epithelium by causing the cells not to stick together and to have various damages occur on the cell membrane which can result in inflammation and can result in damage to the skin; that is, the skin can crack or separate and the cells do not stick together anymore.

Q Does exposure to mineral spirits kill skin cells?

A It can.

Q And where is the epithelium located within the layers of the skin?

A It's on the surface of the skin.

Q Is it in the epidermis?

A I believe so.

Q And how many levels are there to the epidermis, Doctor?

A I don't know the levels of the epidermis.

Q The epithelium is on top of the epidermis, the one absolutely closest to the external environment; correct?

A That's correct.

Q Is that the one where the primary effect of mineral spirits is?

A I believe so.

Q Does mineral spirits have an effect on skin tissue other than the epithelium?

MR. FOGEL: You're talking about upon an initial exposure versus prolonged or repeated exposure when you get the initial damage to epithelium, cracking, and then material exposure through lower layers or lower areas of the skin?

MR. ROTH: I don't know. Let's ask him.

MR. FOGEL: Read the question back again, please.

(Question read.)

MR. FOGEL: I want it clarified simply because there's been two dermatologists that testified...

MR. ROTH: I want to ask Dr. Harbison what his opinion is.

THE WITNESS: Can you read me the question before that.

(Question read.)

THE WITNESS: A If there are cracks, or cuts, or abrasions.

MR. ROTH: Q And would the effect on the other skin tissues be different or similar to those on the epithelium?

A It would be similar. The mechanism of action is essentially the same. It's just whether it can contact a tissue or a cell. The epithelium is that which is primarily affected because it's that which is external.

Q Is the primary effect of mineral spirits related to its defadding propensities?

A Yes, sir.

Q An is it through those defattening propensities that it can harm the skin tissue?

A Yes, sir.

Q What are you basing your knowledge on in terms of the effects of mineral spirits on the skin?

A Based upon my education, based upon my experience, based upon my knowledge of the effects of solvents. Those would be the bases that would provide the opinion.

Q Can mineral spirits be handled safely without damage to the skin?

A Sure.

Q Under what circumstances?

A Under circumstances of limiting exposure.

Q And what would the exposure have to be limited to?

A Well, I can't answer that question, other than limiting exposure can limit the effects of mineral spirits on the skin. So by limiting the exposure, mineral spirits can be used safely.

Q There is a point, though, where we can use mineral spirits without it having an adverse effect on the skin tissues; is that correct?

A Sure.

Q Is it impossible to define that in any more detail?

A Well, I haven't done that. Certainly,

there are standard operating procedures for the use of mineral spirits that mineral spirits could be used without producing adverse effects on the skin. That could include the use of gloves, impermeable gloves. It could include a standard operating procedure whereby there was not direct contact of the skin with the mineral spirits.

So those would all be ways by which mineral spirits could be used safely without adverse effects.

Q With direct contact, mineral spirits can still be handled safely at some level; is that right?

A I don't understand the term with direct contact.

Q Well I didn't want to get into the gloves and barriers and such.

Is there a point where a worker can be working with mineral spirits and having direct contact on his or her skin and there not being any damage to the skin?

A I suspect that there are those contacts which would not damage the skin, yes.

Q Doctor, is part of the question of when there is damage and when there is not damage related to

the individual's -- the susceptibility of the person using the mineral spirits?

A No.

Q Do you think the effects of mineral spirits are the same in all individuals under the same industrial settings?

A When you say same in all, that's a difficult question to answer. Are the effects similar in all people, yes, I believe that they are.

Q Does -- the amount of disruption mineral spirits can cause, can that differ depending on how susceptible an individual is to skin injury?

A I don't understand the term susceptible. The mechanism of action by which I know mineral spirits affects the skin, I believe that effect would be similar in most individuals who would have contact.

Q Have you personally ever run any studies on the effects of mineral spirits on skin?

A I think you asked me that.

Q I asked you if you published any articles or prepared any abstracts. My question to you is have you personally run any study on the effect of mineral spirits on the human skin?

A No, sir, I have not.

Q Would you consider mineral spirits to be a skin irritant?

A Yes, I would.

Q Do they classify irritants in terms of mild, moderate, severe, within the field of toxicology?

A I don't know of such a classification.

Q Would you be able to classify this in terms of mild, moderate, or severe irritant?

A It would certainly be speculation.

MR. FOGEL: Don't speculate.

MR. ROTH: Q Go ahead. Go ahead and answer the question.

MR. FOGEL: It just opens the door to 16 other questions.

MR. ROTH: Q There won't be another question.

THE WITNESS: A You promise?

Q I promise -- not about that. There will be other questions.

A I would certainly not put it in severe.

Q Are there any treatises or texts within the field of toxicology that you believe are authoritative on the issue of the effect of mineral spirits on skin?

A I don't have an authoritative text that I would rely upon. I would rely upon all texts and

published information.

Q How about Patty's text, is that an authoritative text?

A No.

Q Parts are and parts aren't?

A Maybe.

Q Are you familiar the part about petroleum chemicals and hydrocarbons?

A Yes, sir.

Q Do you consider Patty's authoritative in that area?

A Not necessarily.

Q Is that a no?

A It is not a no. We'll have to go to each line and each segment of Patty's.

Q All right.

Are you aware of any industry practice where workers would use mineral spirits to clean their hands after a particular operation?

A Yes, I believe that's been done.

Q Do you have any concerns about the safety aspects of...

MR. FOGEL: Does he have any what?

MR. ROTH: Q Well do you have any opinions as to

whether or not that is a safe industry practice?

THE WITNESS: A Yeah. My opinion would be that that is not a safe industry practice, that washing hands with mineral spirits is probably something that should be avoided.

Q For the reasons that we talked about before, the defattening propensities of mineral spirits?

A For all of the reasons we talked about before.

Q Are there any other harmful propensities of mineral spirits to the skin other than the defattening aspect that we discussed in detail before?

A That's what I focused on, is the effect of the mineral spirits on the skin to produce dermatitis. Other effects I haven't evaluated, and I don't know.

Q Are you aware of the uses of petroleum chemicals in industry in general?

A I believe so.

Q Are there medicinal uses for petroleum chemicals?

A Sure.

Q What are some of the medicines that they incorporate petroleum based chemicals within?

A I can tell you pharmacological classes.

Q Okay.

A There are shampoos, there are salves, there are ointments. Those would be some pharmacological categories.

Q Are you familiar with the product called Retin-A?

A Yes.

Q That was marketed out there as an anti-wrinkle skin cream not too long ago, right?

A Yes.

Q Does that contain petroleum chemicals?

A I don't know.

Q How about coal tar, are you familiar with coal tar?

A Sure.

Q Is that a petroleum chemical?

A Sure.

Q Are you aware of any medicinal uses that they employ coal tar for?

A Sure.

Q What are they?

A The ones I just told you. Shampoos, salves, ointments. Those would be uses of petroleum products.

Q What is the physical property of coal tar that they use as a medicinal element? What does coal tar do.

MR. FOGEL: Let me object as irrelevant and immaterial.

MR. ROTH: Q Go ahead.

THE WITNESS: A What is the mechanism by which coal tars have their effects?

Q Yes, sir.

A I don't know the answer to that.

Q Is it essentially the same mechanism as mineral spirits in terms of defattening the skin?

A I don't know the answer to that.

Q Are you aware of whether coal tar is used to treat any skin conditions, including dermatitis?

A Yes, it is.

Q Are you familiar with the propensities of coal tar insofar as it relates to contact with human skin?

A The propensities?

Q Excuse me. I'm using the wrong terminology. Please stop me when I'm using confusing terminology.

MR. FOGEL: We're not going to help you there.

MR. ROTH: He can help me. If he can't answer the question, he can tell me. It might be because I don't know what I'm talking about.

Q Are you familiar with the effect of coal tar on the human skin?

MR. FOGEL: Are we dealing with a coal tar product here, or are we just off on a tangent?

Can you answer my question? Because I may not let the doctor answer these questions with relation to coal tar unless you can tell me the relevance. You're fishing.

MR. ROTH: No, I'm not fishing.

He'll answer my questions so long as they're questions that he understands. If you want to instruct him not to answer, you take your chances. You know what the law is.

MR. FOGEL: I don't take chances. If you can explain to me the relevance. I'll instruct him not to answer.

MR. ROTH: Go ahead and repeat the question for the record.

(Record read.)

MR. ROTH: Is that the question you're instructing him not to answer?

MR. FOGEL: Yeah. Do you want to tell me some relevance or...

MR. ROTH: Q Is mineral spirits a coal tar product, and does it contain hydrocarbons, and does it have an effect on human skin?

THE WITNESS: A Yes, all yes.

MR. ROTH: I want to determine the effect of mineral spirits. I'm simply asking whether or not he can tell me or has knowledge of the effect of coal tar on human skin. So do what you got to do.

MR. FOGEL: Which question do you want to ask?

MR. ROTH: The first question.

THE WITNESS: He's already asked me that question, and I've already answered.

MR. ROTH: Q What was the answer, Doctor?

A My answer was that it does have pharmacological effects. It is used as shampoo. It's used as ointments and salves for the treatment of various skin conditions.

And then you asked me how it did that, and I said I don't know the mechanism by which coal tar affects the skin.

Q You don't know whether coal tar is a defattener or not, do you?

A I don't know.

Q Are there any coal tar products contained in hair spray?

A Which hair spray?

Q Women's hair spray. Are there any petroleum hydrocarbons contained in there?

A That's a question I would have to answer based upon you identifying some hair spray.

Q Product name isn't going to help here.

A Petroleum hydrocarbons are used as propellants in hair sprays, yes. When you say is it a constituent of hair spray, I assume that you're meaning is it part of what gets on to the hair and does something.

Q Yes.

A I don't know the answer to that.

Q How about cosmetics, women's makeup, does that contain petroleum chemicals?

A Oh, sure.

Q What is the effect of the petroleum chemicals on the skin when it is applied as a makeup?

MR. FOGEL: What are we going to prove, that makeup is safe therefore mineral spirits is safe? Is that where we're going?

MR. ROTH: Q I want to know what the physical mechanism of this is. What's the physical mechanism of the petroleum products contained in makeup on the human skin when it is applied?

THE WITNESS: A What are the effects on the skin when it's applied?

It depends on how much is applied and where it's applied. Xylene, toluene, and other materials are used in a variety of cosmetics. Generally, those concentrations are small, and there aren't any adverse health effects.

Q Can the use of makeups with those chemical components dry the skin?

A I don't know the answer to that.

Q Are you familiar with acetone?

A Yes.

Q Is that what's used in finger nail polish?

A That's one constituent, yes.

Q Is it also used as a solvent?

A Yes.

Q Is it a petroleum-based solvent?

A I believe that it is.

Q Do you know whether skin contact with acetone can damage human skin?

A It depends on the concentration. It depends on the length of exposure. It can, sure.

Q Do you know if it's a defattener?

A Yes, it is.

Q In your opinion, then, should one avoid skin contact with acetone?

A It depends on the use. It depends on the concentration.

Q Is gasoline a defattener?

A Yes, it is.

Q Is latex paint a defattener?

A I don't know the constituents of latex paint.

Q How about oil-base paint, would that be something that would act as a defattener on human skin?

A I don't know the answer to that.

Q How about laundry detergent, does that contain any any petroleum chemicals that would act as a defattener on the human skin?

A I'm not familiar with all laundry detergents. The ones that I'm aware of I don't think contain petroleum hydrocarbons.

Q Is laundry detergent broadly defined within the category of solvents?

MR. FOGEL: By whom?

MR. ROTH: By Dr. Harbison, based on his knowledge.

THE WITNESS: A Would I broadly define laundry detergents as solvents?

MR. ROTH: Q Yes.

A I don't believe I would, no.

Q Does skin contact with laundry detergents dry the skin?

A It depends on the use.

Q Can that lead to dermatitis?

A Sure.

Q Can hand soaps dry the skin?

A It depends on the use. Sure.

Q Could that possibly lead to dermatitis if it did dry the skin?

A It depends on the use. If the use was extensive, sure, it could lead to dermatitis.

Q Would you be able to define what extensive use would be of hand soaps?

A I have not evaluated that. I don't have an opinion at this time.

Q Would your opinions regarding hand soaps change if the soap was a bar soap as opposed to a

granular soap?

A I don't know the answer to that.

Q Doctor, do you follow a specific scientific methodology in order to determine whether a given substance causes a given effect to human tissue?

A Sure do.

Q Can you tell us what that methodology would incorporate?

A Sure. It must first of all be exposure. That exposure must be of a sufficient concentration to produce an effect. That effect must be an effect that is consistent with the known effects of this particular agent or chemical; that is, there is literature, medical and scientific or human precedence for the effect, that there is biological plausibility or a mechanism by which this effect can occur, and confounders and other possible causes have been eliminated.

Q Now in order to reach an opinion based upon a reasonable degree of scientific certainty, is it necessary to fulfill each one of those factors that you just told us about?

A Yes, I believe so.

Q Is exposure the same as dose?

A No.

Q What's the difference?

A Dose is what you get into your body. Exposure is the opportunity for contact.

Q Is exposure alone enough to satisfy causal relationship between the chemical and effect to the body?

MR. FOGEL: Can you read that back for me, please.

(Question read.)

THE WITNESS: A Good heavens. I don't understand the question. Is exposure enough to satisfy the causal effects...

MR. ROTH: Q Let me rephrase the question. I obviously have not done a good job.

The fact that an exposure alone is insufficient to establish a causal relationship, you need dose as well as the other factors you told us about; correct?

A Or concentrations with regard to a surface exposure, or, in this case skin.

Q In terms of the dose. I'm sorry.

A Well, are we talking about any effect, or are we talking about an effect on the skin?

Q Affect on the skin.

A Affect on the skin, the concentration would be a factor that would be considered in determining the cause of a skin effect. The dose is what you get into your body. So the dose that would result from exposure to the skin may not be relevant to the effect on the skin.

Q There has to be contact though?

A There has to be contact, and that contact has to be to a sufficient concentration to be able to cause an effect on the cells.

Q So going over your methodology again, in addition to exposure and the dose definition you just gave us, there has to be a dose sufficient to cause the effect; correct? That's part of the factor, right, the concentration has to be enough to cause the effect --

A Correct.

Q -- to the body?

A Correct.

Q The effect has to be consistent with known medicine, known medical effects; is that right?

A No. It has to be consistent with the known effects of this compound, of this agent.

Q And there has to be medical or scientific evidence or authority, is that right?

A There has to be medical or scientific precedence, literature, for this particular effect.

Q And you indicated it has to be biologically plausible?

A That's correct.

Q Can you tell us what you mean by biologically plausible?

A There has to be a mechanism that biologically makes sense by which this chemical or agent could have produced this particular effect.

Q And am I correct, sir, that -- I think the last factor you added to that was that other causes have to be effectively eliminated; is that correct?

A Confounders have to be eliminated as a cause, that's correct.

Q An is an alternative cause a confounder?

A It could be.

Q Is there anything necessary to your analysis in terms of temporal relationships?

A Sure.

Q What is necessary in that regard?

A It has to be temporally eligible. That is, the effect has had to have occurred within a reasonable amount of time from exposure to a particular material to

have produced the effect.

Q Certain materials have different temporal relationships, is that correct?

A That's a good question.

Q I'm mixing things up. Certain chemicals differ in terms of the time period, the latency period, before they will have an effect?

A That's correct.

Q Is that what you mean when we talk about a temporal relationship?

A Yes.

Q In terms of mineral spirits, what's the temporal relationship that you would look for -- what is the temporal relationship you would look for between the exposure, dose, and the effect on the skin in terms of mineral spirits?

A Immediate.

Q In terms of immediate, does that mean that it would be immediately noticeable to a practitioner?

A Practitioner being a physician?

Q Yes, sir.

A Yes, I believe so.

Q What type of scientific and medical authority do you rely on in terms of satisfying your

analysis, this methodology?

A I'm sorry.

Q Let me rephrase the question.

Is there a specific type of scientific literature that you rely on in terms of the authorities you need to establish precedent?

A Precedence. Sure.

Q What type of scientific literature do you look to?

A Scientific and medical literature that would demonstrate that exposure to mineral spirits is capable of causing dermatitis.

Q Are there different types of scientific literature available to you?

A Sure.

Q And what would they be?

A It would be textbooks, it would be original scientific journals or articles. Those would be two sources.

Q How about epidemiological studies?

A Sure.

Q Would you agree that they are the strongest source for establishing precedent?

MR. FOGEL: Precedent for what?

MR. ROTH: In terms of his methodology.

THE WITNESS: A Well I'm bothered by strongest. Are they a strong contributor to or are they a strong piece of scientific evidence that would determine the cause of a human ailment or disease, the answer is yes.

MR. ROTH: Q Epidemiological studies are intended to examine or establish the question of causal relationship between, in this context, exposure to a chemical and a given human effect; isn't that correct?

A Now the problem with your question is causal. Epidemiological studies are designed to demonstrate or to determine associations between some exposure or chemical use and the occurrence of some disease or ailment. The epidemiology does not establish the cause of that human ailment or disease.

Q Let me ask you this, Doctor. Can causal relationships be established through such associations?

A Such associations can be used to establish causal relationships, not alone, but can be used to establish them.

Q In addition to epidemiological studies, are there also case reports available to you in terms of establishing precedent?

A Yes, there are.

Q And are there also animal studies on occasion available to you for establishing precedent?

A You're changing the words. By precedent, you mean a cause and effect relationship?

Q Yes, sir.

A Yes, there are.

Q And there is then, of course, the whole body of medical texts and scientific texts; correct?

A That's correct.

Q And are there other sources other than those for obtaining information with respect to setting a precedent?

A Other than textbooks, scientific literature, those were the two -- I'm sorry.

Q We have case reports, epidemiological studies, animal studies, and textbooks.

A And the question is are those all things that one could rely upon in establishing the cause of an effect?

Q What else would you rely upon?

A Experience, knowledge.

Q Your own personal experience and knowledge, correct?

A Yes, sir.

Q Let's exclude that for a moment and go back to epidemiological studies, animal studies, case reports, and medical texts.

Would you be able to arrange them in an order of persuasiveness and an order of weight that you would attribute to them?

A Between epidemiological studies, case reports, textbooks, and scientific literature?

Q Yes.

A That question doesn't make sense. I mean, epidemiology studies can certainly be scientific literature and can certainly be in textbooks. If the question is epidemiology versus animal studies, that's easy.

Q Doctor, are you familiar with a term that refers to some literature as anecdotal literature?

A Sure.

Q Which is more valuable to you in attempting to establish a causal relationship, epidemiological or anecdotal literature?

A Epidemiological.

Q Which is more valuable between epidemiological studies and Patty's Industrial Hygiene Text?

A I don't understand that quesiton.

Q Which would you attribute more weight to in doing your analysis?

A Well, I guess it would depend on what the epidemiology study is, whether it is an adequate epidemiology study. And if I looked at a textbook, it would depend on what the textbook says. Textbooks aren't necessarily always authoritative and neither are epidemiological studies.

Q Which would you attribute more weight to between an epidemiological study and a case report?

MR. FOGEL: Just generally without going into the type of study or the extensiveness or the time frame?

MR. ROTH: Q The study goes within its own parameters -- put it this way. Which would you accord more weight to, a properly conducted epidemiological study or a case report?

THE WITNESS: A Properly conducted epidemiological study.

Q What would be the reason for that?

A Because it is not subject to bias, prejudice, the preconceived outcome of the investigator or the investigator's bias as to what the outcome of the study should be. Properly conducted epidemiological

studies are subjected to rigorous scientific evaluation. Case reports are not.

Q Would epidemiological studies, assuming they are properly conducted, be the most valuable source that you could refer to in establishing a causal relationship between a chemical and a human effect on tissue?

A Compared to what?

Q Is there any more valuable source than epidemiological studies?

A Well, you ask that question in a broad way in which it makes it almost impossible to answer it.

Epidemiological studies are certainly a very valuable source of information. But when you say an epidemiological study -- there are lots of epidemiological studies that are flawed, that have many biases and other prejudices which would render them useless or perhaps not even as useful as other information.

So I think you asked the question long ago, and I think I've already said that epidemiology studies are certainly a very valuable bit of information upon which to make causal associations.

Q And the degree to which they are reliable,

Doctor, in terms of epidemiological studies goes to a number of factors including bias and confounding factors?

A Sure.

Q So you would accord different weight to epidemiological studies?

A Yes.

Q If something is properly conducted and does not have bias and confounding factors and you believe is a valid study, would you agree that it would be the most valuable type of source material that you could refer to in terms of conducting your analysis of chemical reaction?

A When you insert the word "most", the answer to that question cannot be yes. Because I would have to consider all of the other factors.

For example, is the finding biologically plausible. Even though it may be the best epidemiological study ever conducted it may not be biologically plausible.

Epidemiological studies are certainly a very valuable source of information. And including all of the other factors, yes, epidemiology would be a very valuable source and a very critical determinant of

cause and effect.

Q In terms of your evaluation, Doctor, is a knowledge of the underlying medical condition a necessary component for you to do your analysis?

A Yes.

Q You have to have some knowledge, for instance in this case, of dermatology; correct?

A I'm sorry. Could you read back the question.

(Question read.)

THE WITNESS: A The question doesn't follow on from the other one. The answer to the first one is yes. I have to have knowledge of the basic underlying medical condition.

MR. ROTH: Q In this case are we talking about dermatitis?

A Yes, we are.

Q Are we talking about psoriasis?

A No.

Q You are not here to talk about whether or not exposure to mineral spirits causes psoriasis, but you are here to talk about whether it caused dermatitis in this man?

A Correct.

Q And do you have an underlying knowledge sufficient in terms of dermatitis in order to reach your conclusions in this case?

MR. FOGEL: Are you talking about in and of his own background and experience or to the extent experts are allowed to rely upon other medical records in this case?

MR. ROTH: It's not a trick question. All I'm trying to ask -- and I'll ask another question.

Q It is necessary for you, in order to reach a causal relationship opinion here, to know something about the medical condition this guy developed; right?

THE WITNESS: A Correct.

Q What is the basis of your knowledge about dermatitis?

A Medical records.

Q And that is the medical records of who?

A Dr. Phillips and Bluefarb.

Q How about Dr. Weir?

A No.

Q How about Dr. Krueger, have you read any materials of Dr. Krueger, including his deposition testimony?

A No, I have not.

Q Are the only medical records that you have reviewed pertaining to Mr. Kubinski those of Dr. Phillips and Bluefarb?

A Yes.

Q Is that exhaustive of the sources of medical information you have in this case about his medical condition?

A Isn't that the same question?

Q I think -- have you obtained any other information from any other source about Mr. Kubinski's condition?

A I have Dr. Phillips' and Bluefarb's records. That is all I have.

Q You're not relying on anything Bob Fogel told you in terms of reaching your opinions in this case, are you?

A No.

Q Would you want to review additional medical records if they were available pertaining to treatment that occurred after the time that Mr. Kubinski was seen by Dr. Bluefarb and Dr. Phillips?

A I don't believe so.

Q That would not be information that would be significant to you in terms of your opinions in this

case?

A I don't know. I haven't seen it, so I don't have an opinion about it. Your question was would it be necessary for me to see that?

Q Yes.

A I don't believe so.

Q Would you want to see it?

A I don't necessarily have a desire to see it.

Q Other than what you have read in the records of Dr. Bluefarb and Dr. Phillips, do you yourself have any knowledge of dermatitis, of the condition of dermatitis?

A No, I do not.

Q You are relying entirely the conclusions and diagnosis that they reached, is that correct, meaning Dr. Phillips and Dr. Bluefarb?

A I am relying upon their diagnosis, which is also their conclusions.

Q You haven't talked to them?

A No.

Q Have you consulted any medical doctor about dermatitis?

A No.

Q Have you consulted any medical text regarding dermatitis with respect to your work in this case?

A Yes.

Q What text did you consult?

A Adams.

Q Occupational...

A Yes, Occupational Skin Diseases.

Q We talked earlier -- is that it?

A No.

Q Okay. Why don't you go ahead and tell me.

A Occupational Diseases, 1977, and I believe those are the -- and Patty's also. Those would be the texts that I could recall.

Q Do you consider them authoritative texts?

A Not necessarily.

Q You wouldn't consider any of them to be necessarily authoritative?

MR. FOGEL: He isn't rejecting them as authoritative. Now you're taking "not necessarily" to be that he doesn't consider any of the three to be authoritative.

MR. ROTH: He said he doesn't necessarily consider the three...

MR. FOGEL: It's asked and answered. He's not going to answer it. We don't...

MR. ROTH: Read the question back.

MR. FOGEL: This's not the way depositions work.

MR. ROTH: Maybe not in this jurisdiction, meaning this office.

Go ahead and read it back.

MR. FOGEL: That's correct.

(Question read.)

MR. ROTH: The purpose of that question -- off the record.

(Discussion held off the record.)

MR. ROTH: The purpose is I want to know if he's talking about all three. Because we talked about Patty's before.

MR. FOGEL: You've twisted an answer into a question to gain another answer that I'm not going to allow you to get in the form of the question that you asked.

If you are really after what you just stated you're after, then I suggest you break it down to each book or, as we ultimately might have to do, each line.

MR. ROTH: Q Do you understand the question that

was phrased there, Doctor?

THE WITNESS: A I thought I did until he read it. Can he read it again.

MR. ROTH: If you withdraw your objection, I'll agree to rephrase it.

Q All I'm saying is when you say "not necessarily authoritative" is you're not going to say it is with respect to the whole book, every line, every chapter. You have to look at?

THE WITNESS: A I have to, with any book or text, look at the entire article, the word, the phrase, the sentence that is in each and every part of that.

Q And that applies not only to Patty's but also the two other texts that you referred to?

A Correct.

MR. FOGEL: That isn't what you were asking though.

MR. ROTH: Q How do you rule out alternate causes, Doctor?

THE WITNESS: A How do I rule them out?

Q Yes, as part of your methodology.

MR. FOGEL: In this case or generally?

MR. ROTH: Q In general.

THE WITNESS: A In general, no dermatitis or

anything?

Q We can do dermatitis. That would be easier.

How do you rule out possible alternate causes in cases involving dermatitis?

A Look at other exposures, other activities, personal activities, uses of other products. Those would be some factors I would consider.

Q Is there a methodology that you would employ in order to rule out alternate causes?

A I would rely upon information that I have, which would be depositions, information from medical records. Those would be the things that I would rely upon.

Q It's possible, isn't it, Doctor, to be faced with more than one possible cause of dermatitis; isn't that correct?

A Sure.

Q And both causes could be biologically plausible, correct?

A Correct.

Q And both factors might satisfy the factors of methodology?

A Correct.

Q And under those circumstances, would you be able, to a reasonable degree of scientific certainty, give an opinion as to possibly chemically caused injury?

MR. FOGEL: If it's based on a reasonable degree of medical certainty?

MR. ROTH: Scientific certainty.

MR. FOGEL: What would be more probably true than not true, versus possible, I assume.

MR. ROTH: Q Go ahead and answer the question.

MR. FOGEL: Make sure you understand the question.

THE WITNESS: A Now I'm confused.

MR. FOGEL: He's mixing scientific certainty with speculation, and I don't think that's possible.

THE WITNESS: A Let me try.

If we have a compound over here that could cause dermatitis and it satisfied all the criteria and a compound over here that can cause dermatitis and it satisfied all the criteria, is there a way to differentially diagnose which of those caused the dermatitis?

MR. ROTH: Q Yes, sir.

A In the absence of a specific test, I don't know.

Q Am I correct, sir, that under those circumstances, the ones that I just articulated, you would be unable to voice an opinion within a reasonable degree of medical and scientific certainty as to the possible cause?

A Possible is the problem I've having with that question. Would I be able to voice an opinion with a reasonable degree of medical and scientific certainty that one of those was a cause?

Q Yes.

A No, I would not.

Q Doctor, are all chemicals and substances potentially toxic in the sense that they can all potentially do harm to the human biologic tissue?

A Yes.

Q It depends on the circumstances, correct?

A It depends on the exposure and the dose.

Q Are there any other factors besides exposure and dose that affect the toxicity of a given substance?

A Yes.

Q What would be the other factors?

A Its physical chemical form, its inherent toxicity. Those would be other factors.

Q Are there some substances, Doctor, that at certain doses do not create harm but at higher doses would create harm?

A Sure.

Q What are some examples?

A Aspirin.

Q Does aspirin cause biologic harm if you take it within a regulated dose, say two, 500 milligram tablets of aspirin for instance?

MR. FOGEL: A day, for how long?

MR. ROTH: Q A day, for one day.

THE WITNESS: A Does the normal therapeutic dose of aspirin cause harm?

Q Yes.

A Not that I'm aware.

Q But if you take ten times the normal dose can that cause harm to a human?

A Probably not.

Q It has to be much higher, correct?

A That's correct.

Q Doctor, how do you as a toxicologist determine whether a given dose produces a given effect in human tissue?

A Based upon scientific or medical

literature, based upon experience, based upon laboratory evaluation. Those would be some of the ways.

Q In terms of the question of whether mineral spirits can result in dermatitis, how would you determine what dose would be necessary to cause that condition?

A I'd look at scientific and medical literature. I would look at the biological mechanism by which it produces adverse effects. That would be the ways I would evaluate it.

Q Is that what you did in this case?

A Yes, sir.

Q And other than the text that you referred to before and the records of Dr. Phillips and Dr. Bluefarb, what other scientific literature have you looked at?

A I looked at articles by Cloutier, by Schwartz, by Larson, by Cornish, by Mecardi. Those are the ones that I can recall.

Q Do you have those here today?

A No, I do not.

Q Did you provide them to Mr. Fogel..

MR. FOGEL: You got a package of materials at one time.

THE WITNESS: A I don't think I did, but I think -- I don't know the answer to that. I thought I did a bibliography, but maybe not.

MR. ROTH: Q Are those articles that you are relying on in forming your opinion in this case?

A They are articles that I would consider in forming my opinions in this case.

Q Are they articles that you did consider in forming your opinions in this case?

A Yes, sir.

MR. FOGEL: Is this it?

THE WITNESS: That's some of them, yeah.

MR. ROTH: We'll talk about those in a while. Can I have a copy of that?

MR. FOGEL: Yeah. Do you want to take a moment and I'll copy it?

MR. ROTH: We can continue or we can break now. It's up to you.

(Short recess was had.)

MR. ROTH: Before we go any further, why don't you mark this as 3, Harbison Exhibit No. 3.

(Document marked as requested.)

MR. ROTH: Q Doctor, I want to hand you what's been marked as Harbison Exhibit No. 3 and ask you to

identify that, please.

THE WITNESS: A It is a list of references concerning mineral spirits.

Q Did you prepare the Exhibit No. 3 with respect to your work in this case?

A I guess I must have.

Q You don't remember?

A Yes, I think I did.

Q Okay.

Doctor, referring to Exhibit No. 3, are those all the articles that you referred to in terms of forming your opinions in this case?

A Yes.

Q Are there other specific articles that you would like to add to that list?

A Yes.

Q Would you be able to provide me with the author and the name of that article?

A You're asking me at this moment in time, or ever?

Q Is it unfair to sit here today and make you recite them, or would you need to look at the articles yourself and supplement this later?

A I can't do it. I can get you the list. I

don't recall the pagination and that sort of thing.

Q How many articles are there?

A I would estimate a half a dozen.

Q Could I ask you to prepare the list or at least send copies of the articles to Mr. Fogel.

Is that okay with you, Bob?

MR. FOGEL: I don't know. We'll see.

MR. ROTH: Q We'll get to this later.

But if you're relying at all or referring to these articles as a basis for your opinion, I would like either a citation or ask that a copy of the article be produced. I will make a request of Mr. Fogel, but I think you indicated you would be willing to provide a list to Mr. Fogel; is that right?

THE WITNESS: A I would be, sure.

Q Does the concept of dose-response relationship apply to this case, Doctor?

A Yes.

Q What does dose-response relationship refer to?

A It is the relationship between the dose or the concentration of a substance and an effect.

Q Is that a concept that's commonly employed by toxicologists analyzing a possible chemical causation

of a given condition?

A Yes, sir.

Q Doctor, have you reached an opinion in this case as to what dose would be necessary to cause dermatitis -- excuse me.

Have you reached an opinion in this case as to what dose or concentration of mineral spirits would be necessary to cause dermatitis in a human being?

A I have evaluated Mr. Kubinski, and I have an opinion about that. I don't have opinions about the doses necessary to cause dermatitis. I haven't done that.

Q Have you reached an opinion as to what dose was necessary to cause dermatitis in Mr. Kubinski?

A Yes.

Q What is that opinion?

A My opinion is that continuous exposure to SV-6 for a period of approximately three weeks was the cause of the dermatitis.

Q Are you able to quantify it any further in terms of what dose he was exposed to?

A Continuous exposure to 100 percent mineral spirits which was the makeup of the SV-6 for the entire workday for a period of approximately three weeks.

Q And how many hours are you referring to when you say entire workday?

A Eight to ten hours per day.

Q Does the number of hours that he was exposed to SV-6 during that three-week period affect your opinion in this case?

A Oh, I considered the entire period. So it's part of my consideration. Yes, it would affect my opinion.

Q Assuming, Doctor, that Mr. Kubinski had been exposed to Metalite SV-6 for a period of 30 minutes a day over a period of three weeks, would it change your opinion in this case as to whether or not the dose of mineral spirits caused dermatitis in Mr. Kubinski?

A I would have to re-evaluate that. It certainly could.

Q What would you need to do to re-evaluate that question?

A Well, I'd have to...

MR. FOGEL: Assuming everything the same but it was only 30 minutes exposure over the course of three weeks and he ended up with dermatitis?

MR. ROTH: The only variable I changed, Bob, is the time.

Q I'm asking what you would have to do in order to re-evaluate it?

THE WITNESS: A I would do all those things I told you before. I would use the same criteria and determine whether or not a 30-minute exposure on a daily basis for three weeks could have resulted in a dermatitis.

Q Would you consult any new sources other than those which you already consulted?

A I don't know. I don't believe so, but I don't know.

Q In what way would the duration affect your conclusion?

A Well, the duration would affect the concentration to which, that is the concentration exposure, to which the individual was exposed to.

Q In determining the exposure and dose that you referred to before, which is the basis of your present opinion, what information are you relying on in order to make that conclusion, that he had that exposure for eight to ten hours a day for three weeks?

A Do you have something to say?

MR. ROTH: He always does.

MR. FOGEL: No. Go ahead.

THE WITNESS: A Okay. I want to sort of correct what you're saying. You keep talking about exposure and dose.

Remember that my definition is dose is what you get into your body. So we need to talk about exposure concentration in this case being that which is delivered to the cell, not that which is delivered into his body.

MR. ROTH: Q In terms of exposure concentration, and in terms of your present understanding of the exposure concentration for Mr. Kubinski, what information are you relying on in formulating your opinion?

A I'm relying upon Mr. Kubinski's deposition and his description of exposure.

Q Other than Mr. Kubinski's deposition, have you reviewed any other depositions in this case?

A Yes, I have.

Q Of who?

A I don't remember how to pronounce it. Mr. Kouchis. That's the only other deposition I've reviewed.

Q How is a dose-response relationship established?

MR. FOGEL: Let me just add the little caveat, if I may, because your question may -- you asked source of information regarding the description of exposure and there certainly...

MR. ROTH: Exposure concentration.

MR. FOGEL: Whatever you want to call it.

He mentioned Kubinski's depo. I think there's references in Phillips' and Bluefarb's records. I don't mean to necessarily exclude those. But there were reports to them by Kubinski at that time what his exposure was.

MR. ROTH: Q Is that information that you would have referred to in forming your opinions?

THE WITNESS: A Yes. There was information in the records of Dr. Phillips and Bluefarb about the length of exposure.

Q Let's go back to my question. How is a dose-response relationship established, Doctor?

A Various doses are administered or received and effects from those evaluated.

Q And is that done as part of scientific studies?

A It can be.

Q Is that generally the way dose-response

relationships are established?

A When you say generally, that's certainly a way to do that. Whether it's generally the way, it depends on the compound. Other ways would be occupational exposure.

Q In terms of occupational exposure, would they not be established, though, through epidemiological studies and individual scientific studies?

A Could be, sure.

Q In general, scientists don't just look at an occupation and draw conclusions. There has to be ongoing valid scientific studies to establish dose-response relationships, isn't that right?

MR. FOGEL: Always or there may be?

MR. ROTH: Always, always.

THE WITNESS: A I guess I'm confused about that question.

Could you read that question to me, please.

(Question read.)

THE WITNESS: A I don't understand that question. Can you just look at an industry and determine what's going on, no. Does there have to be some sort of scientific method used for evaluating the

effects, yes.

MR. ROTH: Q And how are those scientific methods published and communicated to other scientists?

A They could be published in the paper that is reporting a result. They can be published as a methodology. Those would be some ways.

Q But they are published, correct, sir, published studies?

A I don't understand the question. Are studies published?

Q We have -- in order to establish a dose-response relationship, am I correct that we have to rely on studies that have been published and communicated to the scientific community?

A No.

Q What other sources do you refer to in establishing dose-response relationships?

A There could be non-published studies. There could be studies that have not appeared in the peer-reviewed literature that reside within a company who has some occupational experience. It could certainly be non'published studies.

Q Would you agree, then, that they would have to be studies published or non-published to estblish a

A No.

Q Would incidence rate be a proper term to use in determining probability?

A The question is to determine probability?

Q Yes.

A I'm sorry. I don't understand that question. I guess I don't understand the context in which it's being asked.

Q Using a dose-response relationship, can a toxicologist establish a probability that a given substance will produce a given effect in the human tissue?

A Yes, I believe so.

Q And how -- what is the methodology in order to do that?

A Based upon the dose-response relationship, a dose or a concentration resulting in some dose or a concentration time relationship can be characterized with predictability, such that exposure to that concentration for that time or resulting in that dose would cause an effect.

Q Does the term "incidence rate" have any meaning within the science of toxicology?

A Yes, I believe so.

Q What does it mean?

A It means the frequency with which this occurs.

Q This meaning a response to -- excuse see me. What does "this" refer to?

A Your question was equally as vague as my answer, meaning the response, whatever it is.

Q Does that go to probability?

A I don't understand that question.

Q Does incidence rate attempt to quantify the probabilities of a given response to a given chemical?

A I don't think so.

Q Dosage?

A I don't think so.

Q Using incidence rates, would a toxicologist be able to state an opinion as to how often a given response would occur to a given dose of a chemical compound?

MR. FOGEL: Would you read that back, please.

(Question read.)

THE WITNESS: A Are you talking about the dose and the effect being the same as the incidence rate -- we're talking about all the same thing here, right?

MR. ROTH: Q Yes.

A Yes, I believe so.

Q Have you done that analysis in this case to determine an incidence rate between exposure to mineral spirits and dermatitis?

A No, I have not.

Q Does the word "risk" have a specific meaning within the field of toxicology?

A Yes.

Q What does that refer to?

A Likelihood of harm.

Q And how is that determined? What methodology is followed?

A There are different methodologies, but risk is essentially the product of the evaluation of inherent toxicity and exposure.

Q Is risk related to incidence rate in its meaning -- let me strike that question.

Is risk the same as incidence rate? Does it mean the same?

A No.

Q Have you established a risk in terms of using mineral spirits on the human skin in this case -- let me strike that question. It is inartfully formed.

Have you established a risk analysis

in terms of your work in this case and in terms of a worker using mineral spirits?

A The question doesn't make sense. Risk is the likelihood or the probability of something occurring.

Q Have you established...

A This man --

Q I'm sorry.

A This man has dermatitis. So I didn't evaluate the probability or likelihood of it occurring. It's already occurred.

Q That's talking about Mr. Kubinski?

A Right.

Q In terms of the general population, did you establish a likelihood of this effect occurring as a result of contact with mineral spirits?

A At any concentration for any length of time?

Q Yes, sir.

A No, I did not.

Q Going back to the medical literature, the sources that we talked about that you referred to. Does that -- would you agree that that represents the state of human knowledge in terms of whether a particular

condition can be caused by a particular chemical?

A State of human knowledge in anyone's mind?

Q Well let me withdraw the question and ask you this. We are relying in a sense on the state of medical knowledge and scientific knowledge on whether a given substance can cause a given effect, correct, when we're doing our analysis and when you're following your methodology?

A You said scientific knowledge?

Q Yes.

A Correct.

Q And am I correct, sir, that the state of scientific knowledge in that context continually changes; correct?

A It can.

Q There is additional studies that are done that changes what was true yesterday and may not be true today, correct?

A That's correct.

Q And it would be incorrect to apply necessarily studies that existed in 1980, for instance, to occurrences that happen today without further investigation as to whether those studies are still valid; isn't that correct?

MR. FOGEL: I object. It mischaracterizes the use of the field of scientific literature.

Are you saying -- if you looked at something in '80 and there's new studies in '86 that change the conclusions, you certainly would consider both. I don't understand why you're suggesting in your question that something known in '80 shouldn't be considered at the present time.

MR. ROTH: Q Do you understand my question?

THE WITNESS: A Well that's not your question, is it?

Q No. My question was different, I think.

MR. FOGEL: Read it back.

(Question read.)

MR. ROTH: Q I think you understand what it is.

THE WITNESS: A Let me tell you what I think the question is. The question is if new discoveries, any information has been obtained since 1980, that would suggest that information in 1980 is no longer correct, could you you or would you change your opinion?

Q Yes.

A Sure.

Q Sometimes, Doctor, in the field of toxicology, medical and scientific knowledge is

incorporated into standards; correct?

A Correct.

Q TLV would be a good example, threshold limit values?

A It's not a standard, but it is a guideline, sure.

Q How about standards and guidelines, would that be true?

A Yes.

Q And sometimes those TLVs change, right?

A Correct.

Q And they change on the basis of what the scientific knowledge is at the time they are being evaluated, correct?

A Not necessarily. That's not a very good question, and the reason it's not is that there may be information or reasons for changing other than scientific reasons.

To give you a good example, benzene. It was changed because it thought -- that is, OSHA thought it should be lowered, but, in fact, there was no scientific basis for it; and it was overturned and not allowed to be lowered.

So that's the problem I'm having with

your question.

Q Actually, you answered my question.

On the basis of studies, sometimes threshold limit values have been increased or reduced based on studies but also other factors such as that that you just referred to; right?

A Correct.

Q In the case of some substances, we've determined that the threshold limit value can actually be higher today than it was in 1980; correct?

A I don't know examples of that.

Q PCBs, has that changed in terms of the guidelines that have been established?

A No.

Q Have there been any metals that have undergone that change where TLVs are higher today than they were ten years ago?

A I don't know the answer to that.

Q Would you agree that it's an inappropriate to apply standards and guidelines that exist today to conduct that occurred in 1983?

MR. FOGEL: Let me object, unless you specify the types of standards or guidelines, or perhaps even separate them. We're talking completely in the

abstract?

MR. ROTH: Right.

MR. FOGEL: And I'm assuming you're including the fact -- perhaps you're excluding standards or guidelines today that confirm that which is known years earlier. Because I think confirmatory standards, guidelines, literatures, studies would all be relevant in that respect.

(Question read.)

MR. FOGEL: I also want to add my objection as to the lack of clarify with respect to what is meant by inappropriate to apply. Depending upon the context in which your statement applies, it may also be a question of law. I don't really know how you're using it.

MR. ROTH: Q Doctor, what do you think?

MR. FOGEL: I suggest you don't answer it without further explanation.

THE WITNESS: A Let me see if I can state it. Would it be appropriate to apply 1990 regulatory standards to actions that would have been taken in 1983?

MR. ROTH: Q Yes, sir.

A No.

Q Do you consider yourself an occupational toxicologist?

A I consider myself a toxicologist which would include occupational, environmental, and other aspects of toxicology.

Q How prevalent is dermatitis in the work place as an occupational illness?

A I don't know the answer to that.

Q Is it the most prevalent occupational illness or condition?

A I don't know the answer to that.

Q How would you define dermatitis?

A Inflammation of the skin.

Q Would you require any particular severity of inflammation before it would rise to the level to fit within your definition of dermatitis?

A Severe reddening, inflammation, swelling. Those would be the criteria that I would consider.

Q For dermatitis, correct?

A Yes, sir.

Q Under that definition, then, sir, would irritation, that word, necessarily mean dermatitis?

A No, it would not.

Q Do you have any knowledge regarding a condition known as psoriasis?

A No, I do not.

Q You were not asked in this case to evaluate whether or not Mr. Kubinski has psoriasis?

A No, I was not.

Q And you were not asked to evaluate whether or not any skin problem he had besides dermatitis was caused by mineral spirits, is that right?

A That's correct.

Q How many cases are you personally aware of, Dr. Harbison, of chemically caused dermatitis?

A How many cases have I --

Q That you have personally...

A -- looked at, seen, or reviewed having to do with chemical-induced dermatitis?

Q Yes.

A I would estimate a couple dozen.

Q Are you familiar with any other causes of dermatitis other than contact with chemicals?

A Other than direct chemical-induced dermatitis?

Q Yes, sir.

A Yes.

Q What are they?

A Personal hygiene, physical, like cold, stress, heat. Those would be the ones I could think of.

Q Can anything that irritates the skin potentially cause dermatitis?

A Yes.

Q Of the couple of dozen cases that you have personal knowledge of in terms of chemically caused dermatitis, did any of them deal with contact with mineral spirits?

A I think you changed my answer to that question.

Q I'm sorry if I did.

A You did.

Q How did I change it?

A You asked me the question of how many cases have I evaluated, looked at, seen in which there was dermatitis.

Q Okay.

A Okay. And now you've said caused by chemicals, and I don't think I've said that.

Q Out of the couple dozen cases of dermatitis that you have seen or evaluated, how many did you determine were due to chemical contact dosage?

A I don't know the answer to that. A few, certainly more than one. I would estimate maybe two or three.

Q And did you determine a cause for the remainder of the cases that you evaluated and looked at?

A I just don't remember.

Q In terms of those which you believe to be chemically caused dermatitis, did any of those deal with alleged contact with mineral spirits?

A Not that I can recall.

Q Have you heard or read about any cases where there was a conclusion of chemically caused dermatitis?

A Yes.

Q And how many of those cases have you heard or read about?

A I don't know the answer to that. Probably three, four.

Q Did any of those three or four that you've read about -- in any of those three or four was the agent or chemical mineral spirits?

A Yes, I believe so.

Q And in how many of those cases?

A I would have to go and look at the literature. I don't recall.

Q Do you recall the studies or the literature, the books that you saw these in?

A Yes.

Q What would they be?

A They're the ones that you have on that list which is Exhibit 3, plus the others that I am going to tell you about.

Q The ones that I'm going to get. All right.

Well I guess I will get back to this.

Dr. Harbison, in 1983 was there any government or industry standard that required a material safety data sheet to be provided by a manufacturer or distributor of a product to the purchaser?

THE WITNESS: I'm sorry. Could you read that question.

(Question read.)

THE WITNESS: A Yes, I believe so.

MR. ROTH: Q And what is that government or industry standard?

A I believe that there was an industry standard to provide a material safety data sheet or information regarding the use of the product to the purchaser. That was an industry standard that was evolving at that particular time.

Q Was that a standard in place in the chemical products industry?

A Yes, I believe so.

Q And let's go back to governmental regulatory standards. Are you aware of any governmental regulatory standards in 1983 that required a material safety data sheet to be provided by a manufacturer of mineral spirits to a purchaser of mineral spirits?

A I am not aware of a governmental standard, no.

Q Are you aware of any other published standard or guideline in 1983 that required a material safety data sheet to be provided by a manufacturer of mineral spirits to a purchaser of mineral spirits?

A The only published information that I would be aware of is the American National Standard Institute documentation of material safety data sheets.

Q Do you have the specific citation for the standard you're referring to?

A It is in 1982 and in 1977 I believe -- '76 or '77.

MR. FOGEL: '76.

THE WITNESS: A 1976.

MR. ROTH: Q Mr. Fogel just handed you the standards that you referred to?

A Yes, he has.

Q Now let's...

A And there is a number by the way.

Q All right. Do you want to read the number, sir.

A Z129.1.

Q Is that the 1982 standard you just referred to or both of them?

A No. They actually both have the same number. It's followed by a dash. One is 1976 and one is dash 1982.

Q Okay.

Can you tell me specifically -- and you can read it into the record if you want -- what you feel is a standard within that reference that requires MSDSs to be provided by manufacturers of mineral spirits to purchasers.

MR. FOGEL: In the introduction is where I think it refers to it, in both.

THE WITNESS: A Okay. You want me to read you my interpretation of this?

MR. ROTH: Sure. I'd like you to cite the paragraph and the page and read what you believe is the basis of your opinion that there was a published standard.

A Let me read you the introduction from page 6. "The development of new chemicals and the introduction of chemical processes into ever-widening fields have extenuated the need to provide information for guidance of persons who in their occupation use handle or store hazardous industrial chemicals. The dissemination of this information includes appropriate precautionary statements expressed as simply and briefly as possible on labels affixed to containers of hazardous chemicals and in other written material provided for the guidance of industrial users."

Q Is there any other part of that -- let's refer to it. I know it was marked -- wasn't this marked in Haimes' deposition?

MR. FOGEL: Yes.

MR. ROTH: Q This is the 1982 one, Doctor?

THE WITNESS: A Yes.

Q We are referring to what was previously marked as Haimes Deposition Exhibit No. 37, and you've read me an introductory paragraph.

Is there any other part of that exhibit that you feel is supportive of your opinion?

A That's what I would use, sir. That's what I would refer to.

Q We're referring to the 1976 version, is it, or '77?

A '82. What I read you is from '82.

Q So we have two versions, the '76 and '82; correct?

A Correct.

Q The language you referred to is the same in both versions, isn't it?

A You're asking me for just what I read or the language totally? It's different.

Q The meaning of the language that you read, do you feel there's any distinction between the two versions?

A There is a difference in the sentence. There's an add on in the sentence to 1982 which is not in 1976.

Q What was the add on in 1982, Doctor?

A "And in other written material provided for the guidance of industrial users."

Q Can I see this for a minute.

Doctor -- and I only have one copy of this, but the next paragraph after the one that you read does it read "Precautionary labeling shall be used only when and to the extent necessary"?

A Yes.

Q And it does not go on to state when and when it is not necessary? Is that right?

MR. FOGEL: In that paragraph?

THE WITNESS: A Well I think it does.

MR. ROTH: Q Tell me how it defines it.

A The language shall be practical, not based alone upon the inherent properties of a product, but directed toward the avoidance of hazards resulting from occupational use, handling, and storage as may be reasonably foreseeable."

Q You believe that defines the word "necessary" then in the preceding sentence?

A I believe that adds to what necessary is.

Q Doctor, is there anything -- let's refer to these on the record. We're looking at the ANSI standards Z129.1, 1976 and 1982 versions?

A Yes.

Q Is there anything in these sections that refers specifically to mineral spirits?

A Yes, I believe so.

Q Can you show me on what page?

A On page 8, it refers to hazard chemical -- I'm sorry. "Hazardous chemical: A chemical or mixtures

of chemicals that is toxic, highly toxic irritant, corrosive," and it goes on. And then it defines irritant, "A chemical, not a corrosive which on immediate, prolonged, or repeated contact with normal living tissue will induce a local inflammatory reaction."

Q So by definition it encompasses mineral spirits in your definition, correct?

A Yes.

Q Does it mention mineral spirits specifically?

A I don't believe it mentions any chemicals specifically. I don't think any chemicals are mentioned specifically, including mineral spirits.

Q That includes all -- no, excuse me.

Can you read the answer back. I guess I didn't hear you.

(Answer read.)

MR. ROTH: Q Doctor, in your opinion do the ANSI standards we just talked about establish a requirement for the manufacturer and distributor of mineral spirits to incorporate warnings into them in terms of communicating them to the purchaser?

MR. FOGEL: Before you answer it, I want to hear

that question back, please.

(Question read.)

MR. FOGEL: You can hear it again, if you want.

THE WITNESS: A Requirement meaning an obligation on the part of the manufacturer?

MR. ROTH: Q Sure.

A Yes, I believe in 1983 they did have that obligation.

Q And what year -- in what year would that obligation have started in the context of these standards?

A I didn't evaluate that. I can tell you that it's my opinion that it was in 1983.

Q And in your opinion it applied to the mineral spirits sold by Metal Lubricants to Champion Medalist in this case?

A It applied to product SV-6.

Q Let's put aside the ANSI standards for a minute.

Doctor, are you aware of any published standards or guidelines that existed in 1983 that required a manufacturer of mineral spirits to provide material safety data sheets or other safety information to a purchaser of mineral spirits?

MR. FOGEL: Are you talking about codes, standards, federal rules, versus general obligation of a manufacturer?

MR. ROTH: I'm talking about published standards.

THE WITNESS: A I don't know of other standards. And my opinion is for SV-6, not for mineral spirits in general.

Q How does your opinion differ between SV-6 and mineral spirits in general?

A Well, it differs in that this is a specific product that has an intended use.

Q And what is that intended use?

A To be used as a cleaner, as a solvent.

Q Absent that intended use, would your opinion be different as to whether those ANSI standards would apply to SV-6 in this case?

A I'm sorry.

Q I'm sorry, Doctor. I thought you just told me that those standards applied to SV-6 in this case because it had an intended use as a cleaner, correct?

A As a foreseeable use, that's correct.

Q In general, if mineral spirits was a generic product being sold without an intended purpose, would it be your opinion that those standards do not

apply?

A It depends on what the foreseeable use of that product would be.

Q What are the foreseeable uses of mineral spirits in your opinion, Doctor?

A To be used as a constituent of paints, could be used as a material to clean paint brushes or clean other substances. Those would be some uses.

Q Is it a foreseeable use of mineral spirits that they would be used as a cleaner of machine parts?

A It depends on how it's sold and to whom it's sold.

Q Is it a foreseeable use that a worker in a factory would use SV-6 to clean metal parts with his hands without gloves on?

A Yes, I believe so.

Q And what's the basis of your opinion?

A Well, the standard operating procedure for the use of solvents, which is to take these materials in a container and to dip parts in them, to use rags soaked with material to clean those parts, that standard occupational operating procedure, it would be reasonable to foresee the use of this material in that manner.

Q Before, I think you were talking about

industry standards, non-published standards, is that correct, back in 1983?

A I don't know.

Q Okay. Let me go back then. Because I kind of flipped it around there.

Are you aware of any non-published industry standards that existed in 1983 in the chemical products industry that required a manufacturer of mineral spirits to provide safety information to the purchaser of mineral spirits?

MR. FOGEL: Could you read it back for me.

(Question read.)

THE WITNESS: A I don't understand the terminology of non-published industry standards required.

MR. ROTH: Q Was there any custom or standard in the chemical products industry that required a seller of mineral spirits...

MR. FOGEL: That's where you get lost.

THE WITNESS: A That's the problem.

MR. FOGEL: When you get from customer standard to required. In this case we know that several companies provided the information which may reflect the custom but not necessarily a requirement.

MR. ROTH: Q Let's talk about the custom and practice in the industry.

Are you aware of any custom and practice in the industry, the chemical products industry, in 1983 that required a seller of mineral spirits to provide product safety information to the purchaser of mineral spirits?

THE WITNESS: A We have the same problem with the question. If the question is am I aware of a custom in 1983 to provide information regarding the safety and use of that product, yes. Was it required, I don't know of a requirement.

Q In your opinion, did the custom that you're aware of constitute a requirement that such information were to be provided by a seller of mineral spirits to a purchaser of mineral spirits?

A I don't know the answer to that question. I've never evaluated it that way. I don't know of a requirement. I know of a custom, a practice. I don't know of a requirement.

Q Do you consider yourself knowledgeable of the customs in the chemical products industry in 1983?

A Yes.

Q And do you consider yourself knowledgeable

in that custom as it relates to providing product safety information, material safety data sheets to purchasers by manufacturers and sellers?

A Yes.

Q Are you aware of an industry custom in the chemical products industry in 1983 where a purchaser would not be provided with product safety information until and unless the purchaser requested it?

THE WITNESS: I'm sorry. Could you read that.

(Question read.)

THE WITNESS: A I'm not aware of such a custom. Those that I am familiar with would have provided that information.

MR. ROTH: Q And who are those that you're familiar with?

A Texaco, BASF, Monsanto, Dow, Shell. Those would be the ones I'm familiar with.

Q You've read Mr. Kouchis' deposition, haven't you?

A Yes, sir.

Q And is it your understanding that it was the custom of Metal Lubricants not to send out material safety data sheets unless their customers specifically requested it?

A Yes, I'm aware of that.

Q Is that the only incident that you are aware of where that custom existed in the chemical products industry in 1983?

MR. FOGEL: I'm a little concerned with you ascribing custom to what Metal Lubricants did versus their particular practice. I mean, you give the implication that this is a custom meaning that it's some habit that's occurred over a period of time by groups generally, versus the custom unique to Metal Lubricants or a practice followed by Metal Lubricants.

Do you still want to use "custom"?

MR. ROTH: Sure.

THE WITNESS: A That's the problem I have with the question. The problem I have with the question is the word "incidence". Incidence has to be more than one.

Am I aware of anyone else who might have been done that?

Q Yes.

A Yes.

Q And who would those be?

A I don't know specifically. I'm sure there were other corporations that did not send out material

safety data sheets unless requested.

MR. ROTH: All my questions have been product safety information or material safety data sheets that he's answered, I believe, except when I specifically pared one off.

MR. FOGEL: The answer is, I guess, as recorded.

MR. ROTH: The transcript will speak for itself.

MR. ROTH: Q Dr. Harbison, in your opinion if a company were selling mineral spirits to an industrial user who intended to use them as cleaners, or intended to use mineral spirits as cleaners and the seller did not send product safety information or material safety data sheets unless it was requested by the purchaser, in your opinion would they be in violation of the ANSI standard that we referred to before?

MR. FOGEL: Could you read it back. It sounds like negligence -- I'm not sure the focus is on the conduct of the manufacturer-supplier versus the product in the context of this case, but go ahead and read it back.

MR. ROTH: I don't know what you mean, but we can hear it back.

MR. FOGEL: Could you go back to where he said product safety information, material safety data sheets.

(Question read.)

THE WITNESS: A I don't think that I referred to the ANSI standard. I talked about the ANSI recommendation or the ANSI guidelines.

There are -- there's no standard that ANSI promulgates, and there's not as such a violation of that standard.

Did they provide information as was the usual custom of manufacturers in 1983, my answer would be that they probably did not.

MR. ROTH: Q Doctor, does the ANSI standard -- excuse me.

Does -- the ANSI recommendation, is that the correct terminology?

A It's not a standard.

Q Are you comfortable with the word recommendation?

A Guidelines for precautionary labeling is what it is.

Q Okay, Doctor.

MR. FOGEL: Wait, wait, wait. I'm a little confused here with where we're going.

THE WITNESS: It does say standard, doesn't it.

MR. FOGEL: This is a standard.

MR. ROTH: It is what Dr. Harbison says it is. he's the expert.

MR. FOGEL: The American National Standards Institute developed this standard for industrial hazardous materials labeling.

MR. ROTH: Q Doctor, what do you want to call it?

MR. FOGEL: I'm going to call it a standard that sets forth certain -- within the standard requirements no one is required to comply with the standard, but in that sense I suppose it is recommendations to the industry.

MR. ROTH: Q Doctor, what do you want to call it, a standard or a guideline.

THE WITNESS: A Well it calls it a standard. Why don't we define what standard is or at least my interpretation of what standard means.

Q Please tell us what your interpretation of of what standard means in the context of the ANSI standards.

MR. FOGEL: It is a standard.

MR. ROTH: It's a difference without a distinction in terms of this deposition.

Q Go ahead, Doctor. I would like to hear

your definition of standard in the context of the ANSI documents that you have in front of you right now.

THE WITNESS: A When I refer to standards I think of a regulatory standard that has regulatory meaning. That is, a governmental body has a standard that is enforceable by law.

This is a standard that is created by a volunteer organization that you can choose to use or not use. That is, there are no sanctions of law for failing to use that standard in the sense of a violation of a standard.

It is a guideline or a recommendation that's made by this group for that industry, in fact, it has sponsored -- it says "Sponsored by the Chemical Manufacturers' Association." So it's a guideline, again, that would determine the course of activities of producers regarding the labeling and providing of safety information.

Q Do you have any opinion of whether that is reflective of the custom and practice in the industry in 1983?

A Yes.

Q What is your opinion?

A Same as it was before. I believe that it

was the custom and practice to provide safety and health information regarding products that were sold to customers.

Q Is the ANSI guidelines -- or standards, are those materials that are commonly accepted in the chemical products industry?

A I don't know the answer to that.

Q Doctor, the standards themselves.

MR. FOGEL: There you go again.

MR. ROTH: We just said it is a standard or a guidelines.

Q With the exception of the paragraph where they say that the language should be practical and not based alone upon inherent properties or products but directed towards the handling and storage that may be reasonably forseeable, insofar as an additional definition of when and when it is not necessary, this standard doesn't speak to that; does it?

MR. FOGEL: Speak to what?

THE WITNESS: A Speak to what?

MR. ROTH: Q Other than that sentence, does this standard speak to when product information is necessary and is not necessary?

A I'm sorry. You're asking me to eliminate

that sentence?

Q I'm just saying -- let me withdraw the question.

The language indicating when and when not a safety product warning is necessary is rather vague. Would you agree with that, in general?

A I think it's quite clear. It says that it should be directed toward the avoidance of hazards resulting from occupational use, handling, and storage that may be reasonably foreseeable. It doesn't tell you exactly what to do, but that's the guiding light.

Q Does it define what hazards it's referring to?

A Yes.

Q And what hazards is it referring to insofar as it pertains to mineral spirits?

A "A chemical that is either toxic or highly toxic, an irritant corrosive, a strong oxidizer, a strong sensitizer, combustible, and it goes on with many other things, or that otherwise may cause substantial acute or chronic personal injury or illness during or as a direct result of any customary or reasonably foreseeable handling or use. Irritant: A chemical, not a corrosive, that causes a reversible inflammatory

effect on living tissues by chemical action at the site of contact."

Q And in your opinion mineral spirits fell within that definition, correct?

A Yes, sir.

Q And in 1983 were the propensities of mineral spirits, in so for as it caused the hazards outlined in that definition, well known to the chemical products industry?

A Yes, sir.

Q And by what source were they well known?

A By the sources we've talked about, the scientific literature, the textbooks, the publications of the United States Public Health Service which is the Occupational Disease textbook that I referred to. Those would be the sources.

Q Doctor, is dermatitis always an acute condition?

A I don't know the answer to that.

Q Is dermatitis always something that someone should avoid getting from dealing with chemicals?

A Sure.

Q Is it a serious occupational hazard?

MR. FOGEL: Well you're talking about absent any

other -- well go ahead. Answer it.

THE WITNESS: A It could be. It is reversible, but it could certainly cause discomfort, pain. Certainly something to be avoided.

MR. FOGEL: Other sequellae.

MR. ROTH: Like what?

MR. FOGEL: From dermatitis -- do you want me to give you a list? Dr. Weir will be more than happy to extend on the list of complications of people who develop dermatitis. You make it sound that -- perhaps the problem in this case is you think dermatitis is no big deal and without complications.

MR. ROTH: Yes.

Q Well, doctor, do you agree that dermatitis is commonly encountered in the work environment?

THE WITNESS: A Well I think you've already asked me that question in another way. And it's certainly found in the work environment. It's even common in the work environment, depending on the occupation and what work is performed.

MR. ROTH: Off the record.

(Short recess was had.)

MR. ROTH: Q Doctor, earlier you explained the effect of mineral spirits on skin. Can you tell me what

the component of mineral spirits is that actually causes the effect on the skin? Is there a particular component?

THE WITNESS: A Various hydrocarbons.

Q And the effect on the skin insofar as it pertains to the development of dermatitis is it the same for aromatics as it is for aliphatics?

A The same mechanism?

Q Yes.

A Yes.

Q Are you familiar with the concept referred to as maximally tolerated dose?

A Yes.

Q Does that have a meaning in the field of toxicology.

A Yes.

Q What does it refer to, Doctor?

A It refers to the dose that is used in experimentation or testing that is a lethal or nearly lethal dose or causes a significantly near number of the test population to become overtly ill or to die.

Q Has there ever been a maximally tolerated dose for mineral spirits established to your knowledge?

A Yes, I believe that there has been.

Q And what is that maximally tolerated does?

A I'd have to look it up.

Q Do you know where it would be published?

A I'd have to look it up. It may be published in the Registry of Toxic Effects. I don't know.

Q Doctor, are you aware of any epidemiological studies that have established an association between mineral spirits and psoriasis?

MR. FOGEL: Could you read the question back, please.

(Question read.)

THE WITNESS: A I haven't looked. I don't know of any.

MR. ROTH: Q Are you aware of any case reports that have established an association or causal relationship between exposure to mineral spirits and psoriasis?

A Again, I haven't looked and I don't know.

Q Are you aware of any animal studies that have established such a causal relationship?

A No.

Q Are you aware of any anecdotal literature that establishes or purports to establish a causal

relationship between exposure to mineral spirits and psoriasis?

A No, I'm not.

MR. FOGEL: Are you aware of any, Brad?

MR. ROTH: It's attorney work product. I can't ever tell that.

Q Doctor are you aware of any epidemiological studies that establish an association between exposure to mineral spirits and dermatitis?

THE WITNESS: A I think there are some in my list. I don't recall them.

It's not going to do any good to show me that list. I think the one by Nethercot or Nethercoft --

Q Nethercott?

A Yes.

-- I believe is a small number of patients. I don't know if I'd classify it as an epidemiological study or not.

Q Would you characterize it as a properly conducted epidemiological study?

A I don't think it's an epidemiological study

Q Are you aware --

A I think it's several reports. I am not

aware of a specific epidemiological study.

Q Are you aware of any studies on the issue of association between exposure to mineral spirits and dermatitis?

A Yes.

Q Are you aware of any case reports that establish a causal relationship between exposure to mineral spirits and dermatitis?

A I believe the Klauder study.

Q 1947, correlation of boiling ranges of some petroleum solvents with irritant action on skin?

A Yes, sir.

Q And you said you believed -- does that establish in your opinion, sir, a causal relationship between mineral spirits and dermatitis?

A Did that study?

Q Yes.

A No.

Q Did it examine the issue of whether there was a causal relationship between exposure to mineral spirits and dermatitis?

A I believe that it did, yes.

Q Do you know what the conclusion of the author is?

A I don't recall specifically, no.

Q Was there a conclusion set forth in that article that there is a causal relationship between exposure to mineral spirits and dermatitis?

A I don't recall specifically.

Q Any other case reports that you're aware of that establish an association or a causal relationship between mineral spirits and dermatitis?

A Remember, the case reports --

Q Yes?

A -- don't establish causal relationship. So the way you're asking the question is contrary to what I previously told you.

Q Is association a better term?

A They don't even establish an association. A case report is simply a report of an observation. It may do nothing more than simply report the observation. It doesn't necessarily establish an association or a cause.

Q Case reports alone are not sufficient to establish an association or causal relationship, correct?

A That is correct.

Q Are you aware of any case reports that set

forth an observation that a dermatitis was caused by exposure to mineral spirits?

A Well, that's what I've been talking to you about. I believe that the Klauder study may do that. Again, I don't recall specifically. But that list of what you have is what I recall as being either a report of irritation or dermatitis.

Q Other than the Klauder article, are you aware of any other case reports?

A Well, yes. The ones that are listed there are either case reports or studies.

Q Okay.

Let me show you what's been marked as Exhibit No. 3. I think we talked about that before.

Did you already identify that on the record, Doctor? I don't remember.

MR. FOGEL: Yes.

THE WITNESS: A Yes.

MR. ROTH: Q Okay.

Are those articles set forth in Exhibit No. 3 all studies or case reports that examine the relationship between mineral spirits and dermatitis or make observations pertaining to that relationship?

A Yes.

Q And of those articles, Doctor, which ones have concluded that there is such a relationship?

A I don't recall the conclusions of each of these articles. I'd have to look at them.

Q Okay.

MR. FOGEL: May I ask the doctor a question?

MR. ROTH: Sure.

Q Doctor, let's just keep our comments confined to what appears on Exhibit No. 3.

With respect to the Cornish article, Toxicology, the Basic Science of Poisons, which I think -- is that a chapter that you're referring to? I'm referring to the Cornish reference.

A Correct.

Q Is that a book chapter?

A Yes, it is.

Q Did you rely on that book chapter in forming your opinions in this case?

A I considered it.

Q Does that book chapter establish in your opinion a causal relationship between exposure to mineral spirits and dermatitis?

A I told you a couple hours ago what it takes to establish the cause.

No single article, no single study, no single case report establishes the cause. The cause is established by consideration of all those factors that I told you about before. This is part of it, which is the literature precedence or the scientific and medical literature which would support mineral spirit as being an irritant or a cause of dermatitis.

Q The Cornish book chapter is a literature precedent, a component of your literature precedent in this case; is that right?

A Yes, sir.

Q Does the same hold true of the references made on this list?

A Yes, sir.

Q Referring to the Larson article, No. 3, what type of article is that? Is that a case report?

A Yes, it is.

Q Can you recall as you sit here today the details regarding that report?

A No, I don't.

Q If you had that article in front of you today, would you be able to provide us with your opinions on what significance that article would have?

A Sure.

Q The next article is McDermott, correct, Hygienic Guide Series, Stoddard Solvents?

A Yes, sir.

Q What kind of article is that?

A It is a report of the effects of Stoddard solvent on humans exposed to it.

Q And what is the conclusion of the author in that study?

A That Stoddard solvent is an irritant and causes irritation to the skin. I believe there is also information in there about inhalation. Those are the things that are in there.

Q Did that particular study address the question of whether mineral spirits can cause dermatitis?

A I don't know. I'd have to look at it.

Q What is Stoddard solvent?

A Stoddard solvent is a hydrocarbon that is similar or the same as mineral spirits.

Q In terms of its effect on human skin, do you draw any distinction between Stoddard solvent and mineral spirits?

A No, I do not.

Q Do you believe that the articles that

address Stoddard solvents set forth in Exhibit No. 3 are equally applicable to mineral spirits?

A Yes, I do.

Q Let's talk about No. 4, Nethercott.

A Yes.

Q Can you read the title of that article into the record.

A Genital Ulceration Due to Stoddard Solvent.

Q What kind of literature is that? Is that a case report?

A It is a report of five cases in which individuals were exposed to Stoddard solvent, the conclusion being that if the Stoddard solvent is entrapped on the skin that the effects are more severe than simply exposing the skin to Stoddard solvent. It could result in ulcerations, cell death.

Q What is the conclusion of the author?

A A typical clinical picture in investigative results were consistent with irritant contact dermatitis.

Q And -- I'm sorry, Doctor. They drew a distinction between confined -- or pardon me -- earlier you indicated there was a distinction drawn between exposure...

MR. FOGEL: Wait, wait. That's what he did. He didn't give you a distinction. You are making a distinction.

MR. ROTH: We can go back and read his answer if you want.

MR. FOGEL: The record will speak for itself. I think you're changing the intent of the statement.

MR. ROTH: Q Let me ask you this. What type of exposure did they examine in those five cases? What were the circumstances?

THE WITNESS: A They examined lesions on the buttocks and on the genitalia as a result of exposure to Stoddard solvent.

Q Did they examine any exposure to mineral spirits -- or Stoddard solvents excuse me -- whether that exposure took place during the course of handling machine parts or manually coming in contact with mineral spirits?

MR. FOGEL: This has previously been marked as Haimes Exhibit 22.

THE WITNESS: A The question is did any of these people clean parts?

MR. ROTH: Q Right.

A I don't see where it indicates that any of

them were cleaning parts.

Q What was the nature of the exposure?

A Exposure to printing ink at printing ink plant.

Q In your opinion, is exposure to printing ink comparable to exposure to mineral spirits?

A I don't know. It would depend on what the printing ink is made out of, what its constituents are.

MR. FOGEL: I think in the case reports it explains that.

THE WITNESS: His question is is printing ink equivalent to mineral spirits.

MR. FOGEL: Right.

THE WITNESS: A I don't know what the printing ink was composed of.

MR. ROTH: Q Was there a Stoddard solvent in the printing ink?

A Yes, I believe so.

Q Was the manner in which the Stoddard solvent was incorporated into the printing ink comparable to the effect that mineral spirits would have on the skin -- let me strike that.

Do you draw any conclusions from this article that support your opinions in this case?

A Yes.

Q And what are those?

A That Stoddard solvent is able to produce skin irritation and ulceration if it is entrapped within the clothing of those individuals who are exposed.

Q Any indication in this case that the mineral spirits was entrapped during the exposure to Mr. Kubinski?

A Not that I'm aware of.

Q We'll look at that later.

There are other articles, in any event, that you have not included on this particular historic reference; correct?

A It's the ones we talked about before. That's correct.

Q All right.

Other than the articles that are contained on Exhibit No. 3 and the articles which you haven't yet included on this which we've referred to, are there any other articles that you are aware of that establish a literature precedent in terms of your methodology that you employed in your conclusions in this case?

A Those would be the two sources that I would

have used.

Q Are you aware of any articles that would support the conclusion that mineral spirits do not cause or does not cause dermatitis?

A In my opinion there are occasions in which Stoddard solvent or mineral spirits do not cause dermatitis.

Q Depending on the use?

A Depending on the exposure.

Q Are you aware of any articles that address that particular issue?

A I don't recall any. I'd have to go back and look.

Q If you were to find those articles, Doctor, would you include them in your analysis as to whether there is a literature precedence to establish a causal relationship between exposure to mineral spirits and dermatitis -- would they be important to your opinions in this case?

A Sure.

Q Let me condense that down.

A Sure.

Q Is there a threshold limit value that has ever been established for mineral spirits?

A Not that I'm aware of.

Q Are you aware of any permissible exposure level that has ever been established for mineral spirits?

A No, I'm not.

Q Are you aware of any other -- strike that. do TLVs -- I'm sorry.

A When we say mineral spirit, are we including Stoddard solvent?

Q You believe they are more or less interchangeable insofar as their effect on human skin?

A I believe their effects would be similar.

Q Why don't you tell us in terms of Stoddard solvent.

A There is a TLV for Stoddard solvent.

Q And what is that TLV?

A I believe it's a hundred parts per million.

Q And that is the measurement that would pertain to skin contact?

A No, that would be air.

Q Is there a measurement that would pertain specifically to dermal contact?

A I don't know the answer to that.

Q Are you aware of any such standards

established by the American College of -- pardon -- Governmental Industrial Hygienists or OSHA that establish similar standards for dermal contact?

A Yeah. Some of them are for dermal as well as inhalation.

Q How about Stoddard solvent?

A I just answered that question. I said I didn't know.

Q Doctor, have you acted as an expert in other litigation involving claims for personal injuries?

A Sure.

Q How many? Is that a hard question? Do you want me to limit it?

A I don't have...

MR. FOGEL: Which question do you want him to answer, the how many or the second question?

MR. ROTH: Q Go ahead. How many cases have you acted as an expert in cases involving claims for personal injuries?

THE WITNESS: A I don't have a record. It's certainly been more than 20. How many times more, I don't know.

Q How many in the last year?

A I would estimate five.

Q Out of the at least 20 that you referred to, how many of those have you acted as an expert for the plaintiff as opposed to the defendant?

A I don't know the answer to that.

Q Is this the only case that you acted as an expert on behalf of a plaintiff?

A No.

Q Can you give me a relative percentage breakdown in your cases?

A No, but I can tell you some I have. I don't have a percentage breakdown. I can tell you some I have. I can remember those.

Q Do you know whether you've acted as an expert more on behalf of plaintiffs than you have defendants?

A No. It hasn't been more plaintiffs. I would suspect it's been more for defendants.

Q I limited my earlier question to litigation arising from claims for personal injuries. Have you acted as an expert in litigation that arises from non-personal injury claims?

A What is that?

Q Property damage or commercial litigation. Have you acted in any other capacity in the legal

process as an expert?

A I'm not sure what testimony -- testimony for enforcement proceedings.

Q Compliance proceeding, enforcement proceeding, any such non-personal injury proceedings.

A Yes.

Q On how many occasions?

A I don't know the answer to that. I could tell you some I could remember. I would estimate probably a dozen times.

Q What percentage of your income do you derive through acting as an expert in litigated matters?

A About 30 percent.

Q Do you have an hourly charge?

A Yes.

Q What is that?

A $175.

Q Is that what you're charging in this case?

A Yes, sir.

Q And is that the same regardless of the activity, whether it is here at a deposition, reviewing records, or at a trial?

A Yes.

Q Have you also been a speaker at legal

seminars?

A Yes.

Q How many times over the past year have you done that?

A The past year would be 1990?

Q Yes.

A Twice.

Q Do you derive any income through that activity?

A Yes.

Q Can you give me a percentage of your income that you derive through speaking at legal seminars?

A Less than 1 percent.

Q You've given your deposition before, I take it?

A Yes.

Q And have you also testified at a trial before?

A Yes.

Q On how many occasions have you testified at trial?

MR. FOGEL: In the last year?

MR. ROTH: Q Ever.

THE WITNESS: A I don't know ever. That is, I

don't recall.

Q The past five years?

A I'm sure I can't give you the past five years. I could probably give you the last year.

Q Okay.

A I would say within the last year it's probably I would guess four times, five times.

Q Have you ever testified at trial in a case pending in Illinois?

A Yes.

Q Would that be Cook County?

A Yes.

Q Do you remember the name of the case?

A No.

Q Do you remember the name of the attorney who retained you?

A No, I do not.

Q Do you remember what the issue in the case was in terms of your expert opinions?

A Yes.

Q What was that?

A The issue was carbon monoxide and the effects on development of -- I believe it was either multiple sclerosis or muscular dystrophy. I don't

remember which one.

Q Have you given your deposition in Illinois before?

A Yes.

Q Other than maybe that carbon monoxide case you just talked about, how many other cases have you given your deposition in in Illinois?

A I don't understand what "maybe" means.

Q Well I'm trying to exclude the one case about carbon monoxide.

Excluding that case, have you given your deposition in Illinois before?

A Yes.

Q And has that been in the last year?

A Yes.

Q Do you remember the name of the attorney who retained you?

A Yes.

Q What was that attorney's name?

A Barbara DeCoster.

Q Do you know -- oh, I know what firm she's with.

What was the issue that you addressed in that case?

A Well, actually that deposition is not finished. So I don't think I can talk about that.

I can tell you generally the product. The product is a steriod used for the treatment of various eye conditions.

Q Is that the only deposition that you've given in Illinois?

MR. FOGEL: This year?

MR. ROTH: Q Ever -- last five years. Excuse me.

THE WITNESS: A I'm not sure I can remember the last five years. I can remember another one, and that's about the best I can do.

Q Do you remember the product involved?

A Yes.

Q What was that?

A Dersvan.

Q What is Dersvan?

A It is a pesticide. And Ficam.

Q Is that a phospene?

A No, it's carbonate.

Q Do you remember the name of the attorney who retained you in that case?

A Yes.

Q What was the name of the lawyer?

A Jim Hofert.

Q And that was for the defendant in that case?

A Yes.

Q Doctor, have you ever testified at a deposition where the product involved was a petroleum solvent or cleaner?

A I'm sure I have.

Q Can you recollect any details?

A I can probably recollect a few.

Q Go ahead then.

A What would you like to know?

Q The name of the case, who retained you, and what the product was.

A I don't know the name of the case. I could tell you what the product was. It was xylene, toluene. The name of the attorney was Chris Biscard.

Q Was that...

A Do you want me to recall more?

Q Let's stop on that one.

Do you know where that case was pending?

A Yes.

Q Where?

A Los Angeles.

Q Was that for the defendant or the plaintiff?

A For the defendant.

Q Any others that you recall?

A Yes. Benzene, William Armstrong, San Francisco.

Q In what year did you give your deposition in that case?

A I don't recall. It's probably in the last four years.

Q Was that for the plaintiff or for the defendant?

A It was for the defendant.

Q In terms of the other cases in which you evaluated the xylene, what year was that, do you know -- the first one you told us about in Los Angeles.

A I don't recall the year. I would put that within the last three years, four years.

Q Do you keep copies of your deposition testimony?

A No, I do not.

Q Are there any other cases you can recollect

where you gave opinions concerning petroleum solvents or cleaners?

A I'm sorry. What was the last part of that?

Q Petroleum solvents or cleaners -- petroleum chemicals I guess.

A Those are the ones I can recall. I'm sure there are others.

Q Have you ever acted as an expert in a case, Doctor, where the allegation involved a skin injury?

A Didn't you already ask me that question?

Q I don't think so.

A I think you did.

Q What was the answer?

A Well, I think the answer was that yes, I have. And it was irritation or dermatitis. And you asked me whether there were solvents involved, and I said yes. And I think you asked me how many were caused by -- or something such as that -- and I told you I thought a couple.

Q Was this a lawsuit that we're referring to right now in which you gave your opinions?

A Yes. Isn't that what you're asking me?

Q Yes.

Where was this case pending or where

is it pending?

A No, it's not a case. I thought your question was have I ever.

Q Yes.

A The answer is yes.

Q What was the nature of your referral in that case? Were you acting as an expert witness?

A Yes.

Q And where did these cases occur?

A Well, I believe one was in Birmingham, Alabama. That's about all I can remember.

Q Were you retained on behalf of the defendant or the plaintiff in that case?

A Defendant.

Q Do you recall what your opinion was in those cases?

A No, I do not.

Q Do you know the names of the -- excuse me. Do you know the name of the attorney who retained you?

A No, I don't.

Q Have you ever worked with Mr. Fogel before on a case?

A No.

Q How about Mr. Hilfman?

A Could you define working for -- the answer is no.

MR. FOGEL: Working with.

MR. ROTH: Q Working with.

Have you ever been retained by the law firm of Hilfman and Fogel in another case?

THE WITNESS: A No.

Q Have you ever been retained by either Mr. Fogel or Mr. Hilfman?

A Prior to this?

Q Yes.

A No.

Q How about subsequent to this case?

A No.

Q This is the only case that you've had with them?

A You mean this is the only case I have been working with them?

Q Yes.

A That's correct.

Q Have you consulted with them with respect to other matters?

A No.

Q When were you first contacted with respect to the Kubinski case?

A I think it was about March, February, March.

Q Does this letter refresh your recollection?

A Yes, sir. March 1990.

Q Was that your first contact with Mr. Fogel?

A Yes.

Q Had you talked to him on the phone before receiving that letter?

A Well, yes.

Q Do you know when you first talked to him?

A Oh, I think it was probably the day before, as he says in his letter. There was a call. He asked if I would look at materials. The answer was yes, I would. It says, "It was pleasant speaking with you on March 22nd," and the letter is dated March 23rd.

Q When did you relay your opinions to Mr. Fogel -- strike that.

When did you communicate your opinions to Mr. Fogel?

A It would have been the last time I was here prior to the deposition that was scheduled -- prior to the scheduled deposition, my deposition.

Q Some time in late October, would that be about right?

MR. FOGEL: I think that's right.

MR. ROTH: Q And that's the first time you talked to Mr. Fogel about your opinions in this case?

THE WITNESS: A Yes.

MR. FOGEL: Let me just add a caveat.

THE WITNESS: A We have talked about...

MR. FOGEL: Yeah. I mean, you asked about when the final opinions were conveyed. That was the day before the deposition, I think is the best way to put it.

THE WITNESS: A We previously talked about your little paragraph.

MR. FOGEL: Yeah, for that 220 interrogatory.

THE WITNESS: A Yes, we did talk about that.

MR. ROTH: Q How many conversations did you have with Mr. Fogel about this case prior to today?

A If I tell you, are you going to ask me to remember each one?

Q No. I don't care what he told you.

A I would estimate four, five.

Q Dr. Harbison, I'm going to show you a copy of a letter that you just looked at.

Is that the letter that you received from Mr. Fogel back in March that we just referred to -- a copy of the letter anyway?

THE WITNESS: A I believe so.

Q And does that correspond more or less to the same time that you first became involved in this case?

A Yes, sir.

Q Other than that letter, did you receive any follow-up letter from Mr. Fogel at any time?

A Yes, I believe I did.

Q How many other letters did you receive from him?

A Well, I don't know. There's probably a couple of additional letters that were letters of transmittal of a deposition or other materials.

Q In forming your opinions in this case, Dr. Harbison, are you relying at all on anything that Mr. Fogel told you orally?

A I don't believe so.

Q Are you relying on anything substantively contained in his transmittal letters in forming your opinions in this case excluding the materials that were transmitted along with them, just the letters

themselves?

A I don't think so.

Q Is that a no, or is there some question in your mind?

A Well I can't recall anything, but I don't know specifically what it might be. I don't believe there's anything that I have relied upon in these letters specifically for the formulation of my opinion.

Q What have you reviewed in this case as part of your work?

A I have reviewed the deposition of Mr. Kubinski. I have reviewed the medical records of Dr. Phillips and Bluefarb. I have reviewed the deposition of Mr. Kouchis, the scientific and medical literature which you have partially listed, plus the others of some which I could remember and of which we will provide you with a list, the ANSI standards or the American Standard Institute information.

I believe that's it.

Q Have you reviewed any part of the Federal Register?

A I don't believe so.

Q Have you reviewed any material safety data sheets?

A Oh, yes. I have letters of correspondence along with that, yes.

Q Do you have copies of those with you?

A I thought that was given to you.

MR. FOGEL: Yeah. That's the original cover letter, and these are the -- some of the materials.

THE WITNESS: A Yes.

MR. ROTH: Q Can I just see what was provided to you?

A Let me make sure the letter is in here.

Q So we can go on, other than the materials you just told us about, have you reviewed anything else before coming here today?

A Not that I can recall.

Q Do you know who Jack Peterson is?

A Sure.

Q Do you know him personally?

A Sure.

Q Do you know him professionally?

A Sure.

Q Have you worked on cases with him?

A Yes.

Q Do you know him to be an industrial hygienist?

A Yes.

Q What is his reputation in the field?

A Of industrial hygiene?

Q Yes.

A Dr. Peterson has a good reputation.

Q How many cases have you worked alongside of him on?

A When you say worked alongside of him, it sounds like we're standing in a trench together, which is certainly not the occasion.

Q How many cases have you been involved concurrently with Dr. Peterson?

MR. FOGEL: Is concurrently the word you used?

MR. ROTH: Concurrently.

THE WITNESS: A I can recall at least two. I'm sure there are probably others.

MR. ROTH: Q Have you ever been on the opposite side of a case with Dr. Peterson?

A I don't know the answer to that. Not that I can recall.

Q Do you know Dr. Haimes has been involved in this case?

A Sure.

Q And how do you know him?

A Dr. Haimes was the director of the Center for Occupational Health at the University of South Florida. I'm at the University of Florida. That's how I became acquainted with Dr. Haimes.

Q Do you know him personally as well as professionally?

A Well, when you say personally versus professionally, you mean have you ever had lunch with him, which would make it personally, yes, I have. I certainly know him that way personally.

Q Do you know Dr. Haimes to have a specific expertise within a given field?

A Yes.

Q What field is that?

A Industrial hygiene and occupational medicine.

Q And what is his reputation in your opinion?

A I think Dr. Haimes has a good reputation.

Q You've worked with him before on cases, correct?

A I don't recall that. We are currently working on one here in Chicago. Other than that, I don't recall any.

Q How about Sidney Schindell, do you know who

he is?

MR. FOGEL: What's the name?

MR. ROTH: Schindell.

THE WITNESS: A Yes.

MR. ROTH: Q How do you know Dr. Schindell?

A I know Dr. Schindell from my work with him on the continuing education program at the medical college of Wisconsin. I know Dr. Schindell from having worked with him on various legal matters, testimony before congress. I've known Dr. Schindell for probably ten years.

Q What is his field of expertise?

A Epidemiology and occupational medicine.

Q What is his reputation within the field of epidemiology?

A I think he has a good reputation within the field of epidemiology.

Q Doctor, have we pretty much gone over the work you've done in this case in terms of what you physically did, reviewing documents and consulting authorities? Was there been additional work that you've done that we haven't talked about?

A I don't believe so.

Q How many hours have you put in on this

case?

A I would estimate 20.

Q Doctor, I'm going to...

MR. FOGEL: Which was it, Schindell or Peterson, that invited you to the staff of the medical college of Wisconsin?

MR. ROTH: It had to be Schindell.

THE WITNESS: A Schindell is still at the medical college of Wisconsin and is now chairman emeritus at Wisconsin.

MR. ROTH: Q I'd like to -- doctor, I want to go through what would be contained in your file even though I understand it's not all here today.

We talked about Exhibit 3 which is a portion of the articles and the other articles that are going to be used to supplement this list and aren't on here.

A Which I told of some I can remember.

Q Absolutely.

And you also told us about the depositions of Kouchis and Kubinski that is contained in your file and the depositions of Bluefarb and Phillips?

A That's correct.

Q And the only other thing contained in your

file is the ANSI standards -- got to remember those, right?

A Yes.

Q I think we've identified them enough for the record.

Can you look at these. Do all the materials that I'm handing you appear to be what is contained in your file?

A Yes, sir.

Q I'm going to identify those for the record and see if Bob will stipulate to this rather than remarking them.

MR. FOGEL: The only thing I can tell you is I have tried to keep a stack of materials that I have provided to various experts. That may or may not be a complete stack.

MR. ROTH: Let's see what we could do here.

MR. FOGEL: And I don't know if that is the stack from Dr. Haimes or the stack from Dr. Harbison, or a combination of the two.

I believe that would be everything, most of everything. For some reason I think I provided Haimes a copy of the Texaco MSDS from '86 or '88. I'm not sure if it's still in there or not.

THE WITNESS: There is not a Texaco one in there.

MR. FOGEL: There is not. So I can't tell that that is it.

THE WITNESS: But I never received a Texaco one.

MR. FOGEL: Right.

MR. ROTH: Q You just reviewed these documents. Do you recall seeing them before?

THE WITNESS: A Sure.

Q Are there any documents that you're aware of that aren't contained in this group of materials that you received?

A Well, I don't know how to answer that without...

Q Do you recall any? That's all I am asking.

A I don't recall any, but I'm certainly not representing that this is all the materials.

Q I don't expect you to have total recall. I'm talking about strictly the product safety information.

MR. FOGEL: I think that is pretty close if not all of it.

MR. ROTH: Are these your copies, Bob?

MR. FOGEL: Yeah. Not all of them are marked, unfortunately.

MR. ROTH: Q Doctor, did Mr. Fogel ever ask you to bring up your file today for your deposition?

THE WITNESS: A Not for today, no.

MR. FOGEL: You have a letter here that lists...

MR. ROTH: With specificity each item in here. Is that what you're saying?

MR. FOGEL: Yeah.

It was the MSDS for Metal Lubricants that was in effect at the time and some material health and safety bulletin from Union Oil, the labels, the typical inspections.

There were photocopies of photographs, the medical notes of Phillips and Bluefarb.

For informational purposes I give him a letter of and CV of Krueger and information from the Psoriasis Foundation and a copy from...

MR. ROTH: Q Do you have copies of everything that Mr. Fogel sent to you back at your office?

THE WITNESS: A I believe so.

Q Did Dr. Krueger's CV...

MR. FOGEL: By the way, everything that I've mentioned in there has been marked as an exhibit at one time or another.

MR. ROTH: You tell me what they are and I'll

refer to them.

Q Anything about Dr. Krueger's CV that affects your opinion in this case?

A No.

Q Or is relevant to your opinions in this case?

A I don't believe so.

Q How about the photocopies of photographs of Mr. Kubinski's hand? Anything about the photocopies of the photographs that is relevant to your opinions in this case?

A Not specifically, no.

Q How about generally?

A Not generally either.

Q Well you'll have to bear with me here I guess. I'll do what I can.

MR. FOGEL: Okay. I'm sure you will.

MR. ROTH: Q Doctor, I'm going to hand you some documents, and I want you to identify them for the record.

I'm going to hand you the first one which has previously been marked as Gray Exhibit No. 5 for identification marked December 2, 1987.

MR. FOGEL: Is that the Metalite SV-6 typical

inspections? That's previously been marked as Haimes Exhibit 12 just for reference.

MR. ROTH: I don't have Haimes.

THE WITNESS: A The question is...

MR. ROTH: Q You reviewed that?

A Yes.

Q That's one of the documents you received?

A Yes.

Q How about -- I'm going to hand you a document that has previously been marked Gray Exhibit No. 6 for identification, December 2, 1987, and ask you if that is one of the documents you reviewed in this case.

MR. FOGEL: That has previously been marked as Haimes Exhibit 14 as well.

THE WITNESS: A Yes.

MR. ROTH: Q Did you review that before?

A Yes.

Q Are those two documents relevant to your opinions in this case?

A Documents I considered, yes.

Q I'm going to hand you what's previously been marked -- a two-page exhibit previously marked as Matray Exhibit 2-A and 2-B, April 24, 19 -- I don't

know -- and ask you if this's one of the documents that you've reviewed in this case.

MR. FOGEL: This's Haimes Exhibit No. 11, and that is the Metal Lubricants' MSDS for Metalite SV-6 with the sticker on it.

THE WITNESS: A Yes.

MR. ROTH: Q I'll hand you what's previously been marked as Biddle Exhibit No. 2, January 13, 1989, which appears to be a multi-page document. Have you reviewed those documents as part of the material sent to you by Mr. Fogel?

MR. FOGEL: This's previously been marked as Haimes Exhibit 16.

THE WITNESS: A Yes.

MR. FOGEL: I'm also pretty sure that -- I kind of took a packet of the materials I sent to Krueger and told my clerks to copy and send a package to Dr. Haimes and a package to Dr. Harbison. That's why I'm saying all of this is duplicative.

MR. ROTH: If you would stop playing games and just tell me what you sent the guy, we'll get through this.

As you once pointed out to me, what goes around comes around; right?

MR. FOGEL: Yeah. It came around the other day with Dr. Sullivan, didn't it?

MR. ROTH: I don't know.

MR. FOGEL: Just show me something. I'll tell you what it's been previously marked.

That's the -- that's Gray Exhibit 1. What is the date on the bottom of it?

MR. ROTH: This is my copy. I'm sorry. And that is why that is the problem.

MR. FOGEL: On the last page, give me the effective date of that one.

MR. ROTH: It's marked October 20, 1980.

MR. FOGEL: Is that the one for Stoddard solvent?

MR. ROTH: It is one of the ones for Stoddard solvent.

MR. FOGEL: Is this the same one?

MR. ROTH: This is not the same one.

MR. FOGEL: Is it this one?

MR. ROTH: It is this one.

Q Let me show you what's previously marked as Haimes Exhibit No. 10, November 17, 1990, which is a four-page document, and ask you if that's one of the documents you reviewed in this case.

THE WITNESS: A Yes.

Q I show you what's been marked previously as Haimes No. 9, which is a four-page document, and ask you if that's one of the documents that you previously reviewed in this case and which you were previously furnished.

A Yes.

MR. ROTH: The AMSCO ones now, do you have copies of them? There's four of them.

MR. FOGEL: These are all AMSCO. The first two are AMSCO.

MR. ROTH: I understand. But they're in different format.

MR. FOGEL: Upper right, revised September '77, Haimes Exhibit 18.

MR. ROTH: Q I will show you what's been marked previously as Haimes Exhibit No. 18 and ask you if that two-page document is one that was previously forwarded to you and which you reviewed in this case.

THE WITNESS: A Yes.

Q I show you what's been marked as Haimes No. 8 for identification previously. Is that one of the documents you received and reviewed in this case?

A Yes.

Q I show you what's been marked as Haimes

Exhibit No. 6 for identification. Is that one of the -- is that a two-page document something that was previously forwarded to you and which you reviewed in this case?

A Yes.

Q And I will show you what's previously been marked as Haimes No. 7 for identification. Is that also -- that two-page document something you received and reviewed in this case?

A Yes.

Q I show you what's previously been marked as Haimes Exhibit No. 13. Is that a document you reviewed?

MR. FOGEL: Also Muzinic 5.

THE WITNESS: A Yes.

MR. ROTH: Q Let me show you what's previously been marked as Haimes Exhibit No. 17.

MR. FOGEL: The product bulletin for AMSCO mineral spirits 66/3.

MR. ROTH: Q Did you that review in terms of your review of documents in this case?

THE WITNESS: A Yes.

Q Doctor, what we've just gone through, does that comprise all the safety information you remember getting in this case as you sit here today?

A Yes.

MR. FOGEL: All the safety info?

THE WITNESS: A You mean product safety information.

MR. ROTH: Q All the product safety information that you remember receiving, right?

A Yes, sir.

Q Have you independently gone out and tried to obtain additional product safety information regarding this particular chemical?

A No, I have not.

Q do you know how you -- how it came about that Mr. Fogel called you or contacted you in this case?

A No, I do not.

MR. FOGEL: Do you want to know?

MR. ROTH: Do you want to tell me?

MR. FOGEL: Jack Peterson recommended him.

MR. ROTH: Q Based upon your review of the material that you told us about, do you have an understanding of the facts that are relevant to your opinions in this case that you can tell us about, the facts that give rise to this case? Do you understand what I mean?

A No.

Q Do you have an understanding about Mr. Kubinski, the work he was doing, and the exposure that he had to mineral spirits?

A Yes.

Q Can you tell me what your understanding is.

A My understanding is that he was repairing a machine in a period of about May 6th through about May 27, 1983, and while repairing that machine or taking it apart, cleaning it, he used mineral spirits to clean various parts of that machine, and he used the mineral spirits on a daily basis for that approximate period of time about of three weeks.

Q Earlier I believe you told me that it was your understanding that he was using the mineral spirits eight to ten hours an day. Am I wrong?

MR. FOGEL: No, no. You were asking him about what his exposure was and during the course of the eight to ten hours a day and whatever his hours were he was exposed to mineral spirits. Is that what you're asking now? That has been asked and answered.

MR. ROTH: Q What is your understanding of the amount of time that Mr. Kubinski had an exposure to a concentration of mineral spirits during his workday?

MR. FOGEL: Well ...

THE WITNESS: A I think you asked me that, and my answer was that it was a continuous exposure during the workday; and that workday was from eight to ten hours.

MR. ROTH: Q Are you aware of any other chemicals Mr. Kubinski was exposed to prior to June of 1983, other than mineral spirits?

A No, I am not.

Q Would they be relevant to your evaluation and opinions in this case?

A They may be. I don't know of any other chemical exposure.

Q Do you recall any chemicals that Mr. Kubinski referred to in his deposition testimony, other than the mineral spirits, for that three-week period?

MR. FOGEL: Do you mean to exclude the oils or greases that was washed off the machine and into the bucket, machine parts into the bucket?

MR. ROTH: I'm just asking if he's aware of any other chemicals.

MR. FOGEL: Just so we're on the the same wavelength.

MR. ROTH: I don't know if we are. I'm asking the doctor.

A Ever, or during the three-week period?

MR. ROTH: Q Other than the three-week exposure to SV-6, are you aware of any other chemicals which Mr. Kubinski was exposed to? Let's start with ever.

A Ever?

Q Yes.

A Sure.

Q What chemicals was he exposed to?

A He had other occupations and was exposed to other chemicals, and I believe there is an indication of those in his deposition. I don't recall them all.

Q Do you have any understanding of any other possible skin irritants that Mr. Kubinski was exposed to during May of 1983, other than SV-6?

A I do not know of other skin irritants to which he was exposed.

Q How about between January and May of 1983, are you aware of any other skin irritants he was exposed to?

A I don't recall that period of time.

Q Do you have an understanding as to what Mr. Kubinski's past medical history was prior to May of 1983?

A I don't recall his past medical history.

Q Is that type of information important to you in evaluating whether there is a causal relationship between a chemical and an effect to biologic tissue?

A It depends on the chemical, it depends on the effect.

Q Is it relevant to you here in this case?

A To the best of my knowledge, it is not.

Q What is the understanding of the injury -- what is your understanding of the injury that Mr. Kubinski developed following his exposure to SV-6?

A Contact dermatitis.

Q And what's the basis of your opinion? Is that strictly from the medical records again?

A Yes, sir.

Q Do you have an understanding as to what business the plaintiff's employer was in?

A Yes, I believe it was a manufacturer of screws.

Q Are there any other facts that we haven't discussed that you feel are relevant to the opinions that you've reached in this case?

A That's a kind of a question that I'm not sure I know how to answer. I certainly don't recall other facts. Are there? I don't know.

Q Let's talk about your opinions, Doctor. We talked about them briefly I think.

Can you tell me what opinions you've reached in this case based upon your work that you've outlined for us?

A My opinion is that the SV-6 was the cause of the irritation that resulted in the dermatitis in Mr. Kubinski and that the product SV-6 is unreasonably dangerous for the intended use of a cleaner for parts, and inadequate safety information -- health and safety information was provided with regard to that material and its potential health hazards.

Q Do you have any other opinions in this case?

A Those are the ones I can think of. I don't know if there would be others or not.

MR. FOGEL: Other things have developed today, and you've asked opinion questions.

MR. ROTH: Q Other than what you've told me today, obviously, do you have any opinions as to the nature and extent of the plaintiff's injury in this case?

THE WITNESS: A Other than what I've already told you?

Q Other than what you've already told me.

A No.

Q Which stops at the point where the exposure caused dermatitis, right?

A That's correct.

Q Beyond that point, do you have any opinions regarding any additional injuries or the nature of those injuries?

A No, I do not.

Q Do you have any opinions regarding the plaintiff's claimed disability in this case?

A I'm not sure I know what that means.

MR. FOGEL: You haven't been asked to, and he has no such opinions, any opinions as to whether he is disabled today, and if so, why or in what ways.

THE WITNESS: A I don't have an opinion about that.

MR. FOGEL: It's the process of elimination I think.

MR. ROTH: Q And I assume you do have an opinion as to what warnings were necessary in this case with respect to SV-6, am I right?

A That's correct.

Q And would that be part and parcel of your

opinion that it was an unreasonably dangerous product?

A I don't quite understand that question.

Q Is the basis of your opinion that SV-6 was an unreasonably dangerous product the fact that there was inadequate safety information provided, correct?

A That is correct.

MR. FOGEL: Safety and health information.

MR. ROTH: Q You have an an opinion assume I as to what safety and health information should have been provided?

THE WITNESS: A Right. My previous answer was safety and health, not just safety.

Q Do you have an opinion as to whether Metal Lubricants had an obligation in 1983 to send the material safety data sheet to Champion Screw, without Champion Screw having requested one?

A Yes, I believe that they did have an obligation in 1983 to send a material safety data sheet.

MR. FOGEL: Could you read back the question and answer, please.

(Record read.)

MR. FOGEL: Just to clarify...

MR. ROTH: You're using up my valuable time here, Bob.

MR. FOGEL: I know it. I just want to be sure that you don't miss the fact that we're talking about is health and safety information, whether it takes the form of a material safety data sheet, or product warning labels, or a combination.

Am I correct? Or do you mean to refer specifically to the material safety data sheet they had?

THE WITNESS: No. I would refer to all of that. But that's not the question that he asked.

MR. FOGEL: I understand.

MR. ROTH: We talked about that already. We'll get back to that. thank you.

MR. FOGEL: I hate to see this answer picked in isolation.

MR. ROTH: I understand your concern.

MR. FOGEL: Personal concern only. I just was looking down the road. I don't care how you look at it.

MR. ROTH: Q Doctor, with respect to your opinion that SV-6 was the cause of the irritation that resulted in dermatitis, can you tell me the steps you took in employing your methodology in reaching that conclusion?

THE WITNESS: A Considered the exposure and the

concentration, exposure to the SV-6 material on a daily basis for approximately three weeks, continuous exposure during the day, to 100 percent mineral spirits.

Q So you've established there was an exposure to a concentration sufficient enough to cause the effect?

A Yes, sir.

Q Is that a correct summary of what you just said?

A That's correct.

Q How did you determine that the concentration was sufficient to cause the effect?

A Based upon reports in the literature, based upon my knowledge, based upon my training, based upon my experience, it would be my opinion that 100 percent mineral spirit in contact with the skin for -- continuously throughout the day for period of approximately three weeks would be sufficient to cause chronic irritation to result in dermatitis.

Q And were you satisfied there was a direct temporal relationship between the dose and the effect?

A Yes, sir.

Q Did you evaluate that?

A Yes, sir.

Q And what was your conclusion?

A My conclusion was that the dermatitis occurred within the period of exposure, and that there was a temporal relationship between the exposure, the irritation, and the dermatitis.

Q What is your understanding of when Mr. Kubinski first noticed a problem with his hands following using SV-6 in May of 1983?

MR. FOGEL: Do you want to refer to records? You can.

THE WITNESS: A That he personally noticed it?

MR. ROTH: Q Yes, sir.

A I don't recall specifically. I'll have to look at Phillips or Bluefarb, which I don't have.

MR. FOGEL: Do you want me to tender them to him?

MR. ROTH: I want him to look at the records.

THE WITNESS: A You don't want me to look at them?

MR. ROTH: Q No, I do. Look at anything you want, as long as it's something you've already told us you have looked at. Go ahead.

A The first notice of the effect was probably about one and a half to two weeks after the beginning of the use.

Q Is that consistent with your understanding of when the effect should manifest itself after exposure?

A That would be consistent with the effects, yes.

Q If Mr. Kubinski didn't notice any problems with his hands until three weeks had elapsed from the first time he used it, would that change your opinions in this case?

A I don't know. I'd have to evaluate that.

Q How would you evaluate that difference in in facts if there was that difference in facts?

A The facts being different are that he didn't notice the effects until three weeks?

Q Correct.

A I suspect that probably wouldn't change my opinion.

Q Is there a body of knowledge that you can consult to determine when skin irritation will occur after exposure to a concentration of mineral spirits?

MR. FOGEL: Please read it back.

(Question read.)

THE WITNESS: A Yes.

MR. ROTH: Q What would you refer to?

A I'd refer to Adams Textbook on Occupational Skin Diseases. I would refer to Zenz's Textbook of Occupational Medicine. I would refer to Allerhorn's Clinical Toxicology Textbook.

Those would be some I would refer to.

Q Was there something in those textbooks that specifically indicates that the first effects should be noticed a week and a half to two weeks after exposure to a concentration?

A I think you are mischaracterizing what I said.

Q I'm sorry. Please correct me.

A Irritation would occur immediately upon exposure. Your question was when did Mr. Kubinski complain of or notice those effects?

MR. FOGEL: Right.

THE WITNESS: A That was approximately one and a half to two weeks later.

MR. ROTH: Q And that is consistent with your understaning as to when it might be noticeable to the person that was developing this irritation, right?

A No. He noticed the cracking and the effects of the irritation which caused him to have difficulty working.

Q What are you basing your opinion on, Doctor, that the irritation took place at the time of exposure?

A Based upon my knowledge of mineral spirits.

Q Let's get something straight. There's nothing in Bluefarb's records, or Phillips' records, or his deposition saying precisely when that irritation took place; right?

A It says what it says. It says, "For the past few weeks states he noticed cracked areas on his hand."

Q But in terms of when the irritation took place, do you know when that actually occurred?

A Yeah. It would have been upon exposure.

Q Are you concluding that based upon the history, or is there something in particular you're referring to here?

A Based upon my experience, my knowledge, based on what I know mineral spirits is able to do to skin, irritation would have occurred upon exposure.

Q Let's stop for a minute here.

Are those materials that are part of your file as well? Are those excerpts you've sent over to Bob?

A You have a couple questions there.

Are these excerpts that I sent to Bob, no. Is this part of my file, yes.

Q All right.

A Yes, these are.

Q All the materials that I just handed you are part of your file in this case, correct?

A That is correct.

Q Is there anything else that we missed that's part of your file that we haven't shown you today, or talked about at least?

A Okay. Talked about or shown.

Q We talked about, for instance, Krueger's CV or the photographs and such. Is there anything else that we haven't talked about that's part of your file?

A I don't think so.

MR. ROTH: Why don't we mark these and have them at least identified for the record.

MR. ROTH: Q Doctor...

MR. FOGEL: It's 3:45, Nick. Just so it's on the record.

MR. ROTH: Do you want to get on the record when we reconvened?

MR. FOGEL: 2:15.

MR. ROTH: Q In terms of temporal relationship, Doctor, it is not important then when the patient first notice the problem; right? That doesn't necessarily mean the irritation hasn't taken place, right?

THE WITNESS: A It may or may not have.

Q Is the time when Mr. Kubinski first noticed a problem with his hands important to you in establishing causal relationship here?

MR. FOGEL: Can I ask you a question?

MR. ROTH: Sure.

MR. FOGEL: Are you relying on something in particular as to when Kubinski noticed anything happening with his hands or when he noticed something that caused him to be concerned to go see the doctors?

Because there's no question he's testified he noticed redness, he noticed dryness, and he put cream on it early on in the first week or so on. Then it continued to progress to drying and cracking and the swelling and the rest.

So you are focusing like there's one day that he didn't notice and there's one day that he did. And there's plenty of evidence showing the continuing of severity.

MR. ROTH: Q Do you remember the question?

THE WITNESS: A No.

MR. ROTH: Do you want to read it back.

(Question read.)

THE WITNESS: A Yes.

MR. ROTH: Q And why would it be important to you?

A To establish the temporal eligility for the mineral spirit or the SV-6 to have caused the effect.

Q How long after exposure to SV-6 would you expect an individual to notice a change in their skin?

A It depends on the exposure. Exposure for Mr. Kubinski I would expect to be at the time of or shortly thereafter.

Q And one and a half to two weeks, assuming that were the case, that would be sufficient to bring it within that temporal relationship; correct?

MR. FOGEL: I am objecting. You're assuming the facts not to be as they are. You're giving a hypothetical not related to this case.

MR. ROTH: I just said that, assuming that that were the case.

THE WITNESS: A Assuming that the cracked hands occurred one and a half to two weeks during the exposure, after beginning the exposure?

MR. ROTH: Q Yes.

A Would that be eligible for the effect to have been caused by SV-6?

Q Yes.

A Yes.

Q How about if the cracked skin occurred two months after the initial exposure, would that be consistent?

A It depends on the exposure. Is exposure exactly the same every single day?

Q Assuming that it is.

A I would think that that would be a long time to have or to be exposed before an effect would occur. But it's -- I don't know. I'd have to look an it.

Q That could possibly affect your opinions in terms of whether there's a temporal relationship?

A If he had it two months later?

Q Yes.

A Well, it would be a factor I would consider.

Q Would it change your opinion in terms of chemical causations?

A I don't know. Because I'd have to look at

everything that was part of Mr. Kubinski, what he did, what he complained of, what he had, when he had it.

Q Doctor, I'm just going to go through this material briefly. I am going to hand you the exhibits and you could just tell me what they are, if you referred to them, that sort of thing.

I show you what's been marked as Harbison Exhibit No. 5. If you could identify that for us first of all.

A Do you want me to read what it is?

Q Sure.

A Patty's Industrial Hygiene and Toxicology, volume 2-B, Toxicology.

Q It's excerpts from volume 2-B, correct?

A It is pages from volume 2-B.

Q It is not the entire volume?

A Right, it is pages.

Q Is that something that you referred to in this case?

A Yes. It's something that I considered.

Q Did you forward those excerpts from volume 2-B to Mr. Fogel as part of your file?

A No.

Q Let me show you Harbison Exhibit No. 6 and

ask you to identify them.

A I showed him these last time and that's how he got them.

Q Not through the U.S. mail necessarily?

A Well, he got them the last time I was here is how he got them.

Q Okay.

A I'm sorry. You want me to read this again. Occupational Skin Disease, Robert M. Adams.

Q And that's part of your file, correct, that you reviewed at least in terms of working on this case; right?

A Yes, sir.

Q And I will hand you what's been marked as Harbison Exhibit No. 7. Is that part of your file in this case? And can you identify it for us.

A Yes, Dangerous Properties of Industrial Materials.

Q Is there a specific reference within Exhibit No. 7 that you referred to that you can show us right now?

A There is a reference to Stoddard solvent.

Q And what about the reference to Stoddard solvent is relevant to your opinions in this case?

A It has a TLV. That's about all I can see.

Q Anything that's contained in Exhibit No. 7 establish a precedent for the proposition that mineral spirits can cause dermatitis?

A Not specifically, no.

Q Let me show you what's been marked as Exhibit No. 8, Harbison Exhibit No. 8 -- do you want to continue reading that or ...

A Yeah, I didn't quite finish. There's also a reference to mineral spirits that is on another page.

Q Let me show you what's been marked Harbison Exhibit No. 8. Can you identify that for the record first of all.

A Yes.

Q What is it?

A It's the Merck Index.

Q And is there something within Exhibit No. 8 that you feel is relevant to your opinions in this case?

A There is simply a reference to mineral spirits. That's all I can find.

Q Is there anything in there that creates a precedent for the propositions that mineral spirits can cause dermatitis?

A Not that I'm aware of.

Q Do you know the date that that was published?

A 1983.

Q Speaking about Exhibit No. 5 and 6, going back, do you know what the date of publication is for the particular volume of Patty's that we're talking about on Exhibit No. 5?

A I believe it's 1981.

Q And in terms of Exhibit No. 6, Occupational Skin Disease by Adams, do you know what the date of publication is for that particular volume?

A 1983.

Q Was there a prior edition to Adams?

A I don't think so. I think this is the first edition.

Q Showing you what's been marked as Harbison Exhibit No. 9 and ask you to identify that for the record.

A It is a page from the Hazardous Chemicals Data Book on mineral spirits.

Q And what is relevant in -- on that page to your opinions in this case?

A Generally describes mineral spirits, physical, chemical properties, protective equipment.

Q I think it also says it is irritating to the skin up here, too, somewhere.

A Yes.

Q Would that be relevant to your opinions?

A Yes.

Q What's the date of publication for that document, sir?

A I don't know the answer to that.

Q Let me refer you to page 2 at the bottom of the page. Does that help you out?

A June '85.

Q Is there anything in Exhibit No. 9 that creates a precedent for the proposition that mineral spirits causes dermatitis?

A Well, again, you keep asking that question. There's no one thing that establishes a precedent. This is certainly part of the literature that would support the irritant effects of mineral spirits. It certainly doesn't establish the precedence, but it's another piece of information.

Q It makes reference to the irritant?

A That's correct.

Q. Let me show you what's been marked as Harbison Exhibit No. 10, sir. In fact, let me look at

it for a minute. I ask you to identify that for the record.

A This is Industrial Hygiene and Toxicology, volume 2.

Q Do you know the date of publication for that particular volume?

A I believe it is also 19 -- no. The other one is the third revised. I don't know what the year of this edition is.

Q What in that exhibit is relevant to your opinions in this case?

A There's a section in here on mineral spirits. It talks about irritation.

MR. FOGEL: Again, your question is limited to precedent of any kind with regard to skin irritation or dermatitis?

MR. ROTH: That's not the question. I just asked him what was contained in there that was relevant to his opinions. That's all.

THE WITNESS: A The information on mineral spirits that refers to its effects, such as irritating effects.

MR. ROTH: Q Does it refer to its irritating effect on the skin of a human, in that article?

A I don't see a specific reference to irritation of the skin.

Q Would that be part of the precedent, then, sir for the proposition that mineral spirits can cause dermatitis?

A No. I will answer it the same way. There's no single article that is a precedence.

Q Would that be part of the body of the literature that you believe creates that precedent though?

A It's part of the body of literature that I considered.

Q Is that part of the body of the literature creates the proposition that mineral spirits causes dermatitis?

MR. FOGEL: I understand. But in the context of the opinions you asked, it was whether or not SV-6 -- in the context of this case is unreasonably dangerous in the absence of health and safety information, and all of this includes health and safety information and indicates that this is a hazardous chemical that needs health and safety information in order to be reasonably safe for foreseeable intended uses.

These articles and literature relate

to solvents and explain that solvents are irritants to the skin and again fit within the body of literature indicating that is one of the dangers of the solvent that needs to be passed along to the consumers and users.

You keep narrowing it down to causing dermatitis and I think ignoring the broad -- but if you wish to do that.

MR. ROTH: Q Doctor, as part of your analysis in this case, did you determine there was a medical precedent for the proposition that mineral spirits -- exposure to a concentration of mineral spirits can cause dermatitis?

THE WITNESS: A I think you've already asked that several times, and my answer is that mineral spirits can result in irritation. Chronic irritation can lead to dermatitis. This is part of the body of information that would support the proposition that mineral spirits is able to produce an irritant effect on skin.

Q Let me show you what's been marked as Harbison Exhibit No. 11 and ask you to identify that for the record.

A Yes, Medical Toxicology, Diagnosis and

Treatment of Human Poisoning.

Q What in there is relevant to your opinions in this case?

MR. FOGEL: This is the chapter on petroleum distillate, right?

THE WITNESS: A There is a chapter on petroleum distillates, hydrocarbon products, mineral spirits, synonym, Stoddard solvent, main use, dry cleaner. That's the information that it has. The relevance would be that Stoddard solvent and mineral spirits are synonomous with respect to this reference.

MR. ROTH: Q Does it refer to an irritant effect of either Stoddard solvents or mineral spirits?

A I don't know. I don't have the whole thing. So I don't know. I don't have the whole chapter.

Q That's because I didn't hand it to you. Let me show you the last one, Harbison Exhibit No. 12, Doctor, and ask you to identify that for the record, sir.

A It is some pages from Occupational Medicine, Karl Zenz, second edition.

Q You reviewed and referred to that text as part of your work in this case?

A I looked at it, yes.

Q Is there something in there that you feel is relevant to your opinions?

A Yes.

Q What is that, sir?

A It refers to dermatitis. It refers to aplastic anemia. It refers to mineral spirits. Those are some things.

Q Does it state in there that mineral spirits can cause dermatitis?

A Yes.

Q And that is with respect to what particular compound? Does it specify?

A It refers to Stoddard solvent reported to produce vesicular dermatitis of the arms and hands of workers after two weeks of exposure.

Q What page are you referring to, sir?

A Page 756. It refers to Stoddard solvent being the cause of dermatitis in several industrial workers. That's the Larson reference.

Q Okay. Thanks.

MR. FOGEL: It says on the next page "Since the composition of mineral experts and Stoddard solvents is similar, it is recommended that the exposure to mineral

spirits be avoided."

MR. ROTH: Thanks.

MR. FOGEL: What's the date of that book, Brad?

MR. ROTH: Which one?

MR. FOGEL: The last one, Occupational Medicine.

MR. ROTH: You must know or you wouldn't ask.

MR. FOGEL: I have no idea.

MR. ROTH: Q Do you know the date of publication for this particular volume of Occupational Medicine by Dr. Zenz?

THE WITNESS: A I'm sorry. I don't know.

Q Doctor, as part of your evaluation did you also look into the question of whether the effect in this case was biologically plausible?

A Yes.

Q And what did you determine?

A That it was.

Q And what do you base that on -- again, on the medical literature so we don't beat a dead horse here.

A Based upon my experience, knowledge, education in scientific and medical literature that mineral spirits is a solvent that can defat and cause injury to cells resulting in irritation, inflammation,

and dermatitis.

Q What occurs after the source of the irritation is removed?

A Well, it depends on the extent of the inflammatory process. If the irritation is removed, the reddening would probably disappear; and if the inflammation is not severe, the inflammation would disappear.

Q Doctor, do you know whether the SV-6 used by Mr. Kubinski was diluted with anything or mixed with anything prior to the time he went and got it and brought it over to where he was working?

A I do not have knowledge that it was diluted.

Q If it was diluted with mineral oil -- excuse me -- if it was diluted with machine oil, would that affect your opinions in this case?

A It depends on the dilution.

Q How about one cup for five to ten gallons of SV-6?

A That would not change my opinion.

Q Does machine oil have an irritant effect on human skin?

A It can.

Q Is it a defattener?

A I don't believe it's a defadding agent. It can certainly defat as well, but generally it probably would not be a defattening agent.

Q Can exposure to machine oil cause dermatitis?

A It could.

Q Doctor, did you consider any alternate causes in this case for Mr. Kubinski's dermatitis?

A Yes.

Q What causes did you consider?

A I looked at his personal habits. I looked at other materials that he was exposed to such as the lubricating oil or the oil that he added or may have added. I could find no alternate cause or likely alternate cause of his dermatitis.

Q Would any irritant have to be considered as an alternate cause -- any skin irritant, pardon me?

A Yes.

Q Doctor, what did you determine with respect to Mr. Kubinski's personal habits?

A That there were no differences in his personal habits that would account for the irritation during this three-week period of time.

Q Doctor, do you have an opinion as to whether Mr. Kubinski had been wearing impermeable gloves whether he would have contracted dermatitis in this case?

A If he had been wearing impermeable gloves?

Q Yes.

A For the entire period of time?

Q Yes.

A My opinion would be that he would not likely have developed dermatitis.

Q Doctor, when a worker is using impermeable gloves does the body have a tendency to sweat?

A Yes.

Q Is perspiration a potential irritant on the skin?

A It could be.

Q Is it more so -- is it more an irritant to the skin where it is confined by a rubber glove or an impermeable glove?

A It depends on the temperature and the confinement. It's certainly more irritating than in the absence of confinement.

Q Assuming Mr. Kubinski had been wearing impermeable gloves in this case, is it possible that his

perspiration could have been an irritant to the skin which would have resulted in dermatitis?

MR. FOGEL: I object. It calls for speculation, and that's not in the facts in this particular case.

THE WITNESS: A I can't answer a question of possibility. I suppose anything is possible.

Is it likely, I don't think it's very likely. Is it possible, I suppose it's possible.

MR. ROTH: Q Doctor, is one of the safety measures you would recommend wearing impermeable gloves in handling SV-6?

A It depends on what one is doing with SV-6. If one is using it to immerse parts in or to clean or to use a rag or be in contact with the SV-6 for prolonged periods of time, yes, it would be my recommendation to use impermeable gloves.

Q In terms of the activity of Mr. Kubinski, would it have been your recommendation that he should have worn impermeable gloves when he was handling the SV-6?

A With regard to this three-week period, yes.

Q Did you conclude, then, sir, in terms of alternate causes, that his personal habits did not -- was not a cause of the irritation that led to the

dermatitis?

A I could not find an alternate cause that would have resulted in the dermatitis.

Q You referenced a lubricating oil. Is that -- are you talking about the same thing I was talking about when I was talking about diluting the SV-6 with machine oil?

A Yes, sir.

Q Did Mr. Kubinski come into contact with lubricating oil in just handling the pieces of the machine?

A Yes.

Q Did you consider that as a possible alternate cause of the irritation that led to the dermatitis in this case?

A Yes, I did.

Q And what did you conclude?

A I concluded that that would not likely be the cause of the dermatitis.

Q And what is the basis for that conclusion?

A Because the exposure to the mineral spirits was greater in that the mineral spirits would remove the oil, and the contact with the oil, the lubricating oil, would have been far less than the contact with the

mineral spirits.

Q Is it a matter of comparison in that respect whether the exposure was greatest?

MR. FOGEL: Versus prior experiences with the same stuff?

MR. ROTH: I'm sorry. Can you read back Dr. Harbison's last answer. Maybe I misunderstood.

(Record read.)

MR. ROTH: Q I was wrong. I misunderstood you.

Q Are you aware of any cases where dermatitis can occur without any chemical exposure or contact?

THE WITNESS: A Sure.

Q Are there cases where dermatitis occurs where the cause is not determined?

A Sure.

Q And can dermatitis occur as a result of trauma?

A Sure.

Q Would you consider trauma a possible alternate cause in this case?

A Did I consider it?

Q Yes, sir.

A Yes, I did.

Q Were there facts in the materials that were

presented to you that indicated there was a trauma to Mr. Kubinski's body?

A I could find no information that would suggest to me that there was a trauma that could have resulted in the dermatitis.

Q If -- assuming Mr. Kubinski had injured one of his fingers on a machine, would that have been an alternate cause you would have considered?

A When?

Q Say between two months of the date of the occurrence in terms of when he first noticed the problem with his hands.

A Would the injury of two fingers on one hand two months prior to this event have been the likely cause of the dermatitis?

Q No. Would you have considered it as a possible alternate cause?

A Yes.

Q And in your opinion would it -- do you have an opinion as to whether it could have been an alternate cause in this case?

A I do not believe that would have been an alternate cause for his dermatitis.

Q What is the basis of that opinion?

A Based upon the time and the injury that -- based upon that injury two most prior to that time, it's not likely that that's the cause of the dermatitis.

Q Is that due in part to the temporal relationship between the trauma and the onset of the dermatitis?

A It's due to the temporal relationship. It's due to the biological plausibility. It is due to the exposure of mineral spirits over that period of time and the effects of mineral spirits versus the effect of trauma. All of those are considerations that I made.

Q Did you consider the possibility that Mr. Kubinski's dermatitis could have occurred without any discernable cause as a possible alternate causation in this case?

Do you know what I mean by that, or am I mixing things up here?

MR. FOGEL: You mean as a coincidence?

MR. ROTH: I don't know if I'd call it a coincidence.

THE WITNESS: A I think that's what you are saying. Coincidentally, could the dermatitis have resulted even without exposure to the mineral spirits?

MR. ROTH: Q Yes.

A I think it's not likely.

Q Is it a possible cause?

A Well, possibilities are anything. The probability of that is not very likely.

So it would be my opinion that it's not likely that there was no cause for the dermatitis. It's more likely than not that the the cause was the SV-6.

Q As part of your analysis, did you rule out the possibility that this dermatitis occurred due to reasons which were unknown to the people who treated him coincidentally?

A I thought that's the question you just asked me.

Q Did you rule out the possibility?

A Well, yes. I said that it is my opinion that it's more likely than not, looking at three weeks of exposure to mineral spirits or the SV-6, looking at the exposure history of Mr. Kubinski, that it's more likely than not that it's the SV-6 and not some coincidental occurrence of dermatitis.

Q When you say more likely than not, are you saying that the likelihood of this being caused by SV-6 is greater than 50 percent?

A Yes.

Q Would you be able to quantify it any further in terms of what percentage you would attribute to SV-6 as to a possible cause of Mr. Kubinski's dermatitis?

A It would be my opinion that it would be greater than 95 percent that it was caused by the SV-6.

Q Doctor, can handling machine parts in a repetitive manner cause skin irritation?

A Sure.

Q Can that lead to dermatitis?

A Sure.

Q Are you aware that Mr. Kubinski was handling machine parts while he was breaking down and cleaning that machine?

A Sure.

Q Did you consider the handling of the parts, Doctor, in his hands as a possible alternate cause of the skin irritation that led to his dermatitis?

A Yes, I did.

Q What did you determine?

A I determined that it's not likely the cause of his dermatitis. Again, based upon the exposure, based upon the known effects of the mineral spirits,

based upon the occurrence of the dermatitis, the cracked hands, the cracked skin, that would not likely be caused from trauma or repetitive handling of machine parts.

Q What is it about trauma or repetitive handling that makes it not likely that it could cause the dermatitis that Mr. Kubinski had?

A The cracking of the back of the hands is not likely to be due to repetitive handling of a piece of machinery or part.

If the dermatitis or irritation occurred between fingers or only in the palm or some place where there would be pressure or trauma associated with the handling of the parts, that might be a consideration.

To the best of my understanding, that's not what happened.

Q If the first signs of dermatitis occurred on the fingers and palms, would that change your opinions in this case?

A I don't know. I'd have to review where it occurred.

Q Would that be more consistent with dermatitis caused by trauma or repetitive handling of the machine parts?

A It depends on how the machine parts are being handled, and it depends on what machine parts are being handled.

Q Would that be significant information to you in terms of your opinions in this case?

MR. FOGEL: What would be significant information?

MR. ROTH: Q If the first manifestation of the problems with Mr. Kubinski's hands were in the fingers.

MR. FOGEL: And the palms -- the fingers or the backs of the fingers? You're being intentionally ambiguous.

MR. ROTH: I'm not that clever.

MR. FOGEL: You are. You're saying on the fingers, and the evidence -- don't try and cut me off. Because you know what you're trying to do.

You are talking about the palmar surface of the fingers and the palms.

MR. ROTH: I'm talking about the fingers and the palm of the hand. I cannot limit it to a place on the fingers because I don't know. I don't have the records in front of me.

I know it was around the cuticles, but it might have been on the palmar aspect as well.

Let me repeat the question -- if you want to object, go ahead. I don't care.

Go ahead. Read the question back.

(Question read.)

MR. ROTH: Q If the initial location of redness and swelling was in the fingers and the palmar -- and on the palm of the hands, would that be significant information to you in forming your opinions regarding causation in this case?

MR. FOGEL: I'm going to object to the question. It's speculative. It is an incomplete hypothetical. It's based upon inaccurate facts. If it is intended to be based on any facts in this case, it is ambiguous.

You can answer, Doctor, if you have an answer.

THE WITNESS: A I don't know how to answer that without knowing precisely where it is. The fingers, as you already discussed, have two sides -- or actually four sides.

So if it's on the back of the fingers, not where one would manipulate late the parts, then it's not likely due to the parts. If the irritation or the trauma is in the palm, then, sure, it might very well be due to that.

MR. ROTH: Q And that's something you want to know, something you'd want to consider in determining the cause in this case; right?

A I have considered that.

Q Can pressure on the palmar surface of the fingers cause irritation to the opposite side?

A I don't know that.

Q Did you consider the possibility of soap being an alternate cause in this case?

A Yes.

Q And what facts were you relying on when you were considering that possible alternate cause?

A Mr. Kubinski's relating that he had not changed soaps or he had not done anything differently than he was doing before.

Q Is it your understanding that Mr. Kubinski was washing his hands at work four to five times a day while he was using SV-6?

A I recall him washing his hands. I don't recall the four to five times a day.

Q Do you recall the kind of soap he was using at work?

A No, I do not.

Q Do you know if it was granular or bar soap?

A No, I do not.

Q Does that make a difference to you?

A No.

Q Is soap -- can soap cause irritation to the hands that can lead to dermatitis?

A I think you've already asked me that several times, and my answer has been yes at all times. It certainly can.

Q Is there a difference in the effect to the skin as to granular soap as opposed to bar soap?

A I don't know the difference between granular soap and bar soap.

Q Then how did you rule out soap as a possible cause in this case?

A That Mr. Kubinski was not doing anything different than he had previously done in the use of the soap and material that he used for his own personal hygiene.

MR. FOGEL: There seems to be this assumption that his washing four or five times times or three or four times or however many times he washed during these three weeks is somehow different than how he washed in the pass. I'm not sure where that assumption originates.

MR. ROTH: Q Doctor, if an individual contracted dermatitis, would there be a difference in the type of dermatitis in how it would appear if it were due to mineral spirits as opposed to if it were due to soap?

THE WITNESS: A You already asked me that, and I said no. Unless there is some test specifically for a chemical that could have been the cause, I don't know of away of differentially diagnosing a dermatitis caused by soap versus one caused by mineral spirits.

Q Assuming Mr. Kubinski had changed his personal habits and was washing his hands more often while he was using SV-6 and assuming he was washing his hands with hot soap and granular soap four to five times a day --

MR. FOGEL: Hot water.

MR. ROTH: Q -- washing it with granular soap and hot water, would that change your opinions in this case as to whether that could be an alternate possible cause of his dermatitis?

MR. FOGEL: Object. It's an incomplete hypothetical. Assumes facts not in evidence.

MR. ROTH: Good objection.

MR. FOGEL: Same objection I give regularly for you people.

MR. ROTH: Not for me, anyway.

Q Go ahead, Doctor.

THE WITNESS: A If he washes his hands every day with granular soap in hot water, would that change my opinion?

Q Yes.

A I would have to look at how many times he washed, what he did. I don't know how it would change my opinion.

Q Is granular soap intended to be more of an abrasive than bar soap?

A Yes.

Q And can it cause, therefore, more irritation to the skin than regular soap?

A It depends on granular soap. Generally not.

MR. FOGEL: Have you ever washed with granular soap?

MR. ROTH: Off the record.

(Discussion held off the record.)

MR. ROTH: Q Doctor, just to clear something up here, you have no opinions at all about Mr. Kubinski's psoriasis in this case and its causes or possible causes; correct?

THE WITNESS: A You've already asked me that twice now.

Q I know.

A For the third time, it's exactly the same. It's no.

Q Doctor, I want to talk to you about warnings. You've reviewed, did you not, the MSDS that was prepared by Metal Lubricants in this case; correct?

A That's correct.

Q And did you review the particulars about what was contained in there and what wasn't contained in there? Did you review the contents of the MSDS?

A Yes, I did.

Q In your opinion, was that MSD -- material safety data sheet sufficient in terms of warnings for this product?

A Can I see it?

MR. FOGEL: This is Matray Exhibit 2-A and B.

MR. ROTH: Q I want to rephrase the question.

Does that exhibit constitute an adequate warning with respect to this product?

THE WITNESS: A I think that it's an adequate warning. However, I believe that it could probably be stated better, for example, the protective gloves, it

simply says yes. It doesn't say anything about impermeable gloves. That would be my response.

Q Doctor, are you aware that Metal Lubricants composed their material safety data sheet, the one you're looking at, by taking information from an MSDS that they received from a supplier?

A Yes.

Q You saw that in Mr. Kouchis' deposition?

A Yes.

Q Is that an acceptable practice for a distributor of mineral spirits such as Metal Lubricants to rely on the manufacturer that sends it to them?

A Yes, it would be the practice or certainly acceptable to rely upon information that has been sent by the manufacturer.

Q Doctor, is there any additional health or safety information that you think should have been relayed to Champion Medalist and in addition to that contained on the sheet that you're looking at or in addition to the use of impermeable gloves?

A I'm not sure I quite understand that.

Q Is there any additional...

A Why don't you just break it apart into individual parts.

Q Okay.

Other than the information contained on the material safety data sheet, is there any additional health information that should have been relayed to Champion?

A Yes. I believe there should have been a label.

Q A label on the product?

A That is correct.

Q And what in your opinion should the label have included?

A Warnings.

Q And what warnings specifically should have been included on the label?

A Warnings about the irritant effects, warnings about the use of gloves, impermeable gloves, and other hazards.

Q Where should the label have been placed?

A On the drum.

Q And would that in your opinion sufficiently communicate the health and safety information to the ultimate user of the product?

MR. FOGEL: The label alone?

THE WITNESS: A The label alone?

MR. ROTH: Q Yes.

A Not necessarily.

Q What else would be required?

A MSDS

Q Would that, in conjunction with the label, be sufficient to adequately apprise the ultimate user of the product of the safety and health information pertaining to the product?

MR. FOGEL: It's not a trick question, is it, Brad?

MR. ROTH: I don't know.

THE WITNESS: A There may be other information that could be provided that is in the form of some sort of verbal communication or alerting them of potential hazards associated with the use of the product, but I would think the label and the material safety data sheet would probably be adequate.

MR. ROTH: Q Doctor, had the material safety data sheet that you're looking at been sent to the plaintiff's employer in this case, would that have rendered the SV-6 reasonably safe?

MR. FOGEL: Could you read the question back, please.

(Question read.)

MR. ROTH: Q For it's intended use. Add that to the question.

MR. FOGEL: And you're intentionally excluding labeling warnings, just the sheet?

MR. ROTH: Yes.

MR. FOGEL: You have to give a verbal response for the record.

MR. ROTH: I don't have to do that. I want him to answer my question.

So read it back again.

(Question read.)

THE WITNESS: A I believe that passing of the MSDS along with the label would have rendered the product safe for its intended use.

MR. ROTH: Q Doctor, we talked about the gloves. I think I referred to them as impermeable gloves. Do you have a specific type of glove, material that should have been used to handle this type of product, SV-6?

A Do I have a recommendation for a specific glove?

Q Yes, sir.

A No, I do not.

Q How about specific material that the glove would be made of?

A I don't have a specific recommendation.

Q Are you an expert on composition of safety gloves?

A No, I'm not.

Q Other than gloves, should anything else have been used in terms of protective clothing or equipment by Mr. Kubinski when he was using this product?

MR. FOGEL: That's relevant to this -- his injuries or just generally?

MR. ROTH: Generally.

MR. FOGEL: Oh.

THE WITNESS: A Safety glasses.

MR. ROTH: Q Anything else?

A Some provision for excessive inhalation for some sort of respiratory protection that is not necessarily worn but certainly available if need be.

Q How about a safety aprin?

A Yes.

Q Do you think that was necessary, a necessary safety -- part of the safety equipment?

A I don't know that an aprin is necessary, because I don't know that he specifically would have gotten it on to his close, but certainly the gloves.

Whether the safety aprin was necessary or not, it would certainly be desirable.

Q Doctor, with respect to your opinions regarding the necessity of warnings attendant to the use of SV-6, would those same opinions apply to the sale of mineral spirits in hardware stores?

A No.

Q Why is that?

A Because the use would not be the same.

Q All right.

Is it a foreseeable use that a person buying mineral spirits in a hardware store might use the mineral spirits to wash their hands?

A That's a foreseeable use, yes.

Q Why should the warning not be necessary in that context?

A Because the foreseeable use would not be over prolonged periods of time. It would not be over an entire working day.

So in opinion the exposure would not be sufficient to be the cause of some chronic irritation or inflammation.

Q Doctor, did you review the conduct of the plaintiff's employer in this case?

A No.

MR. FOGEL: Would you mark that spot of that last question and answer so later I can actually read it back.

MR. ROTH: You can do it now if you want.

MR. FOGEL: No. You're almost done, and I don't want to interrupt.

MR. FOGEL: He didn't review the conduct of the employer.

MR. ROTH: Q You did not?

THE WITNESS: A No.

Q Do you have any opinions regarding the industrial hygiene employed at Champion Medalist in 1983?

A No, I do not.

Q Doctor, was it a well known effect of mineral spirits in 1983 that it could dry out the skin?

A Yes.

Q Is that something that you would expect any company that used mineral spirits or Stoddard solvents to be aware of?

A I don't know. The problem with your question is any company. I don't know what any company is. It was certainly well known.

Q Champion Medalist. Was that information that you would have expected them to be aware of given the information that you've been provided?

MR. JANSEN: Let me make an objection. I don't know that he's been provided with any information as to Medalist?

THE WITNESS: A I don't think I have any information about that. I don't know.

Guys, it's now 4:35.

MR. ROTH: Q I'm almost done.

Doctor, do you have an opinion as to whether Champion Medalist should have requested a material safety data sheet or other product information when it ordered SV-6 in 1983?

A I don't have any information about that.

Q Would that have been a safe work practice to order safety information on products that you were going to let your employees use?

A Would it have been a safe work practice?

Q Yes.

A Well, it certainly would have been a safe work practice, yes.

Q Doctor, assuming that Champion Medalist was aware of the warnings incorporated in the material

safety data sheet that you reviewed composed by Metal Lubricants, in your opinion, what action should Champion Medalist have taken?

THE WITNESS: You're going to have to read that to me.

(Question read.)

THE WITNESS: A It should have informed Mr. Kubinski of the potential hazards and provided him with the necessary equipment.

MR. ROTH: Q If Champion Medalist had received information such as a material safety data sheet that indicated that gloves should be warn, would it be an improper work practice not to require gloves to be worn when the product was being used?

A Depending on the use of the product. But generally I would say that probably, yes, that would be inappropriate.

MR. ROTH: I have nothing else, but I am not concluding the deposition. I have not seen Dr. Harbison's files, and specifically I have not seen the articles that he has referenced here today.

And I am reserving my right, although I'm certain it will be brutally opposed by Mr. Fogel, to re-open this deposition; and I do intend to do that

before you testify at trial, Dr. Harbison.

EXAMINATION

by Mr. Jansen:

Q Other than what you've testified to so far in this deposition today, do you have any opinions or criticisms as to Medalist Champion, Mr. Kubinski's employer?

A No, sir, I do not.

MR. JANSEN: Nothing else.

MR. FOGEL: Do you want to reserve signature to read it?

THE WITNESS: Yes, please.

FURTHER DEPONENT SAITH NOT.

* * * * *

STATE OF ILLINOIS)
) SS.
COUNTY OF C O O K)

The within and foregoing deposition of the witness, RAYMOND D. HARBISON, M.S., Ph.D., was taken before NICHOLAS W. DIGIOVANNI, C.S.R., Notary Public, at 20 North Clark Street, in the City of Chicago, on the 19th day of November, A.D., 1990.

There were present during the taking of this deposition the following counsel:

MR. ROBERT L. FOGEL,
representing the Plaintiff;

MR. PETER G. BELL,
representing Metal Lubricants Company;

MR. GARY T. JANSEN,
representing Medalist Champion Screw Company.

The said witness was first duly sworn and was then examined upon oral interrogatories; the questions and answers were taken down in shorthand by the undersigned, acting as stenographer and Notary Public; and the within and foregoing is a true, accurate and complete record of all of the questions asked of and answers made by the aforementioned witness at the time and place hereinabove referred to.

The signature of the witness was not waived and the deposition was submitted to the deponent as per copy of the attached letter.

Pursuant to Rule 207A of the Rules of the Supreme Court of Illinois, if deponent does not appear to read and sign the deposition within 30 days or make other arrangements for reading and signing, the deposition may be used as fully as though signed, and this certificate will then evidence such failure to appear as the reason for signature being waived.

The undersigned is not interested in the within case, nor of kin or counsel to any of the parties.

Witness my official signature and seal as Notary Public in and for Cook County, Illinois, on this 23rd day of November, A.D., 1990.

NICHOLAS W. DIGIOVANNI, C.S.R., Notary Public
105 West Madison Street, Suite 1802
Chicago, Illinois 60602
Telephone: 782-8376

WITNESS CERTIFICATION

I hereby certify that I have read the foregoing transcript of my deposition consisting of pages 1 through 234, inclusive. Subject to the changes set forth on the preceding pages, the foregoing is a true and correct transcript of my deposition taken on November 19, 1990.

(signed)_____

SUBSCRIBED AND SWORN TO
before me this _____ day
of _____,
A.D., 1990.

_____
Notary Public

DATE: November 20, 1990

Robert L. Fogel
20 North Clark Street
Chicago, IL

Re: Kubinski -v- Metal Lubricants

Deposition of: Raymond D. Harbison

Mr. Fogel:

The testimony in the above-entitled case has been transcribed, and since signature has been reserved, please be advised that under the Rules, the deposition will be available at our office for 28 days from the above date for the witness to read and sign.

As provided by Rule 207A of the Supreme Court Rules as amended, if after 28 days the witness does not appear to read and sign the deposition, it will be understood that signature is waived and the deposition may then be used as fully as though signed.

Our office is open from the hours of 9:00 a.m. to 4:00 p.m., Monday through Friday.

Please call to arrange an appointment when it is convenient for the deponent to come in to read and sign the deposition.

Sincerely yours,

Nicholas W. DiGiovanni, C.S.R.
PATTI BLAIR COURT REPORTERS, P.C.

C/C: Bell, Jansen