

MR. TIGAR: No. I think we can just leave it. He'll be back.

THE COURT: Okay. Thank you. Let's bring in the jury.

(Jury in at 8:46 a.m.)

THE COURT: Members of the jury, good morning.

We're ready to proceed with the taking of additional testimony in this case and call for the next witness.

MR. TIGAR: Call Michael Abrams.

THE COURTROOM DEPUTY: Would you raise your right hand, please.

(Michael Abrams affirmed.)

THE COURTROOM DEPUTY: Would you have a seat, please.

State your full name for the record and spell your last name.

THE WITNESS: Michael Abrams, M-A-B-R-A-M-S (sic).

DIRECT EXAMINATION

BY MR. TIGAR:

Q. Dr. Abrams, I'm going to ask you some questions about the effect of methamphetamine on people, but first, I'd like to talk about your qualifications. Are you a medical doctor?

A. Yes.

Q. Where did you graduate from medical school, sir?

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A. University of Iowa.

Q. When was that, sir?

A. 1967.

Q. When was the first time that you had an opportunity to treat people who had ingested or taken methamphetamine?

A. Probably early 70's.

Q. Where was that, sir?

A. At Broadlawns Medical Center.

Q. Now, what is your position today, sir?

A. My title is Director of Combined Medical Specialties.

Q. And where is the Broadlawns Medical Center?

A. It's the public county hospital in Des Moines, Iowa.

Q. Well, let me start then with your -- when you got out of medical school, did you practice -- have a family medicine practice?

A. I took a family prac -- a rotating internship at University of California-Sacramento and then went to Broadlawns Medical Center to complete a family practice training program.

Q. And did there come a time when you became Director of Emergency Medical Services?

A. That would be in August, 1972.

Q. And as Director of Emergency Medical Services, did you begin to acquire some experience in the treatment of methamphetamine usage and addiction?

A. Yes.

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Q. Will you tell the jury what -- what that was.

A. Well, in -- in emergency medicine, patients are brought there who may be psychotic or overdosed or have bad reactions from a multiplicity of medications, any addictive drugs. Amphetamines were popular in those days, and we didn't have the drug screening to detect all drugs. But that was my first experience of treating overdoses was in the early 70's.

Q. And moving then to 1975, did you have some role with respect to setting up a program about the Polk County Jail?

A. Yes. I was asked by the City Council and the Board of Supervisors Health Planning Council to devise a medical -- medical psychiatric program for the Polk County Jail.

Q. Did there come a time, sir, when you became board certified?

A. In what specialty?

Q. In addiction medicine.

A. Yes.

Q. And when was that?

A. That was in 1987.

Q. In order to become board certified in addiction medicine, what did you have to do?

A. You have to have at least five years of clinical experience in dealing with addicted patients, and then you have to have some continuing education hours of courses, and then you have to take an all-day-long board test.

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Q. And in 1990, did your responsibilities change?

A. In 1990, we were seeking -- the hospital was seeking a -- a physician who would direct the combined medical-psychiatric addiction services at Broadlawns, and I was part of that recruiting group. We didn't find anybody, so I was asked if I would take on that responsibility and give up the emergency medicine and which I did in 1992.

Q. And in 1992, did you then get the title Director of Combined Medical Specialties?

A. Yes.

Q. And what are your responsibilities today as Director of Combined Medical Specialties at Broadlawns?

A. It's to direct patient care, evaluation and diagnosis, teaching, administration, and directing programs.

Q. In addition to your responsibilities in the care and treatment of patients and in diagnosis, have you done teaching?

A. Yes.

Q. In what capacity or capacities have you done teaching, sir?

A. Medical students, physicians, nurses, physician assistants, physician assistants students, nurses, nurses students and chemical dependency counselors and then for communities.

Q. Do you see patients on a daily basis?

A. Yes.

Q. And if we were to ask you today about how many patients you have seen who you've treated for methamphetamine usage, how

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many would that be, sir?

A. Which my direct responsibility would be between 2- to 300 per year. Indirectly through the jail program, we have about 2- to 3,000 that are admitted there per year which I have overall responsibility of directing protocols and care through the physician assistants that we have there. And then in ICU and the other med/surg services and the emergency department, I provide consultations for the physicians in directing care for those patients and other patients that need my consultation.

Q. When, sir, do you -- let me ask you, do you identify a certain point in your treatment of patients, in seeing patients at which you observed an increase in the amount of methamphetamine usage we are seeing?

A. In Iowa, we started seeing some numbers in the early 90's, and in '93, it got to an epidemic type of numbers where we've seen several per week, both in the jail setting and emergency setting on the inpatient unit.

Q. And based on that, did you do further reading and study about the effects of methamphetamine usage?

A. Yes.

Q. And are you prepared to tell us about that today?

A. Yes.

Q. I'd like to place up on the machine, but for your eyes only at the moment, what I've marked as Defendant's Exhibit D6.

Would that drawing help you to explain the effect of

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methamphetamine on the brain and the central nervous system?

A. Yes.

MR. TIGAR: We offer it for demonstrative purposes.

MR. RYAN: No objection.

THE COURT: Received for that purpose. You may show it.

MR. TIGAR: All right. Show it.

BY MR. TIGAR:

Q. Doctor, the jurors are now looking at this diagram, the same one that you and I are. And it's got some scientific names of things. But can you tell us specifically what this brain reward circuit -- what is this showing us here?

A. This has come about -- just to give you some background -- out of about 20 years of neuroscience research on both animals, rats, primates, monkeys, and trying to decide exactly where addictive drugs work in the brain. So this has been many years of neuroscience research out of NIDA and NIH and out East.

Q. Doctor, before we continue, let me ask you, is it possible, in your view, to do a clinical trial of the effect of methamphetamine where you'd use human subjects and see what it does to them?

A. No. That's not allowable. It's unethical at this point because methamphetamine is a dangerous drug and it's a Schedule 2 drug, and we can't take a drug and give it to patients that are Schedule 2 at high doses.

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Q. Okay. So what we're seeing here, this is a cross section of the human brain; right?

A. Yes.

Q. Now, as human beings, do we have a mechanism that tells us that we should repeat certain kinds of behavior?

A. Yes.

Q. And for example, if -- if we eat food and we get pleasure from eating the food, do we have a mechanism that tells us, well, we should do that a certain number of times?

A. Yes. Yes.

Q. Now, can you -- can you identify using this and, using the example of eating food, how the human brain sends out the signal to us, well, time to eat again. That was a good thing for -- a healthy thing for the organism to be doing?

A. Yes.

Q. Would you please do that, sir?

A. Do I just point at this?

Q. Yes. You can just point at it, or using the pen you have there that has a wire on it, you can actually draw, reach underneath the glass and draw on the screen, whatever you would prefer to do.

A. This area in the middle part of the brain and down through here is what are called the mesolimbic system or the survival part of the brain. This -- areas right in through here, these red, green, and blue spots, these are the areas that are the

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diet center, the water center, and the sexual drive center.

Q. Okay. So the red one I'm pointing to with the pen here, the green is the little nubbin here, and the blue looks -- it looks like a little kidney bean in there.

A. Yes.

Q. Shaped thing. Okay.

A. So these are the areas that monitor what goes into our body, what stimuli come in; and this -- if this red spot here

is stimulated and we get a good feeling throughout the rest of the brain, then the rest of the brain tells this thing here, This is good, repeat this behavior. So this is a reinforcement reward behavior.

Q. Okay. And should I -- should I leave this on, or should we -- do you have a diagram that shows the production of the substance that spreads through the brain and -- and carries that message?

A. These -- the nerve cells don't have an electrical connection between the cells themselves, so we -- there is a -- a chemical called a neurotransmitter that goes from one cell and talks to the other cell.

Q. Okay.

A. And the main -- and the main --

Q. If I could stop you right there. So the cells are not

hooked up so that electrical charges pass. In order for information or for a stimulus to go from one cell to another,

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there's something called a neurotransmitter?

A. Correct.

Q. And that's -- what is that? A chemical substance?

A. That's a chemical substance, yes.

Q. And are you able, through your research, to identify what that chemical substance is?

A. Yes.

Q. Okay. What is that chemical substance?

A. That is called dopamine.

Q. Dopamine, D-O-P-A-M-I-N-E?

A. Correct.

Q. Okay. Well -- let me put up again -- take this off and put up for your eyes only -- is this a chart that was actually taken from a popular magazine?

A. Yes.

Q. But does it accurately show the release of dopamine and how it spreads through the brain and what it does?

A. Yes.

MR. TIGAR: This is D12. We offer it for demonstrative purposes.

MR. RYAN: No objection.

THE COURT: Received for that purpose.

BY MR. TIGAR:

Q. I'm going to show you the top portion here; and I know the printing is going to be too small to read on the screen, but

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what are we -- what are we seeing here?

A. This is -- it just shows what the nerve transmission is in the brain. Take two cells out of the brain --

Q. Okay. These are these two cells here; right?

A. Right. There's an electrical transmission that goes down one cell. And then these little tentacles. When it talks to the other cell, then it's a chemical reaction. That's what these little -- this spot here is in this top cell.

Q. Okay.

A. This bottom part is this bottom cell, and this little box here is what this is over here. These little red dots, those are the neurochemicals that show the transmission goes from one cell to the other.

Q. Okay.

A. And this is at a rate like 270 miles an hour. That's how rapid that is.

Q. So let's -- let's back up a little bit. If the body gets a stimulus, such as eating food, dopamine is produced; is that right?

A. Yes.

Q. And that transmits the sensation to the receiver cell?

A. Yes. Dopamine goes across that membrane and tells that

A. Yes. Dopamine goes across that membrane and tells that other cell, This is a good feeling, tells the other cells in the brain, Reinforce this feeling.

Q. Okay. And -- now, does -- what happens then to this

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dopamine that is released that tells the brain this is a good feeling?

A. The dopamine is then uptaken by this other cell and tells the cell what to do; and then whatever is left over, then the -- the brain is a good utilization of chemicals. So the original cell where it came from, it soaks it back up again to reuse it again.

Q. Okay. And is the dopamine reabsorbed?

A. That's part of it. And then there's an enzyme that breaks down that dopamine. If there's too much excreted, then there's an enzyme that breaks it down, also.

Q. What is that enzyme called that breaks it down?

A. Well, it's a fancy term, called monoamine oxidase enzyme. I mean, it breaks down amines like dopamine, epinephrine, adrenalin. Those sorts of neurochemicals.

Q. Okay. Can we call it MAO?

A. MAO would be fine.

Q. Okay. And that's the enzyme?

A. Yes.

Q. So let's -- let's go back to the dopamine. What happens if this dopamine, this chemical in your brain, keeps on getting produced, if there's too much of it?

A. Then it overrides the cells here and excites -- overexcites the brain tissue 100 plus times or more, depending on what's stimulating it.

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Q. And what sorts of symptoms would you begin to see if somebody's got too much of this dopamine in their brain?

A. One of the first signs you would see, you would start to talk fast and blah, blah, blah, blah, real quickly, and then I would start to move quicker. I would be faster, responding to things around me. I would move quickly. I would try to do a lot of things in a hurry. And the dopamine increases your sensitivity to your muscle cells, your other brain cells, makes you things do (sic) a lot more rapidly than normal.

Q. And what happens then if the MAO, the enzyme that's supposed to break it down and make it goes (sic) away -- if you inhibit that, if you stop that from breaking it down?

A. That would be another reason to increase the dopamine; and also, it makes people feel good. If you feel good just after a meal, then if you increase the dopamine, then you really -- later. You have no depression, you have no negative thoughts. Everything is wonderful. The world is wonderful. People around you are wonderful. So there's also an emotional feeling besides the motor activity.

Q. Okay. Now, I'm going to come down to the bottom part of

this chart, and let's see what cigarettes do to dopamine, just to use a drug that some people know about. What happens with -- with cigarettes?

A. Nicotine is a drug that does have activity and stimulating dopamine and serotonin and increases the sense of well-being,

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increases one's mood, makes them feel better. It gives them some stimulation.

Q. And would that -- if a person has never smoked before and they light up a cigarette, would that account for that feeling of light-headedness or giddiness?

A. That would be some of the effects, yes.

Q. Okay. Now, I'd like to put up -- let's look at the cocaine effect. What does cocaine do to you in terms of this dopamine?

A. Cocaine increases the dopamine across this membrane by blocking the re-uptake after it goes into the cell. It blocks this uptake into the cell, so it increases more dopamine across this membrane here.

Q. And that -- does that account for the cocaine high?

A. Yes. It also increases norepinephrine and dopamine and serotonin. But dopamine is the main drug it increases and gives the euphoria, the high feeling.

Q. Okay. Now I'm going to move over to amphetamines. See if I can put this up here. Now, what -- do amphetamines operate the same as cocaine?

A. They have the same impact, increasing dopamine, but they do it by different mechanisms.

Q. All right. What's the mechanism by which methamphetamine operates on this hypothetical brain or this model of a brain cell here?

A. Dopamine -- methamphetamine works on this part of the nerve

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cell to increase these dopamine vacuoles directly. It is thought to increase the synthesis. It also tends to block this MAO enzyme that we talked about earlier. It damages the cell membrane here to release more. More dopamine. And if you have so much dopamine in the system, then it stops re-uptake, just the fact there's so much. It overrides the cell and goes out into the other parts of the brain tissue.

Q. Now, sir, what kind of a dosage of cocaine does -- does it take for a person to get that cocaine high?

A. It depends on how many times they use it and what their genetics are. But if an individual would take maybe that 30 milligrams of cocaine, the first time, they would get a feeling of high or euphoria like if someone smoked a couple cigarettes, the first time, they might feel giddy and high.

Q. All right. And what is the difference in terms of effect between cocaine and methamphetamine?

A. The cocaine isn't as potent a stimulator of the dopamine as the methamphetamine. The -- if you call it equivalents, then

methamphetamine may be 10 to 20 times more potent per dose to increase the dopamine chemical in the brain cells.

Q. And in terms of -- is -- is methamphetamine addictive, in your opinion?

A. Yes. These are -- "addictive" is an old term. We -- with this new research, we're looking at terms like "reinforcement reward system." When these drugs are put into the brain and

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these -- the cells want this drug back so we call it "reward reinforcement circuitry system." In the old terminology, that would be an addiction terminology; that this drug will addict the brain. It addicts each individual cell in that red spot that we talked about earlier.

Q. Do you do teaching of law enforcement people and family members, other people, about what the symptoms are of this methamphetamine usage?

A. Yes.

Q. And have you prepared a chart about the effects of methamphetamine usage?

A. Yes.

Q. All right. I'm going to show you what -- first for your -- only. What we've marked as Defendant's Exhibit D10. Is that the chart that you prepared?

A. Yes. This is one of the charts.

MR. TIGAR: Okay. And we offer that for demonstrative purposes.

MR. RYAN: No objection.

THE COURT: Received.

BY MR. TIGAR:

Q. Now, Doctor, what we are seeing on the screen, you've titled "Malignant Methamphetamine Addiction Syndrome," and could you go through the parts of this and explain to the jury what is this green arrow here?

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A. When we talk about addicting drugs and causing a rush, when a person takes a -- smokes a drug that's addictive, like methamphetamine or cocaine, if they inject it, they get a rush. They may get increased blood pressure, pulse. They feel high. It may last anywhere from 8 to 10 minutes to an hour or two. It's a real high, intense feeling; and that feeling kind of levels off and they feel euphoric and good, and that's what these signs and symptoms on the left side is. And this is the dopamine levels in the brain. As the dopamine levels go up, then these signs and symptoms go up in that individual.

Q. Now, how -- how do people take methamphetamine? What do they -- how do the users put it in their body?

A. They put it in different methods. Eating it, drinking it, snorting it, smoking it, injecting it.

Q. Okay. Now, in this chart -- so this line across here, that's the normal level of dopamine, right?

that's the normal level of dopamine; right?

A. That would be --

Q. Is that what it is?

A. The normal background that we all would have.

Q. Right. And that's as -- as you explained, that's part of our -- the body telling us what kind of behavior we ought to engage in in order to procreate, keep ourselves fit, keep enough water in the system and so on?

A. That would be correct.

Q. Okay. Now, as a person ingests on this up level here, you

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have the word "paranoid." What does that mean?

A. That's an effect on the brain where people get hypervigilant, hypersensitive and they see things that aren't there or they feel they are being followed. And it's a very pervasive symptom because it disturbs the person's life, every minute of the day. And they usually seek medical or psychiatric attention for that symptom if it's that bothersome, but it's usually they see things that really aren't there, but the brain perceives them as they are really there.

Q. And you've got a list of things here. Can you just read those off and tell us what those mean, going up the chart, starting with "increased energy."

A. Well, as we increase the dopamine levels small amounts at a time, we have increased energy and this euphoria, this good feeling. You may not sleep for a day or two. Hyperkinetic is motor activity where the arms and the legs and the tongue and everything is -- moves quicker and faster.

As you move up beyond that, what we call the -- the preaddictive level, then you can get into the danger, malignant part of methamphetamine. And this is indeed malignant because this is where people kill themselves, they kill other people, there's domestic violence. They will do very strange and weird things and -- and my terminology, people get killed or hurt in this phase; and this is -- this is malignant phase.

Q. Now, that -- you've then -- you have your green arrow that

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goes up, and then you have this red jagged line here. And the green arrow, is that the rush, the quick high?

A. That's the quick high.

Q. Okay. And then the red, you say "tweaking." What does that mean?

A. This is just a -- it's not a medical term. "Tweaking" means the people are amped like an amplifier. You tweak an amplifier, you turn it up and it's very intense. And the individual may run out that dose of methamphetamine, for 4 to 12 to 36 hours; and their mood may go up and down, and they may want to crave more drug. They may have a mood change, all within this tweaking period. And different times and different people tweak in different ways, depending on how long they have been on the drug and how much dose they have taken.

Q. Let me stop here for a minute. You say that the dose takes a certain amount of time. For comparison, if somebody smokes a cigarette, a person that doesn't smoke very much, how long does the dopamine cycle that a cigarette produces last?
A. It may last three or four hours, two to four hours.
Q. And how about if a person ingests cocaine? How long does that effect last?
A. That may last eight to ten minutes.
Q. Okay. And how about a person who ingests methamphetamine?
A. That may last four to 24 hours.
Q. Now, is methamphetamine a more economical drug for the

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abuser than cocaine?

A. By economics, you mean how much they spend?

Q. How much they spend for it.

A. The current pay for a gram of cocaine and gram of methamphetamine is like \$100. And that would be like three Tylenol tablets, so this is part of the reason why the am -- methamphetamine is increased. It is "economical," quote, unquote, and they can buy a gram of methamphetamine that may last them all week. If one buys a gram of cocaine, it may last them just a few hours.

Q. And is it possible to make methamphetamine in a -- in a fairly unsophisticated laboratory?

A. Yes.

Q. And cocaine is derived, though, from a plant, isn't it?

A. Yes.

Q. And that -- that's a plant that's grown mostly outside the United States?

A. Yes.

Q. Now looking at this red line here, what does that describe, this jagged, red line?

A. The amounts of dopamine are still fluctuating on -- because there's still meth effect in the brain. It's not -- there's not a real smooth effect. Like you might see from a high-blood-pressure pill, there might be a smooth effect. With methamphetamine, your mood usually goes up and down. Again,

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this is based on patient behavior, not on patient drug study in the brain. So the -- the -- they become what we call cyclothymic. They become moody, and they may feel good and depressed all within a few hours. They may have mood swings. So this is what this line is trying to show that individuals when they're -- when they're coming off the meth and when they are high and coming off, that these levels are moving up and down. It's not a nice, steady flow or nice, steady feeling.

Q. Okay. And then you've got a blue arrow; and that -- you say the crash. Is that what happens if you don't get any more?

A. If -- if the individual has burned themselves out taking methamphetamine, they have depleted their dopamine and they

can't get another source of medication or source of methamphetamine and they have been on -- a run for several days or several weeks, we call that a crash, meaning that the individual just slows down and sleeps and then wants to eat a lot of food and maybe a little bit irritable, but they feel like they have got ten cases of the flu. There's all different kinds of descriptions of how people feel when they come off the methamphetamine, and those symptoms are due to the dopamine depletion in the brain.

Q. And the green line is what, starting over again?

A. Yes. No one wants to feel that way, anxious, sad, or depressed, so they -- that is the reward cycle. That starts up the -- to take the drug again. And then this repeated cycle

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over many times, then that's what we say starts the addiction component of the brain change.

Q. Sir, I'm going to show you another chart -- again for your eyes only -- that I've marked -- we've marked as Defendant's Exhibit D5. Now, it's kind of hard to read, but is that a chart that you prepared?

A. Yes.

Q. And is this -- have you been working on this chart for a long time?

A. About three or four years. I update it every three or four months.

Q. So it's gone through a number of drafts; is that right?

A. Yes.

Q. Is this your latest draft of your chart?

A. This is my latest one.

Q. Would that help to illustrate the process of effect on the brain of continuous methamphetamine usage?

A. Yes. This is to depict the natural history of the disease process from the beginning to the end of methamphetamine.

MR. TIGAR: We offer it for demonstrative purposes.

MR. RYAN: No objection, your Honor.

THE COURT: Received for that purpose.

BY MR. TIGAR:

Q. Now, I'm going to zoom in on parts of it. But looking here, we've got a yellow, a green, a magenta, and a sort of

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burnt orange here and then an upward arrow. What -- what generally does this represent?

A. As physicians, we like to categorize disease processes to simplify for patients where they are at in that process, and it also is used as a diagnostic tool with patients so you can show them the graph and you ask them where you're at on this disease process.

This helps in making the diagnosis, patient education, and then for treatment process. Somebody in this stage, obviously, is -- Stage 1 -- is not going to have as much

difficulty as the person in Stage 4 in treatment.

Q. Right. Now, Stage 1 of methamphetamine usage, we see some things like stronger, alert, high energy, increased socialization. Those don't look all bad.

A. No. This is the honeymoon phase of methamphetamine. This is the feel-good phase.

Q. Now, what -- a person in this phase, would they be able to -- would they be able to go to work and work in a job?

A. Yes. This would be a housewife who wants to get everything done and go to three or four meetings and be home at night when the husband gets home and everything looks fine, the house is cleaned up, the truck driver that may want to go extra hours or the double-shift person that wants to work longer. In this phase, it increases their total performance.

Q. How about somebody that worked in a store or an office?

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What would their employer notice about them in this stage?

A. They would maybe get to work earlier in the morning. They would get organized and get their work done. They may be losing weight and people around them would say, you're looking much better. You're -- you're trimming up. And you get a lot of social reinforcement in this phase.

Q. All right. Let's turn over now to Stage 2. Across this whole process -- that is to say, from a Stage 1 to the -- the symptoms that you've talked about before such as delusions, hallucinations -- how long does that take? Or can it? Within a range? Because I understand we're not talking about any particular person here. Just in your experience.

A. In this area here, small doses, they usually do not have hallucinosis and paranoia. Again, depending on the genetics of that individual and what other addictions or what other illnesses they have, they can just be "normal," quote, unquote. They may get delusional on a first dose. Usually, though, that is not true. The delusions and paranoia usually start in the Stage 2, to 3, to when they get their doses up to a gram or 2 grams a week.

Q. You talked about genetics and age. Are there certain ages at which one is more susceptible to these adverse effects such as delusions, hallucinations and so on?

A. The most vulnerable time, adolescence when the brain is trying to differentiate who it is and who the person is. And

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if they take medicator -- or methamphetamine during these times, small doses can make adolescents more delusional than, say, a 35-year-old adult.

Q. What do you identify as the adolescent period in terms of age?

A. 12, 13, to 17 to 18.

Q. Okay. And what about people in the 20's -- in their 20's?

A. They may be able to tolerate a little bit more drug because the brain has more maturation after age 21

THE BRAIN HAS MORE MATURATION UP TO AGE 21.

Q. And does methamphetamine interact with other things like painkillers?

A. Yes. They would -- painkillers also enhance dopamine. So methamphetamine would enhance -- they would enhance each other.

Q. So if a person were taking painkillers for some chronic condition, that interaction might occur?

A. That would occur, yes.

Q. Would occur. All right. Let's go back in to Stage 2. Just would you go down these symptoms. Positive reinforcement of meth. Is that what you were talking about before; that is, you -- the honeymoon period?

A. Yeah. They -- they really got a tremendous impact on those smaller doses, so if -- part of it is if the smaller doses really made me feel this good, then I would want to take a lot more so I could feel much better. Part of that process -- this is where the addiction phase starts, in this green area, in

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that the brain is trying to shut down the dopamine so the person has to take more methamphetamine to get more dopamine to get that original euphoria.

Q. Now, the next one you have down is stay awake for days. Assume that -- well, I don't assume. At some point, if you had an all-night methamphetamine situation, does the body crave sleep?

A. If you're on the methamphetamine, the dopamine is going, they wouldn't crave sleep. The dopamine is -- is running the person.

Q. And if the -- the level of dopamine then decreases, would the body crave sleep?

A. Yeah. As the dopamine goes down, yes, the body would want to sleep, its normal circle.

Q. During the time that your -- that the body is under the influence of this drug, what happens to memory of events that you saw during that time?

A. There is a -- several cognitive factors that are involved.

Q. You say cognitive factors?

A. Cognitive or intellectual thinking --

Q. Okay.

A. -- higher-brain centers or aptitude, performance, may be blurry in that they may not be able to do the things they did yesterday, remember what they did yesterday. Their aptitude may not be as good as it was, say, two weeks ago or three weeks

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ago when they get into a higher use of methamphetamine.

Q. Now, when a person -- if a person is off the methamphetamine and finds that there are holes in their memory, does that happen?

A. Yeah. And in alcoholics, we call those blackouts, and methamphetamine, we call them whiteouts. And what happens like with alcohol and other addicting drugs and with meth, the

higher brain centers aren't being contacted by this middle part of the brain. Now, this is not scientifically proved by a PET scan. It's just by clinical experience. You will talk to these individuals in this area here and the family will say all these things are happening, and the individual says no, they are not, they are not happening. I'm not having any of that activity. So they may not remember events that you were over to my house two weeks ago or you did this and this and this and they say, no, I didn't do that, I wasn't there or you didn't see me do that. When this is -- this is when they are actually tweaking or high on the methamphetamine. So this is what we mean by a whiteout. In alcoholism, that would be a blackout.

Q. And is a person who has had such an experience more or less subject to suggestion to fill in the gaps?

A. I'm not sure I understand that -- the question. That if the relatives would have to fill in what happened to him that night?

Q. Yes, sir.

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A. That's -- when we do commitments, this is usually what happens. The relatives will say these things took place and the person doesn't remember it. They might have hit somebody or choked somebody, and the family members are very afraid of this individual and they would do a commitment on this person to get them into treatment because they try to talk to them and the person says, I didn't do all those things. You're -- you know, you've got a problem. I don't. So the family may commit those individuals. So -- by going through that process, and the family members would have to fill in some of those gaps that they -- they didn't remember a couple weeks ago.

Q. So we have -- in this then, increased performance, longer working shifts, loss of weight, hyperactive, neglects certain duties, change of friends, obsessing, lying, memory loss; correct?

A. This is -- as you go from this Stage 1 into Stage 2, then it starts increasing and it goes on to Stage 3. So this is where the brain starts losing function. There is some cellular chemical damage by the methamphetamine. So now we're getting into the stage where the chemistry is now changed in the brain so the individual now is -- is presenting with signs and symptoms of methamphetamine brain effect. And this is a chemical change. This can revert back to normal when they stop the drug. The brain can heal. This is still a reversible stage of methamphetamine.

Michael Abrams - Direct

Q. Now, move on to Stage 3. And you've got another list of symptoms: obsessive, irritable, argumentative, short tempered, paranoia, suspicious, impaired work performance, physical health changes, denial, making excuses, impulsive, antisocial behavior, easily aggravated. Now, I'm going to ask you just

about some of those. What, in your observation, happens to the vocabulary of the -- working vocabulary of a person that's in this methamphetamine cycle?

A. This area is what we call the brain dysfunction area. It's separated from these previous two areas. Now a lot of areas in their life are troubled. And when they have these -- these are not all of them. These are the main ones that people come in or families bring them in, they have the multiple signs and symptoms; and this is the most common ones they have. And this, again, is a -- this is an area where there is cellular damage. It may or may not be reversible at this point.

Q. Okay. But I was asking, you sir, what happens to vocabulary. How -- how do people start to talk?

A. The vocabulary would get more narrow perspective, because what is thought with PET scans -- and there are some clinical work with cognitive and memory when -- when people are on addictive drugs, it kind of bicircuits the cortex where all your vocabulary and a lot of your memory are, that now, the -- the meth and addictive drug works in the brain stem and goes to the frontal part of the lobe and kind of bypasses some of these

Michael Abrams - Direct

other areas. And these are the kinds of signs and symptoms they have, so their language gets pretty narrow into all -- where all these areas are. The -- as the methamphetamine takes over the brain function, they lose their social, family, job, vocabulary, aptitude, intelligence, and they get pretty narrow. And what their world revolves around is getting the drug in their life on a daily basis.

Q. And by you saying "narrowing the vocabulary," what kinds of vocabulary are you likely to hear then?

A. Well, there's -- I guess in American language, you get more little four letter words or swear words, easier to come out. When we see them in the hospital, they -- they will swear at me or call me names. They may not be able to carry a -- a conversation about, you know, what they were doing two years ago if they were in a job or school. They may not be able to carry a good conversation about what they do, how they did it, about finances, so they are -- in my impression, their language gets very narrow, to short sentences, not long elaborate sentences, and to what our clinical knowledge of this is that it impairs the cortical thinking process.

Q. And what happens to their lifestyle, their house, their dress, their appearance?

A. All these become not important as begin -- remember, we talked about the brain wants the drug, so that's the priority when they get up. And what we -- we've done videotapes of

Michael Abrams - Direct

houses where people run methamphetamine, and they have -- their boundaries become less in the household. They don't do the normal things around the house. It may be neglected. It may not be clean. They may tear out curbside and tear out floors

not be clean. They may tear out cupboards and tear out floors. They may tear receptacles out of the sockets because they think they are bugged or they're paranoid. They may disconnect tubes from the furnace because they think there's people in them, watching them. They may stack their clothes different parts of the house. They don't use dressers.

There may be broken windows and it's wintertime, and there's heat going out the window. And they just turn up the furnace. They don't fix the window. There's what we -- when we do these videotapes or take pictures -- this is like through child protective services, because there may be children when you have to prove to DHS that there's a danger and neglect of children in these houses when the mother and father may both be on methamphetamine.

Q. And in your experience, has the -- have you been contacted by the federal government, by the United States, to share your experience with methamphetamine addiction?

A. Yes.

Q. In what -- when was that and what did you do?

A. The earliest thing was a year ago, March, I got a phone call from Janet Reno's staff who went over for like an hour, hour and a half, some of the methamphetamine issues in Iowa.

Michael Abrams - Direct

And then I got a call from Senator Grassley, who's a senator from Iowa; and in that same summer, we did a -- with the staff, we did a whole book on methamphetamine for Iowans.

This past spring, I talked with -- McCaffrey, the Drug Czar, came to Des Moines. We had a session there. He gave a talk. I was asked by his staff to present -- I have about a 60-page document on methamphetamine, and some of these are these handouts to send to their office to disperse for training throughout the United States.

Q. Now, in a -- in an average young person in their 20's, how long do you expect to see it to take to get from, say, this first stage, the honeymoon period, into the Stage 3, the magenta, with these symptoms? About how long a time?

A. That's again -- that varies on the genetics and what other addictions and what other diseases that individual has. But that may take just months, two to three months to six months. Again, that's -- there's no clinical studies that say exactly. But the shortest I've seen was a couple months, depending on the doses they were taking.

Q. And is it possible, if you can get somebody off the drug, to put them back on the path of -- you know, not using it?

A. Yes. In those -- those individuals that have short-term use, the brain cells are reversible. They may not have permanent damage.

Now, if they have delusions and hallucinations,

Michael Abrams - Direct

usually, that means there has been some chemical damage to the cells, so that person then may -- even though they are off the

drug for four or five years, they may get a stress in the future. If they've got a lot of stress in their life, they may have a flashback of that paranoid feeling, so there is some mild damage; but that's not going to impair their life. They should be able to come back and function fairly well.

Q. And if a person was having a perception of the world during the time that they were high on meth and an intense user, how does the brain store that perception? Is there a device in the brain to get back an accurate view, or is that perception just always going to be that way?

A. That's never been clinically studied with methamphetamine at this time. In normal studies, it is very difficult to study where memory is stored; but the new neurobiology of memory, that there's about six places or seven places in the brain that help store memory. And depending on if there's damage to any of those areas, then memory may not come back at all, or may be dissociated.

MR. TIGAR: May I have a moment, your Honor?

THE COURT: Yes.

BY MR. TIGAR:

Q. And one final area, sir. If -- if a user, along this cycle we've seen, begins to deal the drug, either to sell it or to give it away, is -- is that an important fact in your

Michael Abrams - Direct

evaluation of an individual?

A. Yes. This -- this means that the person is more desperate and has now lost maybe their ability to stay on a job or stay at work or be with working friends or partners at work; that they are usually fired -- they don't -- usually, they aren't fired. They just leave their job because they know they are not getting to work on time, their performance isn't good, so they usually don't stay on a job. So to make ends meet, then they usually become not a big dealer, but they do deal the drug because they need money and they need the drug; but also, they develop a new set of friends. And usually, those friends are drug-addicted friends; so they set up a new social relationship. They lose all their non-drug-using friends, so part of that morality of that group is to trade the drug and sell back and forth and any other goods that may go along with the drug. There may be sexual activities that are sold or traded with the methamphetamine, HIV, pornography. All these things can go on with the methamphetamine drug-selling trade to make money.

MR. TIGAR: Thank you very much for coming today.

Pass the witness.

THE COURT: Mr. Ryan.

MR. RYAN: Excuse me just a moment, your Honor.

THE COURT: All right.

CROSS-EXAMINATION

Michael Abrams - Cross

BY MR. RYAN:

Q. Good morning, Dr. Abrams. My name is Pat Ryan. I'm the U.S. Attorney in Oklahoma City. How are you?

A. Just fine.

Q. We've not spoken.

A. No.

Q. And if I were to research your writings in the medical literature under Medline Search or some other form of medical research, would I find any?

A. No. I've not published anything on peer journal.

Q. Have you written anything on the subject of methamphetamine?

A. Yes. Just locally.

Q. And what have you written on the subject of methamphetamine?

A. Just some of the general effects of methamphetamine that --

Q. I'm sorry. Excuse me. I mean what publications have you written in.

A. Just the local Polk County Medical Society.

Q. And when did you write such an article?

A. That was last year or two. I'm not sure what year it was.

Q. Can you give me a year?

A. I would say '95, '96.

Q. And what was the subject of your article?

A. Methamphetamine, malignant methamphetamine syndrome. That

Michael Abrams - Cross

should be on a web page at Polk County Medical Society.

Q. What is the main town in Polk County?

A. The main --

Q. The city or town.

A. Des Moines.

Q. Des Moines. Now, you've told us that one of the appeals of methamphetamine is that it causes, in some people, a sense of euphoria.

A. Yes.

Q. And an increased alertness?

A. Yes.

Q. And you've told us that many truck drivers use methamphetamines; is that true?

A. Yes.

Q. And they don't move on to these Stages 2, 3, and 4 like you've told us about, do they?

A. Some do, yes.

Q. But many don't; is that right?

A. That's true, yes.

Q. I mean, it's highly variable?

A. Yes.

Q. And so when you were answering questions about it moving -- you know, it takes three months to go from Stage 1 to Stage 3 or Stage 2 to Stage 4, you're talking about in some people?

A. Correct.

Michael Abrams - Cross

Q. Not in all people?

A. Depending on what dose they stay on.

Q. Because it's highly variable?

A. Yes.

Q. In fact, wouldn't you agree that a very few -- very small percentage of people move to this Stage 4 that you spoke to us about?

A. All the people I see are in this stage.

Q. I appreciate that. You're in a different setting. You're in a jail setting frequently where people are in the court system because of their meth use. I'm talking among all users of meth: Wouldn't you agree that a relatively small percentage reach this Stage 4 that you spoke of?

MR. TIGAR: Object to "small percentage."

THE WITNESS: I don't know if I can answer that. I don't know that answer.

THE COURT: Just a moment. We have people talking here --

MR. TIGAR: Objection to "relatively small percentage," your Honor. The question is vague.

THE COURT: Overruled. You may answer.

THE WITNESS: The question once again?

BY MR. RYAN:

Q. My question simply was: Would you not agree that a relatively small percentage of people ever reach that Stage 4

Michael Abrams - Cross

that you spoke to us about?

A. It's in the -- it's in the thousands in the United States, or more that I know of.

Q. I understand, sir. We have 260 million people living in America. My question simply is: Would you agree that among the people that ever used meth, a relatively small percentage reach this Stage 4 that you've spoken to us about?

A. If we say that there's probably 4 million people that we know are on the drug and maybe 10 to 20 percent of those are Stage 3 and 4, that would be a correct answer.

Q. All right. That's -- that's all I was asking about. 10 to 20 percent are in Stage 3 or 4. Now, what part of that percentage is in 4, as opposed to 3?

A. I would not have -- there's not been a clinical study that I -- that I know of.

Q. It's certainly smaller than 10 or 20 percent?

A. Yeah. It would be a smaller amount than 20 percent, definitely.

Q. You've also told us, I believe -- you've said that -- did you say that methamphetamine was addictive?

A. Yes. By the reinforcement system.

Q. Now, it's not physically addictive, is it?

A. Physically is -- "physically" and "psychologically" are older terms, and the newer terms are trying to -- any drug that reinforces in the brain is a -- a drug that the brain wants

Michael Abrams - Cross

back again.

Q. Is methamphetamine physically addictive?

A. You'd have to define what that means.

Q. You're not familiar with that term?

A. I don't use that term anymore. That was an older medical term.

Q. It is a current medical term, though? It's used every day, is it not?

A. Usually, it's a term that means with people with narcotic addiction or alcohol, that they would have a seizure when they come off the drug.

Q. All right. And using that definition, is methamphetamine physically addictive?

A. Not usually for that drug.

Q. And you've also told us that adolescents are most vulnerable; correct?

A. Correct.

Q. Now, you've told us that low-intensity -- or have you -- low-intensity abusers or users of methamphetamine, they frequently swallow it or snort it? Is that what you said?

A. That's one way they can take it, yes.

Q. And that's the lower end of the abuse cycle; is that correct?

A. Those individuals in the low end probably would just snort it or take it by mouth.

Michael Abrams - Cross

Q. I mean, the higher users would more likely inject it than a low user?

A. Smoking and injecting are probably the two best ways to get higher amounts of it in the body the quickest.

Q. So you would typically find with the high user injecting or smoking and the low user would be more in the snorting range; is that correct?

A. The trend now is for smoking, for kids to start off smoking now.

Q. So you would not agree with what I just said?

A. Yeah. Just in the last year or two, there's more available drug to smoke and it's easier to smoke it.

Q. Have you -- you were telling us about the fact that the Department of Justice had once called you. Have you ever been listed as a reference for any publication by the Department of Justice?

A. Not that I know of, no.

Q. Or by any publication by the Drug Czar?

A. Other than just the work that we did, no.

Q. Excuse me?

A. Other than just sending the materials that they wanted.

Q. But if we had the Drug Czar's publications here, would we find your name?

A. I don't know if it would be on there or not for --

Q. Have you ever met the Drug Czar?

Michael Abrams - Cross

A. It was in Des Moines. We were at a conference and we ate breakfast with him.

Q. You met him at a breakfast?

A. Yes.

Q. Have you ever been a paid consultant of the Drug Czar?

A. Not a paid consultant, no.

Q. Now, you talked briefly about blackouts. And you've used the term, Well, with drugs like methamphetamine, it's a "whiteout." What you're really talking about is a loss of consciousness; right?

A. It's a loss of memory.

Q. For that period.

A. They --

Q. For the period that they are unconscious?

A. No. It's -- it's a loss of memory. They are not unconscious. They may be doing things and acting things and normal activity, but they don't remember what they have done.

Q. All right. So it's just a forgetting for a period of time?

A. Right.

Q. All right. Now, I think you've also told us that the effect of this drug differs widely with the person.

A. Yes.

Q. The genetics enter into that, family history enters into it?

A. Yes.

Michael Abrams - Cross

Q. Most clearly, the dose that they take enters into it; correct?

A. Yes. Yes.

Q. But without knowing all of those factors, one could not make any supposition about what it might do to a given person; fair?

A. On low doses.

Q. I mean, if you don't know their genetics, you don't know the family history, you don't know the amount that they are taking, there's no way to generalize as to what the effect will be on a given person?

A. I think I understand your question.

Q. Is that fair, sir?

A. Yes.

Q. There have been very few studies, I gather, to determine these effects?

A. Correct.

Q. And you talked about a psychosis that sometimes develops, but you would agree with me that at least 96 percent of the time, this psychosis would clear up in a -- in a matter of days or a couple weeks?

A. Yes.

Q. Now, you spoke of -- when were you first employed in this case?

A. I -- it was last year sometime. I don't know the exact

Michael Abrams - Cross

date.

Q. I'm sorry. I couldn't hear what you said.

A. Last year sometime. I don't know the exact date.

Q. Last year being 1996?

A. No. It would -- it would be '97.

Q. Can you help us with a month?

A. I -- I have so many things going like in practice, I wouldn't -- I can't give you an exact time.

Q. I'm not asking for a precise date.

A. Summer of '97.

Q. Summer. And what were you asked to do? To talk about methamphetamine?

A. Yes.

Q. Okay. And one of the things that you did right off the bat was you contacted an expert in methamphetamine. Is that fair?

A. Yes. I do that on a regular basis.

Q. All right. But you're not a psychiatrist; correct?

A. No.

Q. You don't -- you're not a neurologist?

A. No.

Q. You're -- your training is in family practice?

A. Family practice and emergency medicine.

Q. And you contacted a Dr. Ellenwood; is that correct?

A. Yes.

Q. And that was on September 16 of 1997?

Michael Abrams - Cross

A. Right.

Q. And who is Dr. Ellenwood?

A. He's a physician.

Q. He's a psychiatrist?

A. Yes. Right.

Q. And where does he practice?

A. I think in North Carolina.

Q. At Duke University?

A. Yes.

Q. You called him?

A. Yes.

Q. Because you wanted to know more about what Dr. Ellenwood thought about the effects of methamphetamine?

A. Yes. I've seen what clinical studies he had done.

Q. Who else did you call?

A. At NIDA. I have -- my name is at NIDA. I have talked with Jerry Frankenheim in the last couple of years, trying to find people in the United States that are doing PET scanning on people on methamphetamine. So what I was trying to find is the actual research with PET scanning and how much had been done in

actual research with PET scanning and how much had been done in the United States and Japan.

Q. You said something, I believe, in your direct testimony about methamphetamine affecting memory. Did I hear you correctly?

A. Yes.

Michael Abrams - Cross

Q. Can you cite me to any study that says anything about methamphetamine affecting memory?

A. There's only -- there's one article recently in the Journal of Pediatrics that talks about memory in the last couple months.

Q. Do you have that with you?

A. Not right here, no.

Q. Dr. Ellenwood, who you called, you consider an expert; correct?

A. Yes.

Q. Do you agree with the statement of Dr. Ellenwood to the -- is as follows: "In spite of great individual variability, amphetamine psychosis usually produces --"

THE COURT: Just a moment.

MR. TIGAR: If this is a learned-treatise exception, no objection. Is that what this is?

MR. RYAN: Yes, of course.

THE COURT: All right. Go ahead.

BY MR. RYAN:

Q. "In spite of great individual variability, amphetamine psychosis usually produces a fairly distinct syndrome characterized by delusions of persecution, ideas of reference, visual and auditory hallucinations, changes in body image, and hyperactivity and excitation -- ex -- e-x-i-c-a-t-i-o-n -- but disorientation and clouding of memory are not part of the

Michael Abrams - Cross

picture."

A. That was amphetamine. That's not methamphetamine.

Q. They are the same family, aren't they, Doctor?

A. They are different on how they affect the brain cell.

Q. Have you done any research on either amphetamine or methamphetamine?

A. Not bioscience research, no.

Q. You -- you haven't done any bioscience research; correct?

A. No.

Q. You haven't done any animal studies?

A. No.

Q. There are no human studies?

A. No.

Q. And you haven't written anything on this subject except in the Polk County Society; correct?

A. And the document I have.

Q. Well, Dr. Ellenwood spoke to you. He told you, didn't he, that there were no memory problems?

A. I don't recall he said that. We were -- he wanted me to send him the cases that I had. Maybe joint-publish something.
Q. Did you do that?
A. I haven't done that yet, no.
Q. Now, you also told us that you were board certified in addictive medicine; is that correct?
A. Yes.

Michael Abrams - Cross

Q. Now, many of us are familiar with the term "board certification." We know doctors who are board certified in obstetrics and gynecology. I'm sure you do.
A. Yes.
Q. They are board certified in neurology; right? You know people like that?
A. Yes.
Q. Board certified in psychiatry or neurology?
A. Yes.
Q. And that is -- that's the kind of certification that we know of as board certification -- is done by who?
A. By the American Board.
Q. Excuse me?
A. The American Board Association. It certifies individuals.
Q. American Board of Medical Specialities, isn't it?
A. Yes.
Q. Now, is that what you're talking about when you say you're board certified?
A. I'm -- the board certification is different with addiction medicine, in that it doesn't have a residency.
Q. And you're not sort of -- there's no such designation by the American Board of Medical Specialities, is there?
A. We -- to my knowledge, the Addiction Medicine Society is aiming toward that goal.
Q. But there's not one currently, is there?

Michael Abrams - Cross

A. Right.
Q. Now, I looked through your resum, that was -- Mr. Tigar was kind enough to provide; and it does talk about a Polk County Medical Society bulletin of April '96, styled, "Malignant Methamphetamine Addiction Syndrome."
A. Yes.
Q. Now, is that the article you were telling me about earlier?
A. Right.
Q. Now, you didn't write that article, though, did you, Doctor?
A. Yes.

MR. RYAN: Well, may I approach the witness, your Honor?

THE COURT: Yes.

BY MR. RYAN:

Q. Let me show you. It's styled, "The Bulletin, April 1996."

A. Yes.

Q. And is that the article you're speaking of?

A. Yeah.

Q. Okay. This is an article about you, isn't it?

A. Some of it, yes.

Q. Did you write the article about you that appeared in the Polk County bulletin?

A. Well, they asked me to fill in what I've been doing in this area.

Michael Abrams - Cross

Q. This is certainly not a research article?

A. No. This is just a news article on the syndrome, to bring it to attention of the Society and the physicians.

Q. Now, you used the terms -- just a moment.

You used the term, "Malignant methamphetamine addiction syndrome. Did I hear you correctly?

A. Yes.

Q. Well, I brought a copy of a medical dictionary with me, Dorland's Illustrated Medical Dictionary.

A. Yes.

Q. You're familiar with that, aren't you?

A. Yes.

Q. Would I find that term, "malignant methamphetamine addiction syndrome," in this dictionary?

A. No.

Q. Would I find that term in any of the materials by the Drug Czar?

A. Not by the Drug Czar. The stuff that I sent them, it would be in there.

Q. Excuse me?

A. The stuff that I sent them, it was in there.

Q. That's your terminology that you've coined?

A. Yes. Yes.

Q. That's not terminology that's used by the Office of the National Drug Policy?

Michael Abrams - Cross

A. Not to my knowledge, no.

Q. Or by the Drug Czar?

A. Right.

Q. Or by Dorland's Medical Dictionary?

A. Right.

Q. Excuse me. You've also used a number of other terms: progressive methamphetamine addiction syndrome. Did I hear that correctly?

A. Yes.

Q. I wouldn't find that in here, either, would I?

A. No.

Q. In the Dorland's?

"Methamphetamine frontal limbic psychosis." That's another term you use?

A. Right.

A. Right.
Q. I wouldn't find that in here?
A. That's not in a dictionary.
Q. Progressive violethal syndrome?
A. Yes.
Q. I wouldn't find that in Dorland's.
A. No.
Q. But you are -- are you not, Doctor, familiar with the DSM-IV?
A. Yes.
Q. Tell us what the DSM-IV is.

Michael Abrams - Cross

A. It's a coding for psychiatrists to list behaviors and by going over thousands of different patients with different diseases, to codify them into a diagnostic terminology that physicians can make history and physical exam or mostly history and behaviors and then put a diagnosis on that individual.
Q. It is the authoritative source, is it not, for the diagnosis of psychiatric conditions?
A. Yes.
Q. And it has a section in here that deals with substance-related disorders?
A. Yes.
Q. Is that correct?
A. Yes.
Q. And it has a section in here on amphetamine-related disorders?
A. Yes.
Q. You're familiar with this document, aren't you?
A. Yes.
Q. Most physicians are?
A. Yes.
Q. And none of the terms that you've used here are in this DSM-IV, are they?
A. No.
Q. There's no such disease described in the DSM-IV of these amphetamine-induced disorders that you've told us about?

Michael Abrams - Cross

A. There is amphetamine disorders listed in that book.
Q. Not the ones you're talking about?
A. Not methamphetamine, no.
Q. There's nothing in here that talks about memory loss associated with amphetamine or methamphetamine use, is there, Doctor?
A. I would have to look under the memory section to see some of those defects. But no, I don't believe methamphetamine is listed in that -- in that document. That's three years old.

MR. RYAN: May I approach, your Honor?

THE COURT: Yes.

BY MR. RYAN:

O. There's a listing of svmptomatology on page 312 of the

DSM-IV. Would you like to review that to see if there's anything in there about memory loss?

A. I would comment that from my understanding, there would be not anything listed in this textbook at this age on methamphetamine.

Q. When you say, "this age," now, this is the -- the current DSM-IV, is it not?

A. That's for psychiatry.

Q. Yes. It's the current -- it's not just for psychiatrists. It's for anybody who is in the business of diagnosing mental disorders?

A. Right.

Michael Abrams - Cross

Q. And this is the current version of that book; correct?

A. Yes.

Q. DSM-IV. And you told us that methamphetamine use has been around -- you saw it back in the early 70's, I think you told us.

A. Yes. It's been around several years, yes.

MR. RYAN: That's all I have, your Honor.

THE COURT: Mr. Tigar. Redirect.

MR. RYAN: Just a moment.

REDIRECT EXAMINATION

BY MR. TIGAR:

Q. I'm going to place on the monitor here for your eyes only what I've marked as Defendant's Exhibit D13. Now, is that a study of the United States Department of Justice National Drug Intelligence Center?

A. Yes. This is a document that they publish.

Q. Okay. And when would -- from December 1996?

A. Yes. Correct.

MR. TIGAR: We offer it, your Honor.

MR. RYAN: We object, your Honor. If it's used as a treatise of some type, he may refer to it. I object to its use --

MR. TIGAR: 803(8)(c), your Honor.

THE COURT: As an admission?

MR. TIGAR: No. As a study pursuant to authority

Michael Abrams - Redirect

granted by law. I can show the Court the exhibit.

THE COURT: All right. I'll take a look at it.

MR. TIGAR: The italicized words.

THE COURT: Objection sustained. It may be used, of course.

MR. TIGAR: May I inquire about it, your Honor, admitting it under the learned treatise exception for --

THE COURT: Using it, but not admitting.

MR. TIGAR: To use it, but not admit it, yes, your Honor, thank you.

BY MR. TIGAR:

Q. Are you familiar, sir, with this 1996 study by the United States Department of Justice?

A. Yes.

Q. And did the Department of Justice consult a number of physicians and law enforcement officers about the effects of something called D-methamphetamine?

A. Yes.

Q. And that was the results published in December 1996?

A. Yes.

Q. Now, will you tell the jury, please, what is the difference between amphetamine and D-methamphetamine or meth.

A. Methamphetamine means -- the methyl part means that there's another molecule that's hooked on to the amphetamine. It's a methyl group like one carbon and three hydrogen ions -- or

Michael Abrams - Redirect

atoms.

Q. Okay. How does that change what it does to your brain?

A. One of the key things is that it makes it get into the blood-brain barrier. Goes across the blood-brain barrier much more readily than the amphetamine does. The brain soaks up a lot more methamphetamine, as opposed to amphetamine. So the amphetamine works more peripherally in the body, and the methamphetamine at a normal dose works better in the brain than on the body, because it -- the methyl group makes it cross what we call the "blood-brain barrier" easier.

Q. And does your work -- you said you began to be concerned about methamphetamine in 1992 and '93. Do you remember that?

A. Yes.

Q. And why is it that you have, based on your seeing thousands of patients, developed a vocabulary and description of methamphetamine usage that is different from what you found when you looked in the DSM, the -- whatever that's -- Diagnostic and Statistical Manual?

A. There wasn't anything that described what we were seeing clinically. The terms didn't fit. The signs and symptoms weren't all laid out nicely like it is for amphetamine and cocaine. So the -- the methamphetamine, because of the literally hundreds and thousands that we were seeing in Iowa, I was being called from multiple areas to say what's going on; and I had to do as much reading as I could and try to codify

Michael Abrams - Redirect

what methamphetamine was doing to people as opposed to what amphetamine did back in the 60's and the 70's.

Q. Now, did -- in this study, do you agree with this statement: "Adverse psychological consequences of D-methamphetamine abuse can include a prolonged psychosis. This psychosis called amphetamine delusional disorder or amphetamine psychosis adds to the extreme paranoia, both visual and auditory hallucinations and often ends in hysteria"? Do you agree with that statement?

A. Yes. That's a correct statement.

Q. And do you agree with the statement that "high doses or chronic use of D-methamphetamine increases nervousness, irritability and paranoia"?

A. Yes.

Q. And do you agree with the statement that is quoted in here, "Ronald K. Siegel in his book, Whispers: The Voice of Paranoia details seemingly bizarre ceremony -- scenarios -- excuse me -- in which methamphetamine users believe they are being followed by the police, the Federal Bureau of Investigation, the Central Intelligence Agency and even the Mafia. However, these scenarios are not unusual when dealing with methamphetamine abusers"?

A. Yes.

Q. Do you agree with that?

A. Yes.

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Q. Now, in this study that the Department of Justice did, did the study focus on particular places where abuser populations were high?

A. I believe so, yes.

Q. And did the Department of Justice study describe the phenomena of tweaking -- the binge, the tweaking and the crash?

A. Yes. I think this was the first publication -- medical publication from -- from the Justice Department that talked about tweaking. Tweaking and methamphetamine psychosis was a common thing that police were seeing like in L.A. and San Diego, Arizona, certainly in Des Moines, Iowa; but there wasn't any government document up until this time that I'm aware of that published what tweaking as a methamphetamine -- that officers need to be trained so they would be able to deal with this type of patient on methamphetamine.

Q. And the -- what is the National Drug Intelligence Center of the U.S. Department of Justice that published this study on the effects of D-methamphetamine?

A. What is that department?

Q. Yes. What is the National Drug Intelligence Center?

A. I'm not sure what it is or where it's at. I'm -- I get publications from them.

Q. All right. And, Doctor, if we were going to, based on your clinical experience, look at -- is a part of your job to go out and talk to people who are skeptical about whether these

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effects that you've described are really happening?

A. I -- none of the people I talk to are skeptical. They see it in their communities, and they want information how to deal with it.

Q. And when -- do people come to you and -- and ask you about symptoms or signs that might show that someone was abusing methamphetamine?

A. Yes

.. 103.

Q. And is staying up all night more times than you can remember such a sign?

A. That's one of the common signs, yes.

Q. Is quitting a job suddenly over a minor dispute with an employer such a sign?

A. Yes.

Q. Is lying to --

MR. RYAN: Your Honor, excuse me. I object to this line of questioning.

THE COURT: Overruled.

BY MR. TIGAR:

Q. Is lying to your employer about why you want to take time off such a sign?

A. Well, they -- the employers usually say they make all kinds of excuses.

MR. TIGAR: Thank you very much, Doctor. I have nothing further.

THE COURT: Any recross?

MR. RYAN: Sure, your Honor.

REXCROSS-EXAMINATION

BY MR. RYAN:

Q. Doctor, earlier, on the -- when I was speaking with you, you told us that DSM manual did not include disorders related to methamphetamine. Do you recall that testimony?

A. Yeah. May not relate what -- what I was talking about.

Q. But methamphetamine is certainly included within the DSM-IV?

A. They are listed. Some -- some of the signs and symptoms are listed.

Q. Well, DSM-IV sets forth the signs and symptoms that are medically recognized by the -- by the Psychiatric Association for these various substances; correct?

A. That would be correct, yes.

Q. And among those are not included any of this business about lying or memory disorders, is it?

A. Not at this time, no.

Q. And there's not a word in this government publication that Mr. Tigar was talking to you about about anyone lying or having memory problems, is there?

A. Not in that document, no.

Q. And this document doesn't include any of your terms that you've told us about today, either, does it?

Michael Abrams - Recross

A. No.

MR. RYAN: That's all I have, your Honor.

MR. TIGAR: May I?

THE COURT: All right.

REDIRECT EXAMINATION

BY MR. TIGAR:

Q. Doctor, in this article from the United States Department of Justice, do you remember reading the following case study: "For example, at a Narcotic Enforcement Conference in Oregon, Lieutenant Ed Mayer of the Jackson County Narcotic Enforcement

Team described an encounter he had with a methamphetamine abuser who called Mayer's office from a cellular telephone. The drug abuser --"

MR. RYAN: Excuse me. Excuse me. I object to this line.

THE COURT: It's in the publication. It came from the Department of Justice.

MR. RYAN: Well, there's no question about that, your Honor --

THE COURT: Well, he can read from it then.

MR. RYAN: All right.

BY MR. TIGAR:

Q. "The drug abuser was driving on Interstate 5 and sounded quite rational, and he said he wanted to file a complaint about one of Mayer's narcotic enforcement officers who was following

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him everywhere he went. Slowly, the drug abuser's voice began to sound panicky and he begged Mayer to tell his officer to get off the car roof. Mayer could hear the driver swerving on the road and slamming on his brakes, trying to shake the imaginary officer from the car roof."

Was that in that Department of Justice study?

A. I remember that, yes.

MR. TIGAR: No further questions.

MR. RYAN: Nothing further, your Honor.

THE COURT: All right. Is the witness excused?

MR. TIGAR: Yes. He's excused.

THE COURT: You may step down. You're excused.

We'll take our morning recess at this time, members

of the jury. Again, one of the things, when -- I might simply advise you of here so that you can understand a little bit about the law of evidence, I'm not going to instruct you on the law of evidence or try to make lawyers out of you; but, you know, when we have used the hearsay rule at times in this case and prevented witnesses from, over proper objection -- from testifying by what somebody else told them, which is sort of classic hearsay. There are as many exceptions to the rule as you can imagine. And one of those is that when it comes to opinion witnesses, people who, because of some specialized knowledge or training or experience, can testify about opinions, if it is consistent with the practice, the discipline about -- that the witness follows to look at books, talk to other people in the field, that sort of thing, then that can be received as the bases for the opinion. It doesn't mean that the things that were consulted are themselves evidence. It's just that when a person expresses opinions in a field of expertise, that person can testify about the things that he or she relied on in forming opinions.

So that's why, in the case of this witness, for example, things that are not in evidence were referred to; and again, what he said about them is not part of the evidence but

a part of the bases of his opinions. So I just wanted to explain that to you so you don't wonder why sometimes people talk about things that were conversations with others or that are in documents that are not in evidence. And when there's

the reference here to treatises or learned treatises, the law says that to the extent used or recognized by the witness, then they can be read -- those things can be read in evidence, but they don't become a part of the evidence.

That is the document themselves. The document itself does not come into evidence, or the book or whatever.

So we're now going to take a 20-minute recess; and of course, a part of the law of evidence is that you have to -- and the law, the procedural rules of the court are that you must not discuss the case now. Wait till it's completed and you've heard it all. And of course, continue to avoid anything that is not in evidence that could influence you in the case.

So you're excused now. 20 minutes.

(Jury out at 10:09 a.m.)

THE COURT: Okay. 10:30.

(Recess at 10:10 a.m.)

(Reconvened at 10:30 a.m.)

THE COURT: Be seated, please.

May I have counsel for a moment.

(At the bench:)

(Bench Conference 112B1 is not herein transcribed by court order. It is transcribed as a separate sealed transcript.)

(In open court:)

(Jury in at 10:32 a.m.)

MR. TIGAR: Call Jeffery Hayes.

THE COURT: Thank you.

THE COURTROOM DEPUTY: Would you raise your right hand, please.

(Jeffery Hayes affirmed.)

THE COURTROOM DEPUTY: Would you have a seat, please.

Would you state your full name for the record and spell your last name.

THE WITNESS: Jeffery C. Hayes, H-A-Y-E-S.

THE COURTROOM DEPUTY: Thank you.

DIRECT EXAMINATION

BY MR. TIGAR:

Q. Mr. Hayes, you are a special agent of the FBI?

A. Yes, sir.

A. Yes, sir.

Q. How long have you been?

A. 17 1/2 years.

Q. What was your education before coming to the FBI?

A. I have an undergraduate degree in social justice.

Q. From?

A. Lewis University.

Q. Where is that, sir?

A. Lockport, Illinois.

Q. Directing your attention to 1995, April, were you assigned

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to the OKBOMB Task Force?

A. Yes, I was.

Q. Did there come a time when you were assigned to a study of fragments of plastic?

A. Yes, sir.

Q. When was that?

A. It would have been in January of this year.

Q. January of 1997?

A. Yes, sir.

Q. Have you -- and in that assignment, did you talk to a Mr. Theodore Udell?

A. Yes, sir.

Q. And who gave you the assignment?

A. Scott Mendeloff.

Q. He was a member of the prosecution team, a lawyer?

A. Yes, sir.

Q. What were you assigned to do?

A. I was to contact high-density-polyethylene drum manufacturers in an effort to determine whether or not the chemical composition of Smurfit barrels was unique to that particular product.

Q. Well, let's take that one item at a time. You had some fragments of plastic. Correct?

A. Correct.

Q. How many fragments of plastic did you have?

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A. I have no idea.

Q. Were the fragments of plastic in your custody? Did you have them with you?

A. No.

Q. Well, were there more than 100 fragments that you were concerned with?

A. I can't give you an exact number.

Q. At any rate, you were not present at a time when FBI Agent -- or someone in the FBI laid out a bunch of plastic fragments on a table for Mr. Udell to look at; correct?

A. I was present when that happened on more than one occasion.

Q. And when was the first time you were present when a bunch of fragments were laid out on a table for Mr. Udell to look at?

A. Early summer of this year, I believe.

Q. And how many fragments were there laid out on the table?

A. There were -- again, I can't give you an exact number.

There were three bags containing multiple pieces.

Q. Were you ever present at a time when dozens and dozens of plastic fragment pieces were laid out on a table?

A. No.

Q. Okay. Was it your understanding that the pieces that were laid out there to look at, the three bags, all contained Smurfit plastic?

A. Yes.

Q. So your job was to call up some drum manufacturers and see

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about whether the Smurfit plastic package was unique; correct?

A. Yes.

Q. You were never assigned to look and see if there were some other fragments also recovered -- might match somebody else's drums; is that right?

A. That's correct.

Q. Just Smurfit?

A. Just Smurfit.

Q. And specifically not Van Leer?

A. Specifically, yes.

Q. Now, what was your understanding as to why you were only selecting drum manufacturers?

A. Well, initially that's all we concentrated on; but that was expanded later on in the study.

Q. All right. Now, how many people did you interview in connection with this activity?

A. Well over 50.

Q. Did you make -- you know what an FBI -- a Form FD302 is; is that right, sir?

A. Yes, sir.

Q. How many FD302's did you make, reports of interview, of these interviews?

A. None.

Q. Did anyone tell you why you should not make any FD302 reports of interviews of the 50 interviews that you conducted

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in this connection?

A. I asked Mr. Mendeloff how he wanted me to report the information that I was gleaning from the conversations I had with these manufacturers. He told me to put it in a chart form, not to provide any FD302's.

Q. Now, was Mr. Mendeloff present during any of your interviews?

A. No.

Q. These interviews were conducted in person, or by telephone?

A. Telephonically.

Q. You're aware that telephone interviews in this case are often reduced to FBI 302's, are you not?

A. Yes, sir.

Q. And how many FBI FD302's and inserts have been generated in conjunction with this investigation?

A. Thousands.

Q. About 30,000?

A. Approximately.

Q. And do you know how many times the FBI FD302 has been used to memorialize or to reflect a telephone interview?

A. No, I don't.

Q. A couple? Do you know within -- I mean is it a couple thousand or however many?

A. It would just be speculation on my part.

Q. Now, would there be a practice -- that is, could we go into

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the database and if we put in the word "telephonically," would we then retrieve FBI 302's that were conducted of telephone interviews?

A. It's possible.

Q. Now, you say that you started out looking at drum manufacturers. Right?

A. Yes, sir.

Q. Now, did Mr. Mendeloff give you any explanation as to why you were not to do FD302's?

A. No.

Q. Of these interviews?

A. No.

Q. And did you question his decision?

A. No, I didn't.

Q. Were you aware at that time that FBI 302's would be turned over to the defense?

A. Oh, yes.

Q. So that by not making them, you were not generating any records that would in the normal course be turned over to the defense; is that correct?

A. No, sir, that's not correct.

Q. What is correct, then? What's wrong with it?

A. I'm assuming that you have copies of the chart that I produced for Mr. Udell to utilize in contacting the various manufacturers that I contacted.

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Q. And do you know when -- you're assuming that that's the case. Do you have any knowledge, sir, as to when the Government turned over your chart to the defense?

A. No, I don't.

Q. Was it your expectation that your chart would be turned over to the defense before Mr. Udell and Mr. Tikuisis testified?

A. I would assume.

Q. And why did you assume that to be the case?

A. I would just assume that you were provided discovery,

everything that we had.

Q. Did you participate in any decisions as to whether or not we were going to get it and when we were going to get it?

A. No.

Q. So if we didn't get it, that wasn't your doing; correct?

A. Correct.

Q. Are you a plastics expert, sir?

A. Far from it, sir.

Q. And so you didn't have any experience with the chemical composition of plastics; correct?

A. Correct.

Q. Now, in your study, you say you began by studying drum manufacturers; correct?

A. By contacting them, yes. Those that produced natural-colored, high-density-polyethylene --

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Q. Right.

A. -- drums.

Q. Because you had some natural-color polyethylene drums that had been recovered from Mr. Nichols' house; correct?

A. Yes.

Q. You had two made by Smurfit?

A. Yes.

Q. And two made by Van Leer?

A. Correct.

Q. Were you aware that the FBI also sent agents out into the field to see if drums like this could be bought in the open market?

A. Subsequent to my involvement in this, yes.

Q. Did you participate in that process?

A. No, I didn't.

Q. All right. Did you have any knowledge as to whether recycled drums of this kind could be just bought at a recycling center?

A. No.

Q. Now, were you aware at the time you started the study that -- of the different kinds of high-density polyethylene?

A. No.

Q. Well, how did you set up your study? What did you decide to do?

A. Well, I was given a list of ingredients that Smurfit uses

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in their manufacturing process, specific range of melt-flow index, an antioxidant package, an ultraviolet stabilizer package; and apparently they use calcium carbonate as a tracer in their manufacturer process.

Q. So the four things you're worried about are melt index -- correct?

A. Yes.

Q. High-density polyethylene, you understand comes in all sorts of melt index ranges; correct?

series of more index ranges, correct.

A. Correct.

Q. Depending on the use, it has to melt at a certain point so that it can be molded in certain ways; is that your understanding?

A. I came to learn that, yes.

Q. And then the antioxidant: That's to prevent the effects of oxygen on the process; correct? There are chemicals that are used for that?

A. Yes.

Q. Then the UV thing -- that's to prevent damage from ultraviolet light to the content or the plastic?

A. Correct.

Q. Then you say calcium carbonate. That's what you call a tracer or a filler. That's what you learned?

A. Yes, sir.

Q. And the calcium carbonate is in there -- did you understand

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that it has the function of helping us to figure out how much of the antioxidant UV package is present in the drum? It's kind of a measuring stick?

A. That's my understanding, yes.

Q. Now, did you also understand that polyethylene -- high-density polyethylene is used for a lot of things besides drums?

A. Yes, it is.

Q. Included in that are medical bins; correct?

A. Yes.

Q. There are certain products that are used in connection with horse stalls; correct?

A. Yes.

Q. There is pipe that carries gas; correct?

A. I don't know about that one. I don't recall listing that one.

Q. But you started to make telephone calls; correct?

A. Yes.

Q. How did you set up your data in order to know who to call?

A. Well, initially I was provided with a list of Smurfit competitors -- that is, drum manufacturers that made a similar product -- and also a roster from the Plastic Drum Institute listing -- listing drum manufacturers.

Q. Now, the -- Smurfit gave you a list of their competitors?

A. Yes.

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Q. And that was Mr. Udell that did that?

A. Well, actually, I got that from Scott Mendeloff. I'm assuming it came from Mr. Udell, but it was provided to me --

Q. So you assume it came from Mr. Udell. You don't know. Some lawyer gave it to you. Correct?

A. A lawyer gave it to me, but it was a fax copy with Smurfit's fax line on it.

Q. All right. And did you get a list of questions from Mr. Udell?

A. No.

Q. Do you have any knowledge of Mr. Udell providing a list of questions to the FBI?

A. Not that I recall.

Q. Okay. Well, with this -- the list that you got that you saw came from Smurfit was of manufacturers. Correct?

A. Yes.

Q. Did it already have some information on it, or was that just something you were to start with?

A. By "information," what do you mean?

Q. Information about the contents of these competitors' products.

A. Oh, no. There was no information regarding their products.

Q. In what form was the list? Was it typed, or printed, or what?

A. One was handwritten or hand-printed, and one was typed.

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Q. Okay. I'm going to show you now this document --

MR. TIGAR: If I may approach, your Honor?

THE COURT: Yes.

BY MR. TIGAR:

Q. -- and ask: Is that the list?

A. No. This is my handwriting.

MR. MEARNS: Okay. Mr. Tigar, may I have just the reference?

(Discussion off the record between Mr. Tigar and Mr. Mearns.)

BY MR. TIGAR:

Q. Is that the list?

A. Um --

Q. Or part of it?

A. Yes, it is.

Q. So when you got something from Mr. Mendeloff, it didn't have any information on it about what was in these drums or in these plastics; correct?

A. Correct.

Q. So what's the next thing you do after you get the list?

A. I started calling the companies on the list.

Q. And did you call an outfit called Florida Drum?

A. Yes, I did.

Q. Now, who did you speak to at Florida Drum?

A. I'd have to look at my notes to recall each individual that

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I contacted, each point of contact.

Q. Which of your notes would you need to look at, sir?

A. Probably all of them, because there are a number of lists that I made that were initial contacts and then subsequent contacts.

Q. All right.

A. We can start with the list that you had from Smurfit, if you like.

Q. From Smurfit? All right.

A. Okay.

Q. Does that refresh your recollection?

A. Yes. I talked to Dave Miller, Production Manager.

Q. So you talked to somebody named Dave Miller, the Production Manager, and you just wrote "Dave Miller, Production Manager," in the margin; correct?

A. Correct.

Q. Now, is it -- would you agree with me that you didn't make a note of the date on which you talked to this Dave Miller?

A. I would agree with that.

Q. And do you remember the date on which you talked to him?

A. Again, the project was started in late January and continued on over several months.

Q. And you have -- within that several-month period, you have no idea when you talked to him; is that right?

A. Well, if that was the first list, I probably talked to him

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on either the 31st of January or the 1st of February, if those were workdays.

Q. And you found out that Florida -- where is Florida Drum based?

A. I don't recall.

Q. Would it refresh your recollection if I said Pine Bluff, Arkansas?

A. Sounds right.

Q. Okay. Now, you found out they used calcium carbonate in their drums; correct?

A. I'd have to refer to the master list on that. I talked to so many people, I don't have total recall as to what particular chemical is in their particular products.

Q. Well, let's go on to the next. We'll get to the list in a while. You called a number of different people that had been listed; correct?

A. Yes, sir.

Q. Now, did you then wind up calling manufacturers of the actual resin?

A. Yes.

Q. You called -- did you call Nova Chemicals?

A. Yes, I did.

Q. And you received from them a list, did you not, of people to whom they supply materials and who make drums out of them; correct?

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A. That's correct.

Q. And you got that from those people up in chemical -- Nova Chemicals?

A. Yes sir

A. Yes, sir.

Q. Now, did you contact all of the people that make drums with

Nova Chemical resin?

A. I believe I did.

Q. Did you contact anybody that makes anything else out of high-density polyethylene using Nova Chemical resin, other than drum manufacturers?

A. I believe I did.

Q. Now, how many people did they -- were on the list that they sent you from Nova Chemicals? Do you remember?

A. No, I don't.

Q. Well, do you remember how many people, customers of Nova Chemical, you contacted out of a list that they sent you?

A. Not specifically. I would have contacted all of them, but I don't remember how many.

Q. Now, did you contact Mobil Chemicals?

A. Yes, sir.

Q. And are they a resin manufacturer?

A. Yes, sir.

Q. Did you contact all of the customers of Mobil Chemicals?

A. As far as I know, I did.

Q. And did you contact Union Carbide?

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A. Yes, I did.

Q. Are they a resin manufacturer?

A. Yes, they are.

Q. Did you contact all of the customers of Union Carbide?

A. Well, when you say "all of the customers," I'm sure they sell other products than natural resin. But the natural-resin customers, I contacted.

Q. And during what period of time did you ask Nova Chemicals to supply you their customer lists? For what period of time?

A. During the time frame when they were manufacturing that specific resin, which would have been -- I think they started manufacturing that in December of 1991 up until the date of the bombing.

Q. Well, the specific resin involved: Isn't it a fact that that had to do with what Smurfit used to make barrels?

A. Yes.

Q. Well, the specific resin was one that was destined for Smurfit; correct?

A. Yes.

Q. Were you aware that the additives that were added to that resin had been in general use for many years prior to 1991?

A. No.

Q. Did you know how long the ultraviolet additive, Tinuvin 622, had been in general use?

A. No.

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Q. Did you know how long a time a high-density-polyethylene

item like a barrel or a milk crate or a stall liner or a Medibin or a pipe that carries natural gas or any of that would last in normal usage?

A. I have no idea.

Q. So you only asked Nova Resin for a list of their customers beginning in 1991; correct?

A. During the time frame for that particular type of natural resin.

Q. Whatever your understanding -- You say, "during the time frame for that particular type of natural resin." What's the basis for your information that that's the time frame? Who told you that?

A. Could have been Mr. Udell or Mr. Tikuisis. I don't recall which one.

Q. So -- and you didn't make a note of your interviews so that you would be able to have some record of who it was that told you that; correct?

A. Correct.

Q. Now, during what period of time did you ask Union Carbide for their customer list?

A. I'm not certain. We went back quite a few years. It could have been late 80's to present during the time.

Q. Is it 1980 -- and did you find out that they had sold resin to a number of people?

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A. Yes.

Q. All right. Did you call all those people?

A. I believe I did.

Q. And how many of them were there?

A. Again, I don't recall.

Q. More than a dozen?

A. Union Carbide, around a dozen, 10, 14, I don't know.

Q. And how many customers did Mobil Chemical have?

A. They had a lot of customers, but I don't think a lot of

them were using that particular type of resin.

Q. All right. How many customers were using that particular type of resin?

A. I don't recall.

Q. Okay. More than a dozen?

A. Perhaps.

Q. Now, there came a time, sir, you say when you made a chart; correct?

A. I actually made several charts. There were some early versions and then the subsequent one that Mr. Udell used.

Q. And there came a point where you forwarded something to Mr. Udell?

A. Yes.

Q. And by the time you forwarded it to Mr. Udell, how had you sorted or classified or -- the information?

A. Well, as I said earlier, it was classified in four parts:

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the melt-flow index, the antioxidant package, the ultraviolet package, and whether or not the product contained a calcium-carbonate tracer.

Q. And how many companies did you list on your list that you sent to Mr. Udell?

A. Over 40. I don't recall the exact number.

Q. Okay. Let me see if I can approach and refresh your recollection.

Sir, just to refresh your recollection, will you look at that and see if that's what you sent to Mr. Udell.

A. No. No. This was one of the earlier charts that I had -- I think I did send him this.

I wouldn't have sent him this.

Q. So that's not what you sent him; correct?

A. No. This, I believe I sent him; but I don't -- I did not send him the other charts.

Q. Now, how did you select what charts you would put information -- what information you would put on the chart that you sent to Mr. Udell?

A. The final chart?

Q. Yes.

A. Okay. That was -- if a company had a specific antioxidant package or UV package or whether or not they used calcium carbonate, we tried to eliminate that particular manufacturer based on one of those four issues.

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Q. Okay. Now, you say "we tried to eliminate"?

A. I tried to eliminate.

Q. You had a list of how many people that were making things out of polyethylene?

A. A long list.

Q. 100 names, maybe? How many?

A. Approximately.

Q. 100 names. Let's take 100. And you were calling them up and interviewing them; correct?

A. Yes.

Q. Not keeping any contemporaneous notes of who you spoke to, what you asked them, and so on; correct?

A. Well, I asked them all the same questions; so if I didn't note it on the note set I was taking . . . It wasn't unusual

for me.

Q. So the answer to my question is you were not keeping any contemporaneous notes?

A. I was maintaining notes during the course of the phone call, but --

Q. But you didn't make any 302's; right? Correct. Now, you say then there came a time when you -- now, did you ever talk to a fellow at Plastic Color or Plastic Colour in Canada?

A. Color additive company?

Q. Yes.

A. Sounds familiar.

A. SOUNDS FAMILIAR.

Jeffery Hayes - Direct

Q. Were you trying to find out from them what their additive package was?

A. Yes, I would have done that.

Q. Did they tell you?

A. I got full cooperation with everybody except one company initially, so I believe they did.

Q. Well, didn't -- let's just go through this one at a time. You started out; you had a membership roster of plastics companies; correct?

A. Yes.

Q. Then you were directed to call certain customers of Nova Corporation; correct?

A. Yes.

Q. Okay. And you found out that, from Nova Corp. customers -- that there are certain applications such as horse-stall liners and hockey boards that were made with their plastics; correct?

A. Yes.

Q. Did you ever call the horse-stall-liner companies to see what other farm-type products they made?

A. No.

Q. Why didn't you call them?

A. I was only concerned with the manufacturers.

Q. What manufacturers? The resin manufacturers, or the product manufacturers?

A. Both.

Jeffery Hayes - Direct

Q. Well, what company was it that made hockey boards and horse-stall liners?

A. I don't recall the name right off.

Q. And in fact, it's not in your notes, is it -- the name?

A. Somewhere in my notes, this information is listed with the company that I contacted.

Q. Okay. We'll get to it.

Now, what did you understand to be the additive in Smurfit plastic?

A. The antioxidant package, or UV stabilizer package?

Q. The whole thing.

A. Something called Irganox 168 or Irgafos 168 as an antioxidant. Irganox 1010 and a Weston 399, kind of a blend of those chemicals.

The UV stabilizer package was Tinuvin 622, and they used calcium carbonate as a tracer.

Q. All right. I'm going to show you a page from your notes.

What does that reflect about what's in the Smurfit plastic? Was that somebody telling you something different?

A. No. That was a question that I had for Mr. Udell.

Q. And it says "Ciba 225," doesn't it?

A. Yes, it does.

Q. Is that Mr. Udell telling you that something called Ciba

225 is in their plastic?

A. No.

Jeffery Hayes - Direct

Q. Why did then -- what does that reflect?

A. That was a question that I had whether or not the Weston 399 blend was similar to the Ciba 225 blend, something I was trying to resolve. Some of the companies were saying that they used Ciba 225 in their product, and I didn't know what it was.

Q. All right. And you wrote your -- your note says, "Ciba 225 is Smurfit additive"; correct?

A. I believe there is a question mark behind it. No?
No.

Q. No?

A. No.

Q. So it says without a question mark "Ciba 225 is Smurfit additive"; correct?

A. Well, it says that.

Q. Are you telling us now that that should have a question mark on it?

A. Yes.

Q. So -- but this is your note; correct?

A. It is.

Q. And if -- once again, if we were to look for some 302 report of this interview, we wouldn't find it; correct?

A. Correct.

Q. Now, did you attempt to determine how long a time the additive package or the UV additive package would stay visible or detectable by chemical processes?

Jeffery Hayes - Direct

A. No.

Q. Do you remember calling an outfit called Zarn, Inc.?

A. Yes.

Q. Did you communicate with Mr. Udell and let him know what you had found out from Zarn, Inc.?

A. Only from the standpoint of providing him with a chart.

Q. Now, you said that at one time you began by looking just at barrels and then you started to look at other products; correct?

A. Yes.

Q. Tell us what -- how that process worked.

A. The reason for it?

Q. Yes.

A. There was some concern that the plastic that was recovered during the crime-scene search may have come from products other than high-density-polyethylene, natural-resin barrels.

Q. And you wanted to investigate that; correct?

A. Yes.

Q. Now, how many people in the United States manufacture -- how many companies manufacture high-density polyethylene?

A. I have no idea.

Q. How many manufacturers of high-density polyethylene did you contact?

A. Dozens.

Q. You contacted Mobil; right?

Jeffery Hayes - Direct

A. Well, they're a resin supplier, not a manufacturer.

Q. That's what I'm talking about, people who make the resin. How many resin makers are there?

A. Well, let's see. There is Conoco, Mobil, Union Carbide, Nova -- four or five.

Q. Well, are those the only resin manufacturers that you contacted?

A. Yes.

Q. The ones you've listed? All right.

A. Correct.

Q. Is that right?

A. Yes, sir.

Q. Are you aware that high-density polyethylene is a by-product of petroleum production?

A. I understand that's correct.

Q. And you didn't contact any other of the major petroleum companies in the United States other than the ones you've listed; right?

A. That's correct.

Q. So -- and on your list, the only majors are Mobil and Conoco; right?

A. I don't know what their volume is, sir.

Q. I'm talking about majors in terms of petroleum. You didn't contact Royal Dutch Shell?

A. Right.

Jeffery Hayes - Direct

Q. Didn't contact BP?

A. Correct.

Q. Didn't contact Chevron?

A. Correct.

Q. Didn't contact Standard or Exxon?

A. Correct.

Q. Or by inference, any others?

A. Correct.

Q. So are you able, sir, to tell this jury that you have accounted in your survey for all of the high-density-polyethylene resin produced in the United States from 1980 to 1994, '95?

A. I contacted all the manufacturers that I was aware of.

Q. When you say "manufacturers" --

A. The resin manufacturers and the companies that use that resin.

Q. And again, when you say that you were aware of, these are lists that other people provided to you; correct?

A. Yes.

Q. Okay. And in addition to those in the United States, you're aware that at least one search scene here, a recycled barrel from Argentina was found. Did you know that?

A. No.

MR. MEARNS: Objection.

THE COURT: Sustained.

Jeffery Hayes - Direct

BY MR. TIGAR:

Q. Now, throughout your -- in your notes, did from time to time you mark and just put the name "Udell" indicating that you wanted Mr. Udell to contact the people?

A. Well, Mr. Udell contacted everybody that I contacted.

Q. Oh, he went and recontacted them?

A. I asked the companies to cooperate with him so that he could go through the elimination chart, contact those companies in preparation for his testimony in this matter.

Q. Oh. So -- so you helped -- you did some research; correct?

A. Yes, sir.

Q. Then you called all the companies and said, "A Mr. Udell will be calling you. I'm Agent Hayes of the FBI. Please cooperate with him and tell him what he wants to know"; correct?

A. Correct.

Q. Now, did you contact an outfit called Air Lock Plastics?

A. Is that in Tonawanda, New York?

Q. Yes, sir.

A. Yes, I did.

Q. And you're smiling -- the record doesn't reflect it.

Who -- who did you speak to there?

A. I couldn't get past the switchboard operator initially.

Q. And your notes say, "Two calls -- WCB." What does that mean? Will call back?

Jeffery Hayes - Direct

A. Yes.

Q. And that "per snotty operator": Did you write that?

A. Yes, I did.

Q. And so given the fact that you couldn't get past the switchboard at Air Lock, being -- how did the FBI decide to get information from Air Lock Plastics?

A. We sent an agent out to the business.

Q. And did the agent do an interview at Air Lock Plastics?

A. I presume that he did.

Q. Did that result in a 302 that you have seen?

A. Not that I've seen.

Q. Would in the normal course, you know, of business a 302, if it had been made, come back to you?

A. Yes.

Q. Well, did you tell him not to do a 302?

A. No.

Q. Were you the one that instructed the agent to go see him?

A. I sent the teletype directing an agent from the Buffalo

A. I sent the teletype directing an agent from the Buffalo office to go out there and ascertain the information that we needed to know.

Q. Okay. Now, you also contacted an outfit called "Rubbermaid." Correct?

A. Yes.

Q. They're the maker of many specialty products; correct?

A. Correct.

Jeffery Hayes - Direct

Q. And did you receive from them any literature about all the different products that Rubbermaid makes?

A. No.

Q. Do you have any idea how many products Rubbermaid makes that are made of high-density polyethylene?

A. No.

Q. Did they ever send you a recipe for their polyethylene?

A. Not that I recall.

As I recall, they didn't make any high-density-polyethylene, natural-resin products.

Q. Well, that's what you're telling us, sir, today. My question is did they ever send you a catalogue? Did you ever ask them to send you a recipe?

A. They never sent me a catalogue.

By "recipe," do you mean the ingredients they used in that particular product?

Q. Yes. Did they ever send you a recipe?

A. Not that I recall.

Q. Now, who did you speak to -- you talked to an outfit called National Plastics Color, Inc.; do you remember that?

A. I don't recall that specifically, no.

Q. Do you recall that you talked to somebody who makes the additive package for Florida Drum Company?

A. That could be, yes.

Q. And you found out that they do use calcium carbonate;

Jeffery Hayes - Direct

correct?

A. There were a few companies that used it as a tracer. I don't recall that specifically, but there were a few.

Q. So calcium carbonate, you found out, is not at all unique to Smurfit; correct?

A. Well, there is only a few companies that use it; so in terms of being unique, I guess not.

Q. No. Not unique. Correct. And did you find out whether Tinuvin 622 is marketed under any other names than Tinuvin 622?

A. No.

Q. And we've already established that you didn't know what -- whether or not it was under patent at that time. Correct?

A. I don't believe you've asked that question.

Q. Oh. Do you know whether Tinuvin 622 was under patent in 1993-94?

A. No.

Q. Now, you found out that Union Carbide had used the Irganox 1010 and Irgafos 168 during a certain time period; correct?

A. Yes, sir.

Q. Now -- and you remember they sent you a letter about that? Do you recall that?

A. I believe they faxed me some information on it. I don't know if they sent a letter or not.

Looks like they sent me a letter.

Q. Well, they sent you a letter and they told you about

Jeffery Hayes - Direct

additive packages between January, 1993, and April, 1995.

Correct?

A. Yes.

Q. Well, is that the information you had asked from them?

A. I asked them to go back until the -- well, I asked each of the companies to go back into the late 80's. They may not have been making that specific product back then. It may just be that they were only making that particular resin during that time frame.

Q. In terms of may have been, I just want to talk about this letter. What they told you was that they used a certain additive package between January, 1993, and April, 1995; correct?

A. Correct.

Q. So based on this letter, you wouldn't know their additive package from anytime prior to April, 1993; correct?

A. Not for those specific resins, if they were making them back then.

Q. And we've established that you didn't know how long these barrels would last in normal use; correct?

A. Correct.

Q. Now, did you find while you were doing your investigation that similar information with respect to some of these things has been -- had been furnished to Mr. Buechele?

A. No.

Jeffery Hayes - Direct

Q. Well, sir, didn't Mr. Farmer of Van Leer tell you that they'd sent it to Mr. Buechele?

A. That's what it says here.

Q. Now, when you got that, do you know who Mr. Buechele is?

A. I do now.

Q. Pardon?

A. Yes, I do.

Q. Well, you say you do now. When is the first time you became aware of who Mr. R. Buechele is?

A. Sometime during the -- my inquiries regarding this project.

Q. And did you call -- you understand him to be a special agent of the FBI?

A. Yes.

Q. Did you call him to ask him what research he had done?

A. No.

Q. Why not?

A. Didn't think it was necessary.

Q. So you never found out what investigation or -- that he had done; correct?

A. Correct.

Q. Well, can you tell us what occasion, then, you had to write Mr. Buechele's and Ms. Knuckles' name on your notes.

A. Well, I was talking to somebody obviously, and the names either came up or I just jotted it down as -- as information for myself to perhaps contact at a later date.

Jeffery Hayes - Direct

Q. As you sit there today, do you have any memory of how it is that you came to write the names of Mr. Buechele and Ms. Knuckles on your notes?

A. No.

Q. Now, earlier we were talking about an outfit called Plastic Color; and do you remember talking to them?

A. Not specifically.

Q. Okay. Let me show you something, see if it refreshes your recollection. See the name there?

A. Yes, sir.

Q. Does that refresh your recollection you talked to them?

A. I don't know if I got this from them, or I got it from one of the resin -- either producers or manufacturers. I'm not sure where that came from.

Q. All right. And this is part of the material you had; correct?

A. Yes.

Q. And you notice that here the material safety data sheet -- their -- one is asked for the chemical name and family for certain additives. Correct?

A. That's what it says.

Q. They say that's proprietary and they're not telling; correct?

A. It was all proprietary information.

Q. I understand. This specific document says they're not

Jeffery Hayes - Direct

telling; correct? They don't reveal it in their data sheet that was sent to you?

A. Oh.

Q. Is that right?

A. Could well be, yes.

Q. How long did this project take that you were doing, sir, before you sent the material off to Mr. Udell to get ready for his testimony?

A. I worked on it off and on for about three months, four months.

Q. And at what point did you send the material on to Mr. Udell?

A. I can't give you a specific date. It was sometime either

A. I can't give you a specific date. It was sometime either during the McVeigh trial or prior to it.

Q. I just want to see: Is this what you sent to Mr. Udell? Just leaf through it, if you will.

A. Yes. This is one of the charts that I sent to him.

Q. Well, is that everything in there that you sent to Mr. Udell?

A. Yes. It appears that way.

MR. TIGAR: I'd like to just mark this for identification, your Honor, so that we know what we're referring to.

THE COURT: All right.

MR. TIGAR: We don't intend to offer it.

Jeffery Hayes - Direct

May the record reflect that the document that I've just shown to the exhibit -- to the witness is now marked D1827 for identification.

THE COURT: And how many pages are there, Mr. Tigar?

MR. TIGAR: Your Honor, there is a cover page, which is ours, and it's Bates' stamped pages 1 through 17.

THE COURT: Thank you.

MR. TIGAR: Let me show it to Government counsel.

Thank you.

BY MR. TIGAR:

Q. Now, sir, in the list of people you got that are part of the trade association for the manufacture of drums, you had a number of names of drum reconditioners; correct?

A. Yes.

Q. Did you contact any of the drum reconditioners?

A. No.

Q. Why not?

A. It wasn't in the project.

Q. Wasn't in the project?

A. It wasn't in the project.

Q. Who -- now, you'd be aware that at a drum reconditioner, you might find drums of various ages; correct?

A. I would assume so.

Q. And you might find drums that were made by many different manufacturers. Would you -- you agree with that?

Jeffery Hayes - Direct

A. I'd agree with that.

Q. All right. And you'd find drums even by companies that were once in business making drums and then quit doing it; correct?

A. Possibly.

Q. And who was it that decided that you weren't going to contact any drum reconditioners or recyclers?

A. Well, I was asked just to contact the high-density-polyethylene natural drum, and other product manufacturers, not reconditioners.

Q. Okay. Now -- and who asked you to do that? Mr. Mendeloff?

A. Yes.
Q. He's the one that set the limits; right?
A. Yes.
Q. Now, when was it decided to go beyond drums to other products?
A. I can't give you a specific date. It was early on in the project.
Q. And who made that decision?
A. Mr. Mendeloff.
Q. Did you have a discussion with him about it?
A. Not that I recall specifically, no.
Q. He just told you to change the focus. Is that right?
A. Expand it.
Q. To expand the focus.

Jeffery Hayes - Direct

Now, sir, do you have any training in statistics?

A. No.
Q. Do you have any training in polling techniques?
A. No.
Q. Have you ever -- did you ever take a statistics course?
A. No.
Q. When you would call up people to ask them about these issues, who would you ask to talk to?
A. Well, initially, Mr. Udell or somebody from Smurfit. The initial list provided names, points of contacts. The companies that I called cold, I asked either for the production manager or the chief chemist.
Q. All right. And so the typical call was, "Hello, I'm Agent Hayes of the FBI." Right?
A. Yes.
Q. "I'd like to talk to your production manager or chief chemist"; correct?
A. Yes.
Q. And then you would ask them about what they had -- what ingredients they used. Correct?
A. Prior to asking that question, I explained what I was doing.
Q. All right. And did you ask them for any time frame, particular time frame?
A. Yes. As I told you earlier, initially it was with the Nova

Jeffery Hayes - Direct

Chemicals was when the first batch was made in '91 up until the day of the bombing. With other ones, it went back into the late 80's, depending on how long they'd been buying a particular resin or how long that particular resin had been manufactured.
Q. And when you say "a particular resin," would you tell them a code for a resin?
A. Well, I would say, for instance -- if they bought their resin from Union Carbide, I'd give them that Union Carbide

number.

Q. And did -- in each case, did you ask the person to send you business records that reflected the use of this additive?

A. No.

Q. So you took the recollection of whoever was identified to you on the telephone as the person who remembered; right?

A. Correct.

Q. Did you ask each person that you spoke to how long that person had been working at the company?

A. No.

Q. So you had no idea whether you were talking to somebody who had only worked there a week, or somebody that worked there 10 years; right?

A. That's correct.

Q. Now, did you interview anyone from a company in Puerto Rico?

Jeffery Hayes - Direct

A. Not personally.

Q. And who was it that interviewed the people in Puerto Rico?

A. A member of our support staff.

Q. And that -- was that because the interview had to be conducted in Spanish?

A. Yes, sir.

Q. And you found out that there is a company in Puerto Rico that makes containers -- correct -- for soft drinks and things?

A. I don't know about that particular product.

Q. And do you remember the name of the entity in Puerto Rico with whom you spoke?

A. Nampac.

Q. Nampac.

MR. TIGAR: Will your Honor give me just a moment?

THE COURT: Yes.

MR. TIGAR: Just one moment, your Honor.

BY MR. TIGAR:

Q. Sir, I'd like you to take a look at something here. Is this document what you received from Nova?

A. Yes.

Q. And who put the arrows on it?

A. I don't know.

Q. Did it have arrows on it when it got to you, the black arrows?

A. I don't recall seeing that, but it could have.

Jeffery Hayes - Direct

Q. Now, based on the information from Nova, did you call everybody to whom they supplied resin?

A. No.

Q. And how did you decide who not to call?

A. I only called the ones that were purchasing the -- that particular resin that was sold to Smurfit.

Q. Now, that particular resin that was sold to Smurfit didn't

have the additive added to it until after Smurfit got it; right?

A. I don't know.

Q. So are you telling us that you don't know whether or not the resin that Nova Corp. makes in the millions of pounds every year is shipped to -- is identical when it's shipped to Smurfit as it is to some other companies?

A. I can't tell you that.

Q. And -- now, you did know about melt index. Right?

A. Yes.

Q. Did you attempt to contact all of the people to whom Nova had sent resin that had the same melt index?

A. No.

Q. That wasn't the basis of your inquiry; correct?

A. Correct.

MR. TIGAR: I have no further questions.

THE COURT: Mr. Mearns, do you have any questions?

MR. MEARNNS: Briefly, your Honor.

Jeffery Hayes - Cross
CROSS-EXAMINATION

BY MR. MEARNNS:

Q. Agent Hayes, would it be fair to say that during the course of --

MR. TIGAR: Object to leading, your Honor.

THE COURT: Sustained.

BY MR. MEARNNS:

Q. Agent Hayes, during the course of your survey, did you from time to time speak to Mr. Udell?

A. Yes, I did.

Q. About how many times during the course of your survey do you think you spoke to Mr. Udell?

A. Half-a-dozen times.

Q. What was the purpose of contacting Mr. Udell during the course of your survey?

A. Periodically, I had questions regarding similar chemicals, whether or not a specific chemical additive was similar to another one.

Q. And did Mr. Udell ever tell you the kinds of questions that you should ask during the course of your survey to follow up on the type of information you were getting?

A. No.

Q. Did there come a time in September, the end of September, when you've completed the chart, the elimination chart that Mr. Tigar was asking you questions about?

Jeffery Hayes - Cross

A. Yes.

Q. And did that chart then subsequently get a Government exhibit sticker?

A. I understand that it did.

Q. Do you recall what Government exhibit number that was?

Q. Do you recall what Government Exhibit number that was?

A. No, I don't.

Q. Let me show you what's been marked for identification as Government's Exhibit 2055. Is that the final chart that you prepared in connection with your survey?

A. Yes, it is.

Q. And that is the chart that you prepared in consultation with Mr. Udell?

A. I didn't have any discussions with Mr. Udell regarding the preparation of this chart.

Q. Did you fax -- did you ever provide him with drafts of the chart?

A. Yes.

Q. Is there an entry on that chart for Zarn, Incorporated?

A. Yes, there is.

Q. And was Zarn, Incorporated, eliminated as a possible match with the -- the plastic fragments that were found at the crime scene of the explosion in Oklahoma City?

MR. TIGAR: Objection.

THE COURT: Sustained.

BY MR. MEARNNS:

Jeffery Hayes - Cross

Q. Based on your contact with Zarn, Incorporated, did they tell you whether or not they used calcium carbonate with their UV stabilizer?

MR. TIGAR: Objection, your Honor.

THE COURT: Sustained.

MR. MEARNNS: May I just have a moment, your Honor?

THE COURT: Yes.

BY MR. MEARNNS:

Q. To the best of your knowledge, Agent Hayes, did the information that you obtained during the course of the survey get included in one form or another on that chart, Government's Exhibit 2055?

MR. TIGAR: Objection, your Honor.

THE COURT: Overruled.

THE WITNESS: Yes, it did.

BY MR. MEARNNS:

Q. Mr. Tigar asked you certain questions about drum reconditioners. Based upon your survey, do you know whether or not when a drum is reconditioned, a plastic drum is reconditioned -- whether or not that changes the chemical composition of the drum?

MR. TIGAR: Objection, your Honor.

THE COURT: Sustained.

MR. MEARNNS: I have no further questions, your Honor.

MR. TIGAR: May we approach the bench briefly, your Honor?

THE COURT: Yes.

(At the bench:)

(Bench Conference 112B2 is not herein transcribed by court order. It is transcribed as a separate sealed transcript.)

(In open court:)

THE COURT: Do you have any additional questions for this witness?

MR. TIGAR: No, your Honor. No follow-up.

THE COURT: Is he excused now?

MR. TIGAR: He is as far as we're concerned, your Honor.

MR. MEARNS: Yes, your Honor.

THE COURT: You may step down, Agent Hayes. You're excused.

And before calling the next witness, I want to remind you, members of the jury, that you heard testimony from Mr. Udell, who has been referred to here in this testimony, back on November 26 -- Wednesday, November 26; that in the course of the testimony of Mr. Udell, this matter of telephone calls to various manufacturers and so forth came up and that it was after Mr. Udell stepped down from the stand on that day that upon request, the notes, including the notes that Mr. Hayes here has referred to, which he gave to Mr. Udell, or information was provided to the attorneys for the defense, this information -- these notes and the matters that are going to be talked about here -- that have been talked about with Mr. Hayes and will be talked about, perhaps, with other witnesses, were provided on December 2.

There has been a reference to this document called Exhibit 2055, a summary chart. That was provided to defense counsel before the trial began. That, of course, is not in evidence; but we're going to -- I assume we're going to have Mr. Udell back.

MR. TIGAR: The next witness, your Honor.

THE COURT: The next witness. And that's the reason that he's being re-called; that defense counsel, now has this material that was not available to him at the time that he cross-examined Mr. Udell back on November 26. All he had at that time was the summary chart.

All right. Re-call Mr. Udell.

Mr. Udell, you're being re-called under the oath you took with us back on November 26.

THE WITNESS: Okay.

THE COURT: Please resume the stand.

Mr. Tigar.

(Theodore Udell was re-called.)

DIRECT EXAMINATION

BY MR. TIGAR:

Q. Good morning, sir.

A. Good morning.

Q. Mr. Udell, do you remember testifying that you gave the FBI a list of questions that were to be asked of people?

A. Generally, yes.

Q. Pardon?

Theodore Udell - Direct

A. Yes.

Q. Did you, in fact, give the FBI a list of questions?

A. Not a written list.

Q. Do you remember being asked this question: "Did the FBI give you a list of questions that you were supposed to ask the witnesses that you were interviewing on their behalf?"

"Answer: I think I gave them a list of questions.

"Question: Did they accept your list?"

"Answer: I believe so."

Your testimony is that was an oral list?"

A. Yes.

Q. Now, do you remember on the last occasion that you were here that you talked about your notes?

A. Yes.

Q. And you told us the method that you had done to make the survey. Do you recall that, sir?

A. I don't follow on your question.

Q. Well, you told us of the survey that you had conducted; correct?

A. Yes.

Q. And do you remember telling us that the notes would tell us what questions you asked and what answers you received?

A. No, I don't remember saying that.

Q. Do you remember being asked, "Question: Would those notes tell us what questions you asked and what answers you received?"

Theodore Udell - Direct

and your answering yes?

A. Yes.

MR. TIGAR: Placing a sticker on, for our reference, Defendant's D1828, consisting of 17 pages.

BY MR. TIGAR:

Q. Some of the page numbers we put in in pen. Are those the notes to which you referred?

A. Yes.

Q. That's all of them?

A. I believe so.

Q. Well, are there any questions in there?

A. No.

A. No.

Q. Why did you tell the jury under oath that we'd find questions in your notes, if there weren't any there?

A. I don't think I -- well, my -- I guess the answer is the answers to the questions I asked, I basically quizzed the people I talked to about the information that I was looking for.

Q. Now, that's your explanation?

A. Yes.

Q. Did you keep any record of this list of questions that you provided to the FBI?

A. No.

Q. Who in the FBI did you give a list of questions to?

A. Jeff Hayes.

Theodore Udell - Direct

Q. Is he the only person in the FBI with whom you spoke about these matters?

A. Yes.

Q. Did you also speak to Mr. Mendeloff about these matters?

A. Not that I remember.

Q. When did Mr. Hayes first contact you?

A. At least a year ago.

Q. So that would be sometime late in 1996?

A. Approximately.

Q. And did he ask for your help?

A. I can't say precisely.

Q. What -- what was the conversation?

A. At what point in time? I mean this --

Q. When he first called you, sir, what was the conversation? What did you talk about?

A. I think the problem is you're starting in the middle of something, and it's hard for me to grasp where you're trying to go.

Q. I understand. Well, at some point you were first contacted by Special Agent Hayes; correct?

A. Yes.

Q. Now, before that time you had talked to Special -- or Monica Knuckles; correct?

A. That's correct.

Q. And what other agents had you talked to?

Theodore Udell - Direct

A. I did not write a list of who I talked to.

Q. Now, did Agent Hayes contact you about doing some sort of a survey?

A. I believe so, but I can't be certain that he's the one that initiated it.

Q. Well, do you have any memory of talking to anyone else other than Agent Hayes from the federal government about doing some sort of a survey?

A. No.

Q. When is the first time you can remember talking to Agent

Hayes about doing some sort of a survey?

A. I don't have an exact date.

Q. Well, were you asked at sometime to help in doing some sort of a survey?

A. Yes, I was.

Q. And what was your understanding of what your responsibility was in doing this survey?

A. When Monica -- can I answer that by just going back a little bit in time?

Q. No. What's your understanding -- well, all right. I'm sorry. I want to be fair to you, sir. Monica Knuckles came to you. Was that the first contact with the FBI?

A. That's correct.

Q. And you testified that you spread out a bunch of plastic fragments on a conference table; correct?

Theodore Udell - Direct

A. That's correct.

Q. And how many plastic fragments did you have spread out on the conference table?

A. I have no idea. It was a lot of pieces of plastic.

Q. All right. And there came a time when it was decided to focus just on a couple of bags of plastic fragments; correct?

A. That's correct.

Q. And there was an effort just going to be working with those plastic fragments and see if they matched somebody's barrels; correct?

A. Yes.

Q. Do you know if other people were asked to take other pieces of plastic on the conference table and try to match them to somebody else's barrels?

A. Well, before Monica Knuckles came to me, she went to Van Leer and asked Van Leer to do the same thing.

Q. Now, my question -- and that's the only knowledge you have of any attempt to find out whose barrels or whose polyethylene things might match the pieces of plastic on your conference table, you and Van Leer; correct?

A. I don't follow your question now.

Q. You know that attention focused on some pieces of plastic that were on your conference table to see if they matched your plastic; correct?

A. Yes.

Theodore Udell - Direct

Q. And you heard from Monica Knuckles that she had taken some other pieces of plastic and gone to Van Leer; correct?

A. Yes.

Q. Do you know of any efforts to try to match all these other pieces of plastic on your conference table to somebody else's barrels other than yours and Van Leer's?

A. No.

Q. Now, after you talked to Monica Knuckles about this and you

looked -- you identified some pieces of plastic as perhaps being yours; correct?

A. Yes.

Q. You told us about that last time you were here?

A. Yes.

Q. Then what's the next thing did you with the FBI?

A. Well, I told Monica Knuckles that she was in luck because we had a tracer in our natural drums.

Q. Now, you said your tracer. Now, that's this calcium carbonate; correct?

A. Yes.

Q. And calcium carbonate is added to an additive package produced for you by Allied; correct?

A. Yes.

Q. And that is designed to help, when you analyze it, determine if the percentage of additive is correct in the product. Is that one purpose of it?

Theodore Udell - Direct

A. One purpose of it.

Q. Yes. It's also a filler; correct?

A. We do not use it as a filler, but it can be used as a filler.

Q. Now, you're aware -- you were aware at the time that the calcium carbonate is used in other people's drums; correct?

A. Yes.

Q. And you're also aware that calcium carbonate has uses in being mixed with additive packages in high-density polyethylene for non-drum uses; correct?

A. I learned that afterwards, yes.

Q. Now -- so there is nothing unique about -- calcium carbonate is used by other people than Smurfit; correct?

A. Calcium carbonate by itself is not unique.

Q. Calcium carbonate is part of an additive package used by other people. You know that; correct?

A. Yes.

Q. Now, we had this conversation with Ms. Knuckles. Did you have any other conversation besides the additive package that Smurfit used before you agreed to participate in doing some kind of a survey?

A. Excuse me. I don't understand the question.

Q. Between the time you talked to Monica Knuckles and the time you agreed to help out the FBI doing some kind of a survey, did you have any talk with anybody in the Government about this

Theodore Udell - Direct

additive package in your drums?

A. Not that I recall.

Q. Okay. Now -- then beginning with -- you talked back and forth with Mr. Hayes; is that correct?

A. Yes.

Q. And discussed with him who he should call; correct?

A. Yes.

A. Yes.

Q. And you understood that he was calling manufacturers of high-density polyethylene; correct?

A. Among others, yes.

Q. Now, did you understand that he called all manufacturers of high-density polyethylene in North America?

A. I gave him a list of manufacturers of high-density polyethylene and other drum manufacturers.

Q. Did you give him a list of the -- or membership roster of the Society of the Plastics Industry?

A. Yes.

Q. And is it your testimony -- what else did you give him other than this membership roster of a trade association?

A. There were a number of lists; and whether it was -- I think I had a handwritten list as well of manufacturers of plastics material and maybe the -- the PDI, the Plastic Drum Institute, list of members.

Q. And what is the Society of the Plastic Industry?

A. Well, the --

Theodore Udell - Direct

Q. Or the Plastics Industry.

A. The -- everybody associated with plastics or -- are invited to join this association, Society of Plastics Industries. The Plastic Drum Institute, PDI, is a subset of the Society of Plastics Industries; and PDI is Plastic Drum Institute, so some drum members are members of the PDI.

Q. So it's not required that you be a member of it; correct?

A. That is correct.

Q. And it includes reconditioners of drums; correct?

A. That is correct.

Q. You testified earlier that these drums do not have any fixed useful life?

A. That is correct.

Q. That they could last many, many years; correct?

A. Yes.

Q. And in the plastics industry, there are -- have been since 1985 mergers and acquisitions; correct?

A. Yes.

Q. That is to say, companies have changed hands. Is that right?

A. Yes.

Q. Now, at some point, did -- then did Mr. Hayes forward you a -- the notes that we've just identified as D1828 and ask you to fill in the blanks?

A. No. He gave it to me to look at.

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Q. And did you make notes on it?

A. Yes, I did.

Q. Did the notes reflect telephone calls that you made?

A. Yes, they -- yes, they did.

O. All right. Now, for instance, when you called Phillips 66.

you talked to somebody named Dave. Remember that?

A. Yes.

Q. Now, who is Dave?

A. Well, I have to look at my notes to tell you who Dave is.

Q. Okay. Well, just looking at D1828, page 1. See it says "talked to Dave."

A. Yes. Uh-huh.

Q. Now, from your notes, who does it say that Dave is?

A. Says Dave Morgan.

Q. Dave Morgan?

A. Dave Morgan was in charge or knowledgeable about polyethylene production that Phillips produced.

Q. Now, you say -- and then there is a question mark beside that note. Well, when did you talk to Dave? On the date indicated here?

A. Most likely.

Q. Now, what does Dave do? What's his job title?

A. I'm not sure at this point. I know Dave Morgan. I've worked with him. I believe he's like the sales and marketing manager.

Theodore Udell - Direct

Q. For Phillips 66?

A. For Phillips 66.

Q. How long has he been the sales and marketing manager for Phillips?

A. I couldn't tell you.

Q. So you got some information from him; right?

A. Yes.

Q. All right. And then at Solvay Polymer, you talked to Ken Rosengard. Correct?

A. If it's on the list, yes.

Q. Well, what does Ken do for a living?

A. All the people that I talked to --

Q. No, no, sir. Do you remember what Ken does for a living?

A. His exact title?

Q. Yes, sir.

A. No.

Q. Do you know how long he's worked for Solvay Polymer?

A. No.

Q. Did you talk to somebody at Greif Brothers?

A. Yes.

Q. And who did you talk to there?

A. Who's ever on the list.

Q. All right. Looking at your list, page 2, does that refresh your recollection who you talked to at Greif Brothers?

A. Yes. John Stein.

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Q. All right. Now, what's John Stein's title?

A. Well, it says technical manager.

Q. That's what it says on this typewritten list here?

A. Yes.

Q. And that was supplied by Agent Hayes?

A. Yes.

Q. Well, did you -- how long has John Stein worked for Greif Brothers?

A. I can't tell you.

Q. What are his responsibilities as tech manager?

A. To know what the formulation of the materials would be.

Q. And do you know that of your personal knowledge, sir, or are you just guessing?

A. No. I asked that question to everybody I talked to.

Q. Okay. And then you got back something that caused you to write "unknown" -- correct -- after you found out that he knew what he was talking about? You see it there, sir? "Unknown"?

A. Oh, yes. Yes. Okay.

Q. Well, do you have a recollection right now of why it is that after you found out this guy knew what he was talking about, you wrote "unknown"?

A. Yes.

Q. What was that?

A. In the questions I asked, I asked very broad-based questions that I -- where I would be sure that they knew what

Theodore Udell - Direct

they were talking about and had the right information.

Q. Okay.

A. So I talked to him the first time. He did not have the information that went back as far as I had requested, and so I asked him to go back to '76, when his earliest records were; and so I wrote the "unknown" when I first talked to him. He went back and I talked to him since that time, and he clarified the fact that -- the data on the chart.

Q. None of these questions, these broad-based questions, are on this chart; correct?

A. That is correct.

Q. And you wrote here "none from 1990"; correct?

A. Yes.

Q. Is this your testimony that was a result of your first conversation with this Mr. Stein?

A. I have to look at my notes to comment on those.

MR. TIGAR: Can I have a device just to show it to him

on the monitor, your Honor? I think that would save me from walking across --

THE COURT: Yes.

BY MR. TIGAR:

Q. Sir, there it is just for you to refresh your recollection. What did you find out the first time you talked to Mr. Stein?

A. I think the first time it was "none from 1990."

Q. Okay.

Theodore Udell - Direct

A. Then we talked about that he had dated back to 1976, and I asked him to go back to '76.

Q. All right. And then you said "go back '76"; correct?

A. Right.

Q. And then underneath "go back '76," it says "unknown." Correct?

A. Yes. But that doesn't refer to that.

Q. Pardon?

A. That doesn't refer to that. The "unknown" was written first, and then it was "go back to '76." And the checkmark in the right -- on the left-hand -- the right-hand corner of the first column means that I was satisfied with his answer.

Q. But without you here to explain all this to us, in order of the series, it reads "none from 1990, will call 3-25, will call 3-14, go back '76, unknown, left message 3-10"?

A. But at the same time, if you look up above it --

Q. Sir, is that what it says? Is that what you wrote?

A. That's what I wrote.

Q. Now, who did you talk to at Russell-Stanley Corp.?

A. I have to look at my notes to --

Q. All right, sir. Did you talk to Earl Lind?

A. Yes, I did.

Q. He was a former Smurfit chemist; correct?

A. Yes, he is -- yes, he was.

Q. And at what point, did you write "From 1990 - did not use

Theodore Udell - Direct

622 or calcium carbonate"? When did you write that?

A. You're showing me half a chart. I really need the whole chart.

Q. I'll show you the whole chart, sir. There. See the whole page? When did you write that?

A. That was probably my first conversation with him.

Q. You say that "probably"? As you sit there today, you don't recall whether it was or not?

A. It was my first conversation with him.

Q. Now, when had Earl Lind worked for Smurfit before he went to Russell-Stanley?

A. About eight years ago.

Q. So as of the time that you were calling him, it had been, what, a little less than eight years?

A. Yes.

Q. Now, did you call an outfit called Nampac?

A. Yes, I did.

Q. And who did you speak to there?

A. Charlie Clut.

Q. Now, did you reach Charlie Clut in Puerto Rico, or in the United States?

A. In the United States.

Q. How long has he worked for Nampac?

A. I do not know.

Q. Do you know what his title is?

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A. No.

Q. The plant manager is listed as Marcos Aviles on your notes. Did you talk to Marcos Aviles?

A. No.

Q. Why not?

A. He speaks Spanish only.

Q. Now, there came a time, sir, in which you reported your results to the FBI; correct? Yes?

A. I -- I was sent the charts, and I basically told them that I had basically agreed with the information in the charts.

Q. Now, what about Zarn, Inc.?

A. Yes.

Q. You had a telephone call about Zarn, Inc., recently; correct?

A. Telephone call about Zarn?

Q. Yes. Did you call Mr. Geoffrey Mearns within the last three days?

A. Yes.

Q. And what was the subject of your telephone conversation with Mr. Mearns?

A. I said I found another name on the list that I hadn't verified.

Q. That you had not verified?

A. That's correct.

Q. And that -- what name was that?

Theodore Udell - Direct

A. Zarn.

Q. And what other conversation did you have with Mr. Mearns?

A. I was asking him why I was being asked to come back.

Q. And he didn't answer, did he?

A. No.

Q. Now, you said there was another name other than Zarn that you hadn't verified? I didn't understand what you said. You told him there was a name -- that Zarn was another name that you hadn't verified?

A. I said Zarn was a name that I had not verified.

Q. Were there other names you had not verified?

A. Not on the last list. There was -- there were -- the list that you have has two sets of data in it. The second set of data, there were two names I had not verified. This is going back several months. And I got the information, called and verified those two names. I missed the Zarn name.

Q. And -- okay. Now, if I were to go through all of these -- how many people did you contact?

A. Must have been 50 or more.

Q. Okay. And of those 50 people, as to how many of those people can you tell us how long they'd worked for the company that you were calling?

A. I couldn't tell you that.

Q. And as to those 50 people, other than their title -- all right -- as to how many of them can you provide a detailed job

Theodore Udell - Direct

description?

A. None.

MR. TIGAR: No further questions, your Honor.

THE COURT: Mr. Mearns, are you going to have some questions?

MR. MEARNS: Yes, I do, your Honor, briefly.

THE COURT: All right.

CROSS-EXAMINATION

BY MR. MEARNS:

Q. Mr. Udell, in response to a question from Mr. Tigar, you talked about a conversation that you had with Ms. Knuckles --

A. Yes.

Q. -- of the FBI back in 1995.

A. Yes.

Q. Do you recall that?

Why is it that you told Ms. Knuckles that she was in luck?

A. Because we added a tracer to our natural formulation, so the combination of the tracer, the particular UV stabilizer we were using, the antioxidant package, the base resin, and the phosphite would be a very unique formula in combination with the Novacor resin.

Q. Is it simply the presence or absence of calcium carbonate in the additive package that makes the Smurfit recipe unique?

A. No. It's the -- it's the -- the combination, the recipe of

Theodore Udell - Cross

multiple chemicals that make it unique, not just the calcium carbonate, because there are other people who add calcium carbonate; but they do not add calcium carbonate in a lot of cases to their natural drums, in most cases to the natural drums, and they do not add calcium carbonate with the Tinuvin 622 UV stabilizer. So it's a very unique formulation.

Q. And that was your opinion in 1995 when you spoke to Ms. Nichols when you were first contacted by the FBI?

A. Yes.

Q. And as the result of the survey that you conducted, has your opinion changed in any way?

A. Not at all.

Q. What is your opinion as you sit here today?

A. In doing the telephone search, I made sure, No. 1, that I was talking to a person who had full knowledge of what their formulations were prior to 1995, not just from '92 to '95 when we produced the drums, but going as far back as the records could indicate. And if I was not satisfied that the person on the list had that information, you'll notice on the list there are other names. I got -- I called other people up, and I did not quit asking questions until I was absolutely certain that there was no question that the information I had was correct and that the Smurfit formulation was the only one that carried all those ingredients.

MR. MEARNS: I have no further questions, your Honor.

THE COURT: Mr. Tigar?

REDIRECT EXAMINATION

BY MR. TIGAR:

Q. Would you agree with me, sir, that an opinion is no better than the facts to back it up?

MR. MEARNS: Objection. Argumentative.

THE COURT: Overruled.

THE WITNESS: Excuse me?

BY MR. TIGAR:

Q. Would you agree with me, sir, that an opinion is no better than the facts to back it up?

A. True. Yes.

Q. Do you do market research, sir? Your company?

A. My company, yes.

Q. And when you do market research, do you retain a market research firm?

A. Not always.

Q. Have you retained market research firms?

A. I have.

Q. And you know that they use sampling techniques and other techniques designed to make their results have statistical validity; correct?

A. Yes.

Q. And, sir, if you wanted to find out what was in a

particular drum make you made to find out if it was suitable

Theodore Udell - Redirect

for a customer's use, for instance -- let's take a chemical company, Conoco -- would you ask them to rely on your word, or would you give them a materials sheet?

A. Could go either way.

Q. Materials sheets are routinely made by your company, aren't they?

A. A material sheet of what?

Q. Materials sheet that show the additives in your products so that the customer can evaluate whether or not that product is suitable for their use.

A. No, we do not.

Q. Did you see Mr. Hayes' notes?

A. That's the one basically you were showing me that I commented on.

Q. Have you seen any other notes?

A. Other than those, no.

Q. Is it your testimony, sir, that a company that deals with you does not get a materials sheet that shows what's in your product so they can determine whether or not it's suitable for their uses?

A. That's correct.

Q. You don't tell them that you have ultraviolet packages and so on? You don't tell them that?

A. We don't list it, no.

Q. If they called up and asked you for a materials sheet, do

Theodore Udell - Redirect

you give it to them?

A. We don't have a materials sheet that lists those ingredients. If they ask me, we tell them it's in there.

Q. So it's your testimony, sir, you don't do that.

Now, you said on redirect examination that you kept on asking questions until you were satisfied. Correct?

A. Yes.

Q. And you'd agree with me that none of those questions you kept on asking is in your notes; right?

A. That's correct.

Q. So that if we read your notes, we're not going to find out that fact; right?

A. Yes.

Q. And you testified on redirect that you kept -- that you made sure the person you were talking to had full knowledge; correct?

A. Yes.

Q. Yet you cannot tell us, can you, sir, how long any of those people worked for the companies you were talking to?

A. Yes, that's correct.

Q. And is your opinion today about the -- according to your very unique formulation -- based on this survey that you did; that is, what you based your opinion on, the opinion you've given us today, based on this survey?

A. I wouldn't call it a survey.

Theodore Udell - Redirect

Q. Well, what would you call it?

A. A fact-finding.

Q. All right. Is your opinion today based on this fact-finding mission that you engaged in with the FBI? Is that what it's based on?

A. Yes.

MR. TIGAR: No further questions.

MR. MEARNS: Nothing further, your Honor.

THE COURT: May he now be excused?

MR. TIGAR: Yes, your Honor.

THE COURT: You may step down. You are now excused.

Members of the jury, we'll take our afternoon recess -- luncheon recess, not afternoon recess. It's after noon but it's not midafternoon. Usual time here of about 90 minutes, maybe just a little longer; but, of course, usual cautions: Please recognize you're going to hear a lot more than you've heard so far; so keep open minds, avoid discussion of the case with other jurors and with all other persons, and continue to be careful to avoid anything outside the evidence that could influence you in the decisions to be made.

You're excused now till about 1:35. We could be a little bit delayed. You're excused.

(Jury out at 12:03 p.m.)

THE COURT: Mr. Japha here?

MR. JAPHA: Yes, your Honor.

THE COURT: Please. Could you come up, Mr. Japha.

MR. TIGAR: I'm sorry, your Honor. Did your Honor want to do it at the bench?

THE COURT: No.

MR. TIGAR: I'm sorry. Misunderstood.

THE COURT: No.

Mr. Japha, you were appointed to represent a witness who was -- is in custody and was brought here at the request of Counsel.

MR. JAPHA: That's correct, your Honor.

THE COURT: Is that correct? And you have visited with him. I take it you found out about what it is that he would be asked?

MR. JAPHA: Yes, your Honor.

THE COURT: And after -- and, of course, you advised him with respect to his rights under the Constitution of the United States.

MR. JAPHA: Yes.

THE COURT: Particularly with respect to the privilege under the Fifth Amendment.

MR. JAPHA: Correct, your Honor.

THE COURT: And without getting into anything that would obviously be privileged with respect to the communication back and forth -- we're not going to ask you that -- but after talking with counsel who requested him and then after talking with the witness, can you tell us what the position of the witness would be if called and asked questions of the type that you were informed would be asked?

MR. JAPHA: Yes, your Honor. After consulting with Mr. Hart, I can represent to the Court that he would invoke his Fifth Amendment privilege.

THE COURT: Essentially on all of the subject matter that you were informed that he would be asked?

MR. JAPHA: Correct. On the substantive matter, yes.

THE COURT: Yes. All right. Thank you, Mr. Japha. And, Mr. Conner.

MR. CONNER: Yes, your Honor.

THE COURT: Would you come up, too, please.

I take it you were in the room when I asked these questions of Mr. Japha.

MR. CONNER: I was, your Honor.

THE COURT: And you were appointed to represent another person who has been brought here in custody, and I take it you also were informed by requesting counsel as to the subject matter of -- about which your client witness would be asked?

MR. CONNER: I was, your Honor. I was also provided -- it's my understanding -- with the agreement of the Government, the interview reports that had been done of my client, Mr. Morris; and I've fully discussed Mr. Morris' proposed testimony with him.

THE COURT: And advised him with respect to his rights --

MR. CONNER: Yes, I have.

THE COURT: -- under the Constitution?

MR. CONNER: Under the Constitution and based upon --
THE COURT: And again, I don't want you to get into any privileged communications with your client; but are you prepared to advise us what his position is with respect to the invocation of the privilege on the matters that you understand he would be asked about?

MR. CONNER: Yes, your Honor. He would invoke his privilege against self-incrimination under the Fifth Amendment of the Constitution.

THE COURT: On essentially everything that would be pertinent to the purpose for his being called?

MR. CONNER: That is certainly my belief, yes, your Honor.

THE COURT: All right. Well, do either counsel have any questions of counsel with respect to this?

MR. WOODS: Not from us, your Honor.

MR. MACKEY: No, your Honor.

THE COURT: Or the Government?

All right. Thank you.

MR. TIGAR: Your Honor, may we request a finding by the Court that the witnesses are unavailable within the meaning of Federal Rule of Evidence 804.

THE COURT: Yes. And I'm going to rely on these two lawyers and their representations of the position of the witness without calling them.

Is that a satisfactory procedure to both sides?

MR. TIGAR: Yes, your Honor.

MR. MACKEY: It is, your Honor.

THE COURT: All right. So yes, my finding is that these two witnesses, Shawn Morris and Jason Hart, are not available.

Okay. Counsel, Mr. Japha, Mr. Conner, we appreciate your service in this matter. You're now excused.

MR. JAPHA: Very well.

THE COURT: From the courtroom, I mean.

MR. CONNER: Thank you, your Honor.

THE COURT: Not a general excuse for everything you've ever done.

MR. JAPHA: I have one more matter that perhaps we could take up. I did file something under seal.

THE COURT: Yes, and I granted it except with respect to the motion. That may want to be redacted. We'll have counsel who filed the motion look at that and decide whether there is any objection.

MR. JAPHA: Very well. Thank you, your Honor.

THE COURT: Well, we'll be in recess till 1:40.

(Recess at 12:10 p.m.)

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REPORTERS' CERTIFICATE

We certify that the foregoing is a correct transcript from
 the record of proceedings in the above-entitled matter. Dated
 at Denver, Colorado, this 8th day of December, 1997.

Paul Zuckerman

Bonnie Carpenter

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