Monday, May 19, 1997 (afternoon)

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO
Criminal Action No. 96-CR-68
UNITED STATES OF AMERICA,
Plaintiff,
vs.
TIMOTHY JAMES McVEIGH,
Defendant.

REPORTER'S TRANSCRIPT
(Trial to Jury - Volume 102)

Proceedings before the HONORABLE RICHARD P. MATSCH, Judge, United States District Court for the District of Colorado, commencing at 1:40 p.m., on the 19th day of May, 1997, in Courtroom C-204, United States Courthouse, Denver, Colorado.

Proceeding Recorded by Mechanical Stenography, Transcription Produced via Computer by Paul Zuckerman, 1929 Stout Street, P.O. Box 3563, Denver, Colorado, 80294, (303) 629-9285

APPEARANCES

PATRICK M. RYAN, United States Attorney for the Western District of Oklahoma, 210 West Park Avenue, Suite 400, Oklahoma City, Oklahoma, 73102, appearing for the plaintiff.

JOSEPH H. HARTZLER, SEAN CONNELLY, LARRY A. MACKEY, BETH WILKINSON, SCOTT MENDELOFF, AITAN GOELMAN, and VICKI BEHENNA, Special Attorneys to the U.S. Attorney General, 1961 Stout Street, Suite 1200, Denver, Colorado, 80294, appearing for the plaintiff.

STEPHEN JONES, ROBERT NIGH, JR., and ROBERT WYATT, Attorneys at Law, Jones, Wyatt & Roberts, 999 18th Street, Suite 2460, Denver, Colorado, 80202; JERALYN MERRITT, 303 East 17th Avenue, Suite 400, Denver, Colorado, 80203; CHERYL A. RAMSEY, Attorney at Law, Szlichta and Ramsey, 8 Main Place, Post Office Box 1206, Stillwater, Oklahoma, 74076, and CHRISTOPHER L. TRITICO, Attorney at Law, Essmyer, Tritico & Clary, 4300 Scotland, Houston, Texas, 77007, appearing for Defendant McVeigh.

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PROCEEDINGS

(Reconvened at 1:40 p.m.)

THE COURT: Be seated, please.

(Jury in at 1:40 p.m.)

THE COURT: Next witness, please.

MR. HARTZLER: The Government calls Steven Burmeister. Miss Wilkinson will question him.

THE COURT: Thank you.
THE COURTROOM DEPUTY: Raise your right hand, please.
(Steven Burmeister 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: Steven G. Burmeister, B-U-R-M-E-I-S-T-E-R.
THE COURTROOM DEPUTY: Thank you.
THE COURT: Ms. Wilkinson.
MS. WILKINSON: Thank you, your Honor.

DIRECT EXAMINATION

BY MS. WILKINSON:
Q. Mr. Burmeister, tell the jury where you're employed.
A. I'm employed at the FBI laboratory in Washington D.C.
Q. What's your official title?
A. My official title is supervisory special agent.
Q. How long have you been working at the FBI?
A. Since March of 1987.
Q. Tell us where you're currently assigned.
A. I'm currently assigned to the Chemistry/Toxicology Unit at the FBI laboratory.
Q. And do you have a supervisory position there today?
A. Yes, I do.

Q. What is that?
A. I'm currently the -- today, the acting unit chief.
Q. And you supervise all the other chemists and technicians in your unit?
A. Yes.
Q. Did you concentrate in a certain area in the Chemistry/Toxicology Unit?
A. My specialty right now is the area of explosive and explosive residue analysis.
Q. Are you a qualified examiner in explosive residue analysis?
A. Yes, I am.
Q. Tell us, is there also an Explosives Unit at the FBI laboratory?
A. Yes.
Q. What is the difference between the Explosives Unit and the Chemistry/Toxicology Unit?
A. Well, the Chemistry Unit is principally responsible for the chemical analysis of explosives as well as the residues that are formed after an explosive goes off. The Explosive Unit is one unit which is responsible for actually the device itself and blast damage and blast effects, those kind of things.
Q. So the Explosives Unit does not conduct any residue analysis; is that right?
A. No.
Q. Now, in your Chemistry/Toxicology Unit, what type of

employees do you have?
A. The staff in the Chemistry/Toxicology Unit is -- I believe everybody right now, we have chemists on board, some who are -- have Ph.D.s and some who have master's degrees, some are bachelor's degrees, and we do have two toxicologists on staff.
Q. Do you have people who are qualified as examiners?
A. Yes.
Q. Do you also have technicians?
A. Yes.
Q. What is the role of the technician in your unit?
A. The technician who is a chemist will work closely with the examiner, under the direction of the examiner, and will conduct actual chemical tests at the request of the examiner; will run certain instruments and provide the data to the examiner. The examiner will actually review the data itself, come to a conclusion. If more tests are required, they will go back to a particular chemist and have that done.
Q. Who is it that issues the findings as to the results of the examination of evidence in your unit?
A. The actual person who renders an opinion is the actual examiner itself. He or she will actually prepare a report which goes out.
Q. Technicians do not offer official opinions; is that right?
A. That's correct, yes.
Q. I'd like to turn to your education and background. If you

could tell the jury where you graduated from college.
A. I hold a bachelor of science degree in chemistry from Susquehanna University in Selinsgrove, Pennsylvania.
Q. Did you pursue further studies?
A. Yes.
Q. What did you do?
A. I went forward and obtained a master's degree in chemistry and forensic chemistry from the University of Pittsburgh, Pittsburgh, Pennsylvania.
Q. How long have you been working in the field of explosives and explosives residue?
A. I would venture to say since the early 1980's.
Q. And after you graduated or after you obtained your master's degree, what type of employment did you have?
A. After I received my master's degree, I went to work for a short period of time at the Allegheny County crime laboratory where I worked in their trace evidence section. After receiving -- after working there at the crime lab, I went to work for a company called Pharmakon, Incorporated, which was a private forensic and toxicology lab.
Q. Before we get into your employment, let me go back to your master's degree. Did you have an area of concentration when you were working on your master's degree?
A. Yes.
Q. What was that?

A. The area that I specialized in and worked was the area of microcrystal work and that specifically pertained to explosives analysis where I was able to use the polarized light microscope to analyze residues.
Q. All right. Break it down for us a little bit. Tell us what you did. How did you look at crystals?
A. Well, actually, obtaining the crystals of materials and examining them with a microscope, there's certain physical characteristics and certain information you can derive, and that's what I was trying to build on, and adding chemicals to these materials and actually developing crystals that were unique to explosives.
Q. And were you able to determine during that study that certain crystals that come from certain explosives have certain types of unique structures?
A. Yes.
Q. Now, let's go back to your employment. You were telling us about Pharmakon, Incorporated.
A. Right.
Q. And that is a private forensic and toxicology lab?
A. Yes.
Q. What type of work did you do there?
A. For the Pharmakon, Incorporated, I served as laboratory manager as well as the supervisor of their forensic division.
Q. Were you ever asked to testify regarding your work when you

were at Pharmakon, Incorporated?
A. Yes.
Q. And for whom did you testify?
A. While there, I testified for both the prosecution and the defense as a defense expert for the public defenders' office.
Q. How long did you work at Pharmakon, Incorporated?
A. Up until 1987.
Q. Then what did you do?
A. In March of 1987, I entered into the FBI as a special agent.
Q. When did you begin work in the laboratory?
A. I received official notification of assignment to the laboratory in around November of 1991 and officially reported on duty in January of 1992.
Q. Now, the jury's heard a little testimony on this, but can you tell us whether, when you're assigned to the laboratory, you immediately become a qualified examiner.
A. No.
Q. What happens?
A. The procedures in the FBI, as soon as you come on board, you're assigned to work with an experienced examiner in the area that you intend to specialize in. And that's what I did in this particular case.
Q. With whom did you work when you were training as an examiner?

A. I was assigned to work with Special Agent Frederic Whitehurst.
Q. And did he conduct training with you on the examination of explosives residues?
A. Yes, we did. I would say a fairly intense preparation procedure for approximately one year.
Q. Did you attend any type of specialized schools to further your training before you became a qualified examiner?
A. Yes.
Q. What type of schools?
A. These schools were in the area of explosives, explosives analysis, certain X-ray diffraction schools, pyrotechnic schools, chromatography schools.
Q. When you say "chromatography" and "X-ray diffraction," are these types of instruments that you use in your analysis?
A. Yes.
Q. And you went to that training for what purpose?
A. This was for training as well as understanding the instrumentation that I was about to use, yes.
Q. After you -- had you used some of those instruments prior to coming into the FBI?
A. Yes, I had.
Q. Would it be fair to say you're quite familiar with chromatography, X-ray diffraction --
MR. TRITICO: Objection, leading.

MS. WILKINSON: I'll rephrase it.
THE COURT: All right.
BY MS. WILKINSON:
Q. Are you familiar with chromatography techniques?
A. Yes.
Q. X-ray diffraction techniques?
A. Yes.
Q. And infrared spectroscopy?
A. Yes.
Q. When did you become a qualified explosive residue examiner?
A. January of 1993.
Q. Tell us briefly what you do as a qualified explosive residue examiner for the FBI.
A. Again, I respond to various incidents and collect actual physical evidence for chemical analysis back in the laboratory. I analyze explosive residues associated with these incidents as well as the actual examination of bulk explosive that may be entered into the laboratory.
Q. You mentioned explosive residue analysis. Just tell us briefly how you conduct that type of analysis.
A. Well, there's a procedure that I follow, and it's a procedure that we work with. It's an actual chemical extraction of the actual objects for residues, and then I would

actually use them and apply them to instruments and determine what explosive residues are there.

Q. Before you follow that procedure, how do you know where to look for residues or whether you're looking for uninitiated explosive matter?
A. Well, that's based on the training and the experience that you develop over a course of time, actually finding the areas that are good substrates for explosive residues.
Q. All right. Slow down. What's a substrate?
A. A substrate I would determine as being a surface, some sort of material, either being plastic, glass, or metal. Sorry.
Q. Now, if you were to go to a crime scene after an explosion had occurred or what you believe to be an explosion to occur, what do you analyze to determine if there's uninitiated explosives?
A. Well, the first thing I will do is assess the entire situation. Then knowing from past experience, I will try to focus my attention on areas and materials that will be likely candidates for explosive residue examination.
Q. Can you tell us the difference between uninitiated explosives and explosive residue?
A. Well, once an explosive goes off, actually explodes, there's actually materials that are left behind that we can go and look at those materials and then go backwards and determine perhaps what the explosive was to begin with. There are occasions where the explosive will actually explode and particles of the original material will be dispersed out, and

on those surfaces the actual material that we began with can be obtained and collected and analyzed; so in those cases we can definitely go back to the starting material.
Q. If you're looking at what you believe is uninitiated explosives, can you see that with the human eye, in any case?
A. There are some instances, you can; some you need some sort of aid device such as a microscope.
Q. What about when you're looking at explosive residue, can you see those with the human eye?
A. Most of them I would presume you cannot see with the naked eye.
Q. So how do you determine they're on a piece of evidence?
A. Well, then you will have to take some sort of solvent and remove these residues from the surface and then analyze those, the rest of those extracts you have taken with the solvents and to determine what's present.
Q. Now, as part of your duties and responsibilities as an examiner, do you participate in continuing education either as a student or a teacher?
A. Yes.
Q. Describe those responsibilities for us, please.
A. Well, I've taught quite frequently at the FBI's

A. Well, I've taught quite frequently at the FBI's chromatography -- forensic chromatography school held at least twice a year at the FBI Academy. I'm also involved in the FBI explosive residue school that's hopefully -- we try to do it

twice a year. We had one starting today. That's part of the program. I've also taught in various schools around the country and also in international settings to include even Russia.

Q. Have you attended any conferences or symposia in your field of explosives residue?

A. Yes, I have.

Q. Did you conduct a conference back in 1993?

A. Yes, we were quite proud of that particular conference. It was an international conference, both domestic representatives and also international representatives, where we actually discussed explosive residue analysis. I was quite pleased with that program.

Q. During that conference, did you discuss the explosive residue protocol that you and others had created?

A. One of the things that we tried to do with that particular conference and symposium was to try to develop an actual international protocol, one in which we could all agree on as being the best one. It's kind of difficult to do with some international guests in particular, some countries in South America which did not have the type of instrumentation that we had. So it was kind of difficult. But what it allowed us to do is actually present our explosive residue protocol and allowed people in the audience to discuss it, and it was a healthy meeting.

Q. You did that back in 1993?

A. Yes.

Q. Did you make changes to your protocol based on the comments you had received from others?

A. The modifications were very small. Our protocol was agreed, and it was well received.

Q. Do you continue to review your protocol as you're conducting tests through the years?

A. Yes. It's a protocol that's evolving as we go along, almost on a day-to-day basis.

Q. Why is that?

A. Well, as times and technology change -- we're trying to keep pace with as many different advances and new procedures, so that's why we leave it open for evolution.

Q. Now, let's start with the basics, if we could. Can you tell the jury what an explosive is.

A. Whenever I try to describe what an explosive is, the best way to do this is to -- I like to describe a definition by an author by the name of Tenny Davis.

Q. And for of those who don't know who Tenny Davis is, can you

Q. And for those who don't know who Tenny Davis is, can you tell us?
A. Tenny Davis wrote a book on explosives. It's a well-known book. It's a very widely read book, and it's an explosives and powders textbook. One of the things that he talks about -- and he says that an explosive is either a pure material, single

substance, or a mixture of substance which is capable of an explosion by its own energy; and if we take that apart and say what is an explosion, we can then say it breaks down to either a mechanical explosion or some sort of nuclear explosion or a chemical explosion, and in this case we're focusing on a chemical explosion.
Q. Tell us in as simple terms as you can how a chemical explosion actually occurs.
A. Well, a chemical explosion occurs when -- you need to have some sort of fuel and some sort of oxygen source present. And when those two things are combined in the proper sense, you can actually have an explosion take place, if you properly do it.
Q. And tell us what happens inside to cause that explosion.
A. Well, energetic materials are fascinating materials because they -- they're packed full of energy, they're really tightly held. And one of the best ways to describe it is if you imagine several different rubber bands all fastened together and twisted together in a tight, little ball. And I also use that because if I held that tight, little ball together and placed it on the table and allowed it to actually explode or initiate, all of those rubber bands rapidly unwind and disperse themselves all over the place. Well, that unwinding is the actual explosion taking place, and the rubber bands are the explosive being deposited all over in a dispersion pattern.
Q. Now, you mentioned that when you have this explosion, you

need some kind of fuel or something to cause it to occur; is that right?
A. Yes.
Q. So if you had -- using your rubber band analogy, if you had these -- are they molecules or some other kind of chemical compounds?
A. Yes, they can be incorporated into one molecule.
Q. And that's some type of explosive; correct?
A. It could be, yes.
Q. And what do you need to add to cause that unwinding or that explosion?
A. You have to have some sort of external stimuli to cause this energetic material, which is tightly -- in a kind of a frustrated, aggravated state to go to a more relaxed state. Everything wants to go to something where it's more relaxed, and so that's -- the explosive is working the same way. It's looking for a way to go to a relaxed -- relaxed state. If you provide an adequate stimuli, it will easily go in that relaxed

state; and when it goes to the relaxed state, it emits energy, and every one will have its own unique emission of energy.
Q. What type of characteristics makes a explosive either more powerful or less powerful?
A. Well, there are certain chemical constituents that allow it to be broken down into one that's either way, either a designation of a certain type of an explosive.

Q. Are there categories of explosives referred to as high or low explosives?
A. This is -- to me there's principally three categories that I would allow explosive to fall within.
Q. What are those three categories?
A. The three categories would be one be a primary explosive, a low explosive, and also a high explosive.
Q. If you could just slow down a little bit and explain to us what each of those categories are. What are the characteristics of each category?
A. A primary explosive is one in which it's a material that's extremely sensitive to shock, friction, or heat. It also has a very high reaction rate. It will provide an intense energy once it goes off. And that's when -- that's the category of a primary explosive.

A low explosive is a material that will rapidly burn. It falls in a category called deflagration, which is a rapid burning.

A high explosive is a material which is one which will detonate, and it has extremely high speeds and high reaction rates.
Q. Going back to the primary explosives, can you give us some examples of what common primary explosives are?
A. Primary explosives that would fall into this category are lead and silver azides. Mercury fulminate is another one.

Q. What about high explosives?
A. High explosive, we're looking at things like PETN, RDX, nitroglycerine.
Q. And low explosives?
A. Low explosives would be some propellants, flash powders, and also black powder.
Q. Are you familiar with the term "blasting agent"?
A. Yes, I am.
Q. What is a blasting agent?
A. Blasting agents are typically the ones that are used in the mining industry or those people that want to move soil and dirt. But they're mostly explosives that will thrust and move large quantities of objects.
Q. What are examples of blasting agents?
A. There are some dynamites that are blasting agents. Typically we see things like ANFO, ammonium nitrate and fuel

oil, and a lot of ammonium-nitrate-based explosives fall into that category of blasting agents.
Q. Now, referring back to the three categories you just gave us on the primary, the high and the low explosive, where does a blasting agent fall in those three categories?
A. It will fall within the area of a high explosive.
Q. Can a blasting agent, using ammonium nitrate and fuel oil, for my example, detonate or explode on its own?
A. Not on its own, no.

Q. What does it need?
A. Blasting agent will typically need some sort of booster to get it to go, and that's sort of an industry term, a "booster." But it's another explosive that will provide that extra kick for it to get moving.
Q. And what about the booster, will that explode on its own?
A. No.
Q. What else do you need?
A. You need some sort of detonator to set the booster off, to initiate the booster. And then the booster will initiate the entire large quantity of whatever the explosive will be.
Q. Now, do all explosives explode or detonate -- "detonate" is the same term as "explode"; is that correct?
A. No, a detonation is in the category of a high explosive.
Q. Do all explosives detonate at the same speed?
A. No.
Q. Why is that?
A. Well, it's based on different chemical constituents of certain explosives. That's principally the factor that's involved.
Q. Can you explain to us the difference in the speeds of detonation?
A. The speeds of detonation for certain high explosives can run anywhere from around 3,000 feet per second to as high as 27,000 feet per second.

Q. And where do ammonium nitrate and fuel oil fall in that range?
A. Dependent on its size and configuration, it can range anywhere from about 9,000 feet per second all the way up to about 16,000 feet per second. But that's dependent on its configuration.
Q. What about ammonium nitrate and nitromethane?
A. I believe the numbers fall slightly lower, but it's in and around that category. Again, it has to do with the configuration of the particular device.
Q. Now, what difference does it make at what speed a explosive detonates?
A. Well, the speed at which certain explosives detonate is definitely -- somebody who's a manufacturer in the commercial product would want an explosive to function at a certain rate

product would want an explosive to function at a certain rate. As you go higher in the rates, up high into the 20-some-thousand feet per second, you're actually getting a phenomena call brisance taking place, and brisance is a shattering effect. So as you go higher, you're actually shattering the material faster.

So if you're into the mining operation and you're trying to move a large slab of rock, you don't want to remove your rock and turn it into little, tiny pebbles. You may want to just move sheets, so you may want to use an explosive that has a slower speed that will actually move the whole sheet down

instead of crushing it into little, tiny pebbles.

Q. So if you observed different explosives with a different detonation speeds or detonation velocity -- is that what it's called?

A. Yes.

Q. If you observed different explosives with different velocity of detonations, would you see different types of damage or different types of work done by these explosives?

A. It will cause different effects, yes.

Q. And have you yourself conducted experiments with different explosives to determine the chemical reaction and the different damage caused by those explosives?

A. Yes, I have.

Q. Have you ever participated in the manufacturing or the making of and detonation of a large, midrange velocity, improvised explosive device?

A. Yes, I have.

Q. First of all, can you tell us what is an improvised explosive device?

A. An improvised explosive device is one in which I would categorize as not going down to the, to a commercial product and actually used a commercial product, per se. Now, I can take those pieces from commercial products and design my own configuration. That's what I would consider an improvised explosive device, either that or actually manufacturing the

explosive itself. We know through past experience that people will manufacture nitroglycerine, themselves, and incorporate it in with other materials. And that's what I would consider an improvised explosive device, one in which somebody actually creates or builds.

Q. So it's a homemade bomb; is that right?

A. Yes.

Q. Now, in a homemade bomb or an improvised explosive device, can you use manufactured materials?

A. Yes, that's sort of what I just said, but you could go out and use commercial products to put into it; but if you're taking those commercial products and building some creation, that would -- that's what I would consider an improvised

explosive device.
Q. Now, I used the term "midrange velocity." Can you tell the jury what that term means?
A. That's typically what I would consider into the area of a blasting agent, somewhere between the 6,000 to 15,000. Maybe give or take a little bit on either side, but that's the range.
Q. Are there numerous explosives, either manufactured or homemade, that could qualify for that midrange velocity?
MR. TRITICO: Objection, leading.
THE COURT: Sustained.
BY MS. WILKINSON:
Q. What types of explosives are in the midrange velocity?

A. The classic one that would fall within that midrange velocity are explosives like ammonium nitrate and fuel oil.
Q. Are there others?
A. There are certainly other explosives that will fall within that category, but I believe, knowing the statistics on what industry sells, that happens to be a big one in that category.
Q. Does urea nitrate also fall within that midrange velocity?
A. Yes, it does.
Q. You just told us that you have participated in experiments where you've detonated large, homemade explosives; is that correct?
A. Yes.
Q. And you've participated specifically in the detonation of these midrange velocity explosives; is that right?
A. Yes.
Q. Have you recorded those detonations?
A. Yes, we have.
Q. Did you specifically participate in the detonation in 1993?
A. Yes.
Q. Tell us about that.
A. In 1993, we developed a test in which we were trying to record and see the kinds of effects of a large-scale device containing urea nitrate placed into a van. This particular device was then placed out in the middle of a range area and exploded. We also wanted to see what kind of effects we could

get on witness material for chemical analysis, and those witness materials ranged anywhere from some plastics to pieces of rubber to street signs that we had secreted all over the range surface.
Q. How large was the improvised device that you put inside that van in 1993?
A. The urea nitrate that we had inside the van weighed approximately 1250 pounds of urea nitrate.
Q. Did you record the detonation --
A. Yes, we did.
Q. -- of that device?

And have you viewed the recording of that detonation prior to coming to court today?
A. Yes, I have.
Q. Would that tape assist you in explaining to the jury the chemical reaction that occurs when a large, midrange velocity explosive device detonates?
A. I think it will. And it will demonstrate some other features as well.
Q. What other features?
A. I think the concepts of a dispersion of energy and the dispersion of physical material as it -- as it's randomly dispersed over a range -- I think it demonstrates it quite well.
MS. WILKINSON: Your Honor, may I approach?

THE COURT: Yes.
BY MS. WILKINSON:
Q. Agent Burmeister, take a look at Government's Exhibit 846. Do you recognize that?
A. I have seen the tape before. This cassette.
Q. And is that the tape that you just described showing the detonation of the 1200-pound urea nitrate explosive device?
A. Yes.
Q. And is that a fair and accurate depiction of the detonation that occurred in 1993?
A. Yes.
MS. WILKINSON: Honor, Government offers 846 in evidence, for demonstrative purposes.
MR. TRITICO: Object under Rules 402 and 403 of the Federal Rules of Evidence. This is a urea nitrate bomb, has nothing to do with --
THE COURT: I think you need to ask the witness more about urea nitrate compared to ammonium nitrate fuel oil.
MS. WILKINSON: Yes, your Honor.
BY MS. WILKINSON:
Q. Do urea nitrate and ammonium nitrate fuel oil have similar velocities of detonation?
A. They're very similar in the velocity of detonation.
Q. Do they have similar chemical properties when they're involved with a detonation?

MR. TRITICO: Objection, leading.
THE COURT: Overruled.
BY MS. WILKINSON:
Q. Do urea nitrate and ammonium nitrate have similar chemical properties when it detonates? Not the compounds themselves, obviously -- maybe I'm using the wrong language. Similar characteristics when it detonates?
A. The chemistry is somewhat the same. The features that are different is ammonium nitrate and fuel oil actually has -- has a fuel that's been added to it. Urea nitrate actually has the

a fuel that's been added to it. Urea nitrate actually has the fuel basically incorporated within the molecule itself. But then chemically, once it's initiated, they're functioning about the same.

MS. WILKINSON: Your Honor, based on that, we offer --

THE COURT: Are you saying that the effects that are to be illustrated by this videotape are comparable with both types of explosive material?

THE WITNESS: I think they'd be very close. They're very similar in functionality. If somebody saw two different videos, I don't think anybody could tell the difference. They're functioning the same.

THE COURT: All right.

MS. WILKINSON: We'd just like to publish it for demonstrative -- and there will be no sound, and Agent Burmeister will describe it after one section is shown and then

the second and third section.

MR. TRITICO: I still offer the same objections that I made a moment ago, and I would like the additional objection of an improper foundation for the introduction of this type of explosion as opposed to what the Government is alleging in this case, and I object to it.

THE COURT: Overruled. 846 can be used to demonstrate what the witness is testifying to.

MS. WILKINSON: We'll just need a minute to put it on the computer.

THE COURT: All right.

BY MS. WILKINSON:

Q. Now, while we're getting that ready, Agent Burmeister, you told us it's 1200 pounds of urea nitrate; correct?

A. 1250 pounds.

Q. How was it boosted?

A. It was boosted with 50 pounds of ammonium-nitrate-based dynamite.

Q. How was it initiated?

A. That was electrically initiated.

Q. And why did you use an electrical system to initiate the device?

A. Purely safety reasons.

Q. Agent Burmeister, before we play this, can you tell the jury what they're seeing here at the beginning of Government's

Exhibit 846?

A. Okay.

(Government Exhibit 846 played.)

THE WITNESS: Right down in the middle of the picture there, we see a Ryder truck. It's yellow in the center.

BY MS. WILKINSON:

Q. You can use your pen up there to mark it for the jury.

A. Sorry.

Right there, we see the Ryder truck that's in the center of the picture. Secreted around the Ryder truck are various vehicles that we've placed as witness material.
Q. What do you mean by "witness material"?
A. These are things that will actually record and take certain material that is emanating out of the center of the blast area. We can record the kind of effects that are going to happen once the explosion takes place. Also --

Q. What -- go ahead.
A. I'm sorry.
Q. No, go right ahead.
A. It's kind of hard to see, but over in these areas and even secreted out in this side, we have -- we have street signs that are actually located -- that are also over onto the right. I won't mark it on the screen. But this object right here was a part of the -- some of the witness vessels that we had placed across the entire range to capture some of the residues.

Q. Why did you put street signs out on the range?
A. We felt that they were rigid enough, and we see these kind of things occurring at various scenes; and we just wanted to see what types of effects would come from these types of objects.
Q. Where did this test occur?
A. This took place in Socorro, New Mexico.
Q. And I take it this is a blast range where you have this material?
A. It's a range that was made available to us.
Q. If you can click off all those marks for us, please.
Before we begin the tape, was this explosion or detonation recorded from several different angles?
A. Yes, there's certain high-speed photography that was used to capture things in slow motion, but we had recorded cameras from various different locations to capture the best possible views.
Q. We're going to show the first section, and if after that's through, you could tell the jury what they saw.
A. Okay.
One of the first striking things that you can see is some of the debris that's scattered about; that right down the middle of the scene, you saw a tire or some object being thrown forward to us. That's one of the first things, there's a dispersion of a lot of the materials. Once the smoke clears,

we can see a little better.
Okay. Emanating out from the center of the site, which is this being the center where we used to see the van, there's a dispersion of objects heading in all directions. And that outward direction can never be reproduced a hundred

percent each time. It will never go the same way each time. That random dispersion is the same thing that causes problems when we do explosive residue analysis, because we can -- we can never go always to this particular -- for example, this car -- and get the same residues each time.
Q. Why is that?
A. That's the randomness of this explosive. When it -- and all explosives. It will go in different patterns. So we could continually go back to that automobile. Sometimes we will find it, sometimes we will not.
Q. Now, despite the fact that each explosion is unique, have you discovered through your testing and analysis and your experience that there are certain general patterns that you see in the explosion of high explosives?
A. Based on tests like this, we were able to come up with there are certain pieces of material that will absorb and hold certain types of explosive. And that's the power of this kind of a testing, that we're able to find those pieces which are the ones that we should center in for future events.
Q. What type of pieces have you determined are more likely to

contain residues or contain evidence that you would find of value, based on this type of testing?
A. Well, pieces of plastic, foam rubber, glass, pieces of metal. For example, the street signs which we had placed out on the range turned out to be excellent sources.
Q. Why is that?
A. Well, one, they serve as sort of like baseball mitts. They capture and hold onto explosive as they're emanating out from the particular source.
Q. Now, the next view is the rear view of the explosion; is that right? And we'll play that, and then you'll narrate the next segment.
A. Yes.
Q. Again, tell the jury what they're seeing there.
A. Well, down again the center of the screen, we have our device itself. The witness material over here, some of this is the witness material that was established; and then the street signs, and you can't see them as they go out from the source.
Q. This is the same explosion, just from a different perspective?
A. Yes.
Q. And is it slowed down so you can see some of the other effects?
A. Yes.
Q. Agent Burmeister, would it assist you if we went back to

the beginning of this slow motion and if you narrated so you could tell the jury what they're seeing?
A. If we could see it right from the beginning, that would be

helpful.
Q. Give us a moment and we'll go back.
There we go, and if you could narrate it as it's going along.
A. Right down in the center, we saw the first sign of the explosion taking place. Here we're seeing a massive fireball that's coming out of the particular explosive device. We're talking intense heat from that particular source, and that will emanate from the original site.
Q. Next?
A. And with that front of material coming all along here will be portions of uninitiated explosive that's from the device itself being blown out.
Q. How big would those uninitiated portions of explosives be?
A. It can depend on the particular device itself. It could be microscopic, it could be macroscopic.
Q. Okay.
A. And it's hard to see it, but right along here, you can see this, this wave progressing out, this kind of a white line as we see right along here. You see it moving across towards us, that's that blast wave that we're seeing coming out. That's the thing that that's doing some pretty heavy damage to

buildings and objects as it's moving out from the explosion site.
Q. So in that particular videotape, you can actually see the blast wave moving out from the seat of the explosion?
A. Right.
Q. Clear your screen.
Finally, we're going to show the third viewpoint, the overhead viewpoint, is that correct, that will be next?
A. Yes.
Q. And did you use some infrared device to record that?
A. Yes. It was mounted on an aircraft.
Q. All right. Tell us about what the jury is seeing right here.
A. Okay, down in the center here, we have again the van. Our vehicles that are secreted around on either site, either side of the van. And I guess the rest is just to show the film. And we can see the intensities that are formed.
Q. Is that the benefit of this overhead camera?
A. Yes. The benefit of this is actually recording

temperatures as the heat is evolved from the actual site. So not only will we see the temperatures, but we'll also see a blast wave emanating out from the original site.
Q. Okay. Do you want to tell us what we're seeing there?
A. Okay. This white line that we see coming out from the source was that blast wave moving out from the site and this

being our intense heat that's formed from the actual explosion

being out intense heat that's formed from the actual explosion itself.
Q. Clear those marks, please, and keep going from here.
A. And the other thing which is this demonstrates it really well, you can see it over here. There's little tiny white spots, but those white spots are hot portions of the material, actually the van itself being dispersed out from the explosion. We can see fragments of this particular device blowing off in all directions.
Q. Do you recall the heat, temperature that was recorded from this explosion?
A. The actual temperature, I don't recall the temperature. But it's high. It's very high.
Q. Now, as you were describing the shock wave that was going out, does that go out in a radial or a spherical direction?
A. I think it can be dependent on the particular device itself.
MR. TRITICO: Excuse me, sir, I'm going to object to the speculation on the part of the witness.
MS. WILKINSON: I'll rephrase the question.
THE COURT: All right.
BY MS. WILKINSON:
Q. Agent Burmeister, based upon this test and your experience and your studies, do you know how the shock wave travels out from the seat of an explosion?

A. Yes.
Q. Tell us.
A. Well, based on the configuration of a particular device, the blast wave can be channeled in certain directions. For example, a shaped charge can focus the blast in certain ways that it will go in a certain particular fashion.
Q. What if the charge is not shaped?
A. Then you're talking about a -- let's use, for example, a perfect cylinder. In a perfect cylinder where it's initiated perfectly down the center, it will emanate in a perfect cylindrical shape going out from the source. Any alteration or curvature from that can change the direction of that particular blast.
Q. If one were to build an improvised device, would it be difficult to predict how that shock wave would go out?
MR. TRITICO: Objection, leading.
THE COURT: Overruled.
THE WITNESS: I think generally you could predict it from the type of damage that you're seeing in the surrounding areas. But it might be slightly different to predict the exact way the blast wave went out.
BY MS. WILKINSON:
Q. Now, as an explosive residue examiner, are you sometimes sent out to a crime scene to assist with the investigation?
A. Yes.

Q. What type of crime scenes do you go to?
A. I've been called to both domestic and international crime scenes for explosion, explosive analysis.
Q. And do you go to the bombing crime scene itself?
A. Yes, I do.
Q. Do you go to other scene, related scenes?
A. Yes, I do.
Q. What type of scenes have you been to that are related to the bombing crime scene?
A. These would be scenes in which somebody may be storing or mixing and preparing certain explosives in preparation for the device.
Q. When you go to crime scenes, do you go by yourself to conduct your work, or do you go with others?
A. I typically go with others, but I have gone to some by myself in my particular field.
Q. What type of equipment do you take with you, when you go to bombing crime scenes?
A. Well, it depends on where I'm going and what available transportation assistance I have as to what I will actually take.
Q. And do you take certain, in some instances, mobile instruments for screening purposes?
A. I have taken that in the past, yes.
Q. Explain what a screening device is used for.

A. A typical screening device is one in which is employed -- in the term of screening, there are a variety of instruments out there which can screen for a particular panel of types of explosives. It's a select number of explosives that it will actually look for. In the sense of screening, one is looking for a yes or a no. But these devices can also be used to derive --

MR. TRITICO: Excuse me, sir, I'll object to the witness' narrative. It's beyond the question.

THE COURT: Overruled.

Continue.

BY MS. WILKINSON:
Q. Go ahead.
A. I was saying that certain instruments that although they can used as a screening device, can also provide analytical data; and that's typically when the instrument itself is connected up to a computer which is actually reading some sort of output, and that output is then recorded and reviewed.
Q. Well, we've heard about the screening device called an IMS. Have you heard about that?
A. Yes.
Q. Can that also be used back in the laboratory and hooked up to a computer like you've just described?
A. Yes, it can.
Q. And what kind of data do you get when you use it back in

the laboratory with a detector?
A. Once it's back in the laboratory, you can actually print out what the term is plasmagram or IMS result, and that's a tracing of the results that are coming out of the instrument. So you're actually getting the actual printout.
Q. When you bring that type of machine to a crime scene, you're only use it -- are you using it as a screening device, or are you using it to conduct that further instrumental analysis?
MR. TRITICO: Objection: Leading.
THE COURT: The objection is overruled.
BY MS. WILKINSON:
Q. Which one are you using it for, Agent Burmeister, at the scene?
A. Well, we've used these types of instruments at scenes for both ways, for screening as well as deriving analytical data.
Q. Tell us why you would bring a screening device to a large crime scene.
A. Well, one of the things when you're placed in the position to respond to a crime scene, there's hundreds and thousands of pieces of evidence that need to be reviewed and examined prior to coming back to the laboratory. It's a way of streamlining and selecting the right types of pieces to come back to the lab.
Q. Do you use a screening device at every major crime screen?

A. I try to use some sort of method at a particular crime scene to isolate and define what I would determine as being the best possible pieces to bring back to the laboratory.
Q. When you go to a bombing crime scene, do you also collect samples, yourself?
A. Yes.
Q. Tell us what your role is at a bombing crime scene.
A. My role is primarily to identify and collect specimens that are going to be good, viable pieces for explosive residue.
Q. Who makes the decision for you as to what pieces you either test on the scene or take back to the laboratory?
A. That decision is made by myself or a colleague of mine. We will discuss it.
Q. Would it be a colleague who's in the Chemistry/Toxicology Unit?
A. Yes.
Q. And you are the only people who make those decisions; is that right?
A. Yes.
Q. Let's turn to April 19, 1995. Do you remember where you were that morning?
A. Yes, I do.
Q. Where were you?
A. I was in my office.
Q. And how did you find out about the bombing in Oklahoma

Q. And how did you find out about the bombing in Oklahoma

City?
A. I received a telephone call from a gentleman in the Explosives Unit who advised me that I needed to go and review CNN to see that an explosion had taken place in a federal building and I needed to see what -- see it on the television.
Q. What did you do?
A. I went to the television that was in the unit chief's office and looked at it.
Q. And were you asked to participate in the investigation of the Oklahoma City bombing crime scene?
A. Yes.
Q. Did you take -- were you sent to Oklahoma City that day, April 19, 1995?
A. Yes.
Q. Did you take anyone with you?
A. Yes, I did.
Q. Who did you take?
A. I took Mr. Ron Kelly.
Q. What was his position at that time?
A. At that time, Ron was an experienced examiner. He was qualified.
Q. And why did you take him to the crime scene with you?
A. I wanted him to go along with me to assist me in the collection of evidence at the crime scene.
Q. Was he qualified to collect evidence?

A. Yes, he was.
Q. Did you and Mr. Kelly take any equipment with you when you went to Oklahoma City?
A. We took some bare essentials, basically collection equipment, some Tyvex suits; and I don't believe we took along actual instrumentation. Some of that we actually had sent to the scene.
Q. When you said you brought some collection equipment, what type of equipment are you referring to?
A. We responded with solvents, swabbing material, some containment vessels for some swabs.
Q. Are those materials prepared by you before you go to a crime scene?
A. Yes, they are.
Q. Why is that?
A. One, I want to know that there are certain types of materials that I want to use for the actual collection, so I prepare that and so I know what I have available to me.
Q. Do you ensure that those materials that you take out aren't contaminated?
A. Those materials that I take, I know they are clean, they're from original sources. And when I do finally collect the samples in the field, I will take a control sample for the

actual analysis.
Q. What is the purpose of a control sample?

A. The control sample is designed to take a background reading of whatever you're using. So if I'm using a piece of gauze, I will actually put the gauze into the -- will collect the piece of gauze that I'm using with the solvent that I'm using, and that is a control. It monitors the natural background for the actual gauze and then the solvent.
Q. When you get back to the laboratory, do you test that first piece of gauze, that control sample?
A. Yes, and that will be considered the blank for the system.
Q. And if it comes up clean, what does it tell you?
A. That it is clean.
Q. And do you use that for the other swabs and samples that you take that you test after that?
A. Yes, I do.
Q. When did you actually arrive in Oklahoma City?
A. I actually arrived -- we departed on the 19th and actually arrived the following day, which is the 20th.
Q. Why didn't you arrive on the evening of April 19?
A. Because of heavy storms in the Oklahoma area, we were forced to set down in Little Rock, Arkansas, where we stayed the night and departed early the following morning.
Q. Was that storm of significance to you as an explosive residue examiner?
A. Yes.
Q. What significance?

A. Well, I remember sitting in the hotel room looking at the television set and looking at the actual bombing scene and seeing the rain coming down, knowing that water itself is one which will cause certain explosives to be soluble in the water; and so if anything is soluble in the water, it will wash away. And so I saw the rain as being something that was taking away the residues that I could potentially retrieve.
Q. You arrived early on April 20; is that right?
A. I believe it was early in the morning. Early, approximately around 9:00 -- I believe that's the time we got in.
Q. What did you do after you arrived in Oklahoma City?
A. Once we arrived in Oklahoma City, Mr. Kelly and myself rented a vehicle. We drove and checked into the hotel and cleaned up for the following day.
Q. When did you proceed to the crime scene?
A. As soon as we got to the hotel, we cleaned up, and then we departed for the actual scene itself.
Q. And what did you do when you got to the crime scene? Where did you go first?
A. Our first stop was to a command center that was set up some

blocks away from the actual crime scene itself.
Q. And how long did you stay at the crime scene? I'm sorry, how long -- I didn't mean that. How long did you stay at the command post?

A. Oh. I believe we might have been there for all of 45 minutes because of some checking-in procedures that we had to do.
Q. What did you do after that?
A. After we checked in, got our badges for security purposes, we then walked to the crime scene itself.
MS. WILKINSON: Your Honor, may the witness step down and use the model to depict where he went at the crime scene?
THE COURT: Yes.
BY MS. WILKINSON:
Q. Agent Burmeister, you may step down.
MR. TRITICO: Your Honor, may I?
THE COURT: Yeah, sure.
THE COURTROOM DEPUTY: When you speak, speak up real loud.
BY MS. WILKINSON:
Q. Yes, yes. Please keep your voice up and turn to the jury.
Now, using the model, can you tell the jury what you saw when you first walked the crime scene on April 20, 1995?
A. Well, when we first arrived, we were down in this direction down here. And we walked up this particular street right here, which is labeled 6th Street.
As we approached up here, I noticed that there was a lot of glass and metal fragments that were actually over on top of the road surface here. I had not been able to see the

actual scene itself from this vantage point as I was walking up here.
Q. Keep your voice up, please.
A. All right.
Q. That's okay.
A. As I -- Ron and I approached this corner, I turned the corner right here onto North Robinson Street; and at that point, it was roughly in and around this region here that I had my first glimpse of the actual building itself, which is over here. I can remember that scene quite vividly, because I remember the cast of the blue sky that was over the top of the building; and it was a quite striking to see the immense damage that I saw.
But all along here, there were pieces of fragments and pieces of glass all into the roadway. And I believe I just -- Mr. Kelly and I just paused right in this region to decide what kind of plan of action we would actually take to basically attack this particular scene itself.
Q. What plan of action did you determine?
A. Well, one of the things that we wanted to do was to develop

A. Well, one of the things that we wanted to do was to develop some sort of strategy that would effectively take and collect residue samples from this entire event. Taking into consideration the night before with the rain situation, obviously we wanted to go for pieces that had been sheltered or somehow protected from the elements. So that would have meant

pieces of material in the building, over in this area --
Q. Excuse me. Where are you referring to when you say "over in this area"?
A. Over in the Athenian Building, and also into the Journal Record Building, as well as the Murrah Building itself.
Q. Now, over the next few days, were you at or around the crime scene?
A. Yes.
Q. And did you take swabs and samples from this area?
A. Yes, we did.
Q. Can you tell the jury generally where you took your swabs and samples?
A. The first day, our principal activity was to center in and around the blast site itself. There were pieces of slabs of the building contents, parts of the front exterior which had crashed down onto the top here. Those areas were areas which we did check and swab. So those were collected in and around that region.

We also took an object from across the street as well for swabbing. Various metal fragments which we observed throughout the area were swabbed as well.
Q. Did you also recover actual pieces of evidence throughout the area?
A. Yes, we did.
Q. Take your seat. I'll take the pointer.

You told us that you saw a lot of glass and debris at the scene; is that correct?
A. Yes.
Q. Did you make any determinations about whether any of those pieces should be recovered to test for explosives residue?
A. There were certain pieces which I did notice that were surrounding some down in the side streets which were swabbed, mostly on the undersides are the areas that I swabbed, but those were ones that I decided. The glass that was in the streets had been exposed to environmental factors, and those were not swabbed or even collected.
Q. Now, I'm going to show you Government's Exhibit 826.

Do you recall -- before you hold that up, because it's not in evidence, Agent Burmeister --
A. Sorry.
Q. Do you recall collecting any evidence on April 20, the first day that you were at the crime scene?
A. Yes.

A. Yes.
Q. And do you recognize Government's Exhibit 826?
A. Yes, I do.
Q. How do you recognize it?
A. I recognize the object itself as well as my initials that are on the object.
Q. Are your initials also on the bag?
A. Yes.

Q. And is that object Government's Exhibit 826, also known as Q501?
A. Yes.
Q. Where did you recover Government's Exhibit 826?
A. Government Exhibit 826 was recovered across the street from the blast crater and also the Murrah Building itself.
MS. WILKINSON: Government offers 826.
MR. TRITICO: May I have just a few questions on voir=20
dire?
THE COURT: Yes.
VOIR DIRE EXAMINATION
BY MR. TRITICO:
Q. Agent Burmeister, are you the one that collected this piece of evidence, or did somebody else collect it and give to you?
A. Well, it was a joint collection process with Mr. Ron Kelly. We were together at the same time. I unscrewed the bolts that attached the object to the post. I believe I lifted it off. Mr. Kelly held the bag, and I placed it into the bag.
Q. What happened to it after you took it off the post and put it in the bag?
A. At that point, it was checked into evidence.
Q. By whom?
A. I want to recall that I was actually present when we checked it into the Evidence Control Center.
Q. Well, you want to recall. My question to you is were you

there? Do you know that you were there?
A. At the crime scene?
Q. At the Evidence Control Center when it was checked in.
A. I recall being present when I checked in the evidence in to the Evidence Control Center.
Q. Was that on the same day that you found it?
A. Yes.
Q. And when was the next time you saw it?
A. I want to say it was back in the laboratory. That's when I saw it next.
Q. Do you know what happened to it -- what date was it that you found it? I'm sorry.
A. It would have been the 20th of April, the following day.
Q. And what day was it the next time you saw it?
A. I'd have to refer to my notes as to when I received Q501.

Offhand, I don't recall that.
Q. Certainly after you got back in the lab; right?
A. Once I got back to the laboratory, that's the next time I saw this piece of evidence.
Q. When did you get back to the lab?
A. I arrived back into the laboratory -- I flew back on the 26th of April, was stopped into the laboratory. On the 27th I had some testimony in New York and was physically back into the laboratory on Friday, the 28th.
Q. So the first day you could have seen it really would have

been Friday, the 28th?
A. Well, that's -- I did stop into the laboratory on the 26th. I offhand don't recall whether I received it on the 26th. I was in for a half a day as I collected some items to -- for transportation up to New York for testimony. It's very possible I got it that day. I don't have a recollection right now.
Q. So sometime between the 20th and the 26th, possibly the 28th, is the next time you saw it. Is that fair?
A. Yes.
Q. You don't know what happened to it after the time you left it at the Evidence Control Center, do you?
A. No.
Q. You don't know where it went from there and how it was processed and how it arrived at the lab, do you?
A. No.
MR. TRITICO: I'll object to no proper chain of custody for this exhibit.
THE COURT: It depends on what it's being offered for. If it's being offered right now for what he collected at the scene, I'll admit it .
MS. WILKINSON: That's what it's being offered for.
THE COURT: That's what I'll admit it for.
DIRECT EXAMINATION CONTINUED
BY MS. WILKINSON:

Q. Agent Burmeister, can you take Government's Exhibit 826 out of the bag, please.
Can you show it to the jury and explain to them whether it was in that condition when you recovered it.
A. Well, at the exact time that I recovered it, minus the initials on the back, this is the same condition that I received it.
Q. And were there photographs taken of Government's Exhibit 826 before you removed it from the pole?
A. Yes.
Q. Let me show you Government's Exhibit 829. Take a moment.
MS. WILKINSON: I'm going to need the computer, please.

BY MS. WILKINSON:
Q. Do you recognize Government's Exhibit 829? Do you see that on your screen?
A. No picture.
Oh.
Q. You see it now?
A. Yes.
Q. Do you recognize that photograph?
A. Yes, I do.
Q. And does that depict Government's Exhibit 827 before you removed it from the pole?
A. It's 826.

Q. I'm sorry, 826.
A. Yes.
MS. WILKINSON: We offer 829, your Honor.
MR. TRITICO: No objection.
THE COURT: Received, 829.
MS. WILKINSON: May we publish it?
THE COURT: Yes.
BY MS. WILKINSON:
Q. Agent Burmeister, using your little magic pen, can you show the jury where the street sign is that you recovered.
Where is that in relation to the Murrah Building?
A. This is the -- over in this location is the parking lot across -- directly across the street from the Murrah Building. This street sign is approximately 30 feet from the actual crater itself.
Q. Let me show you Government's Exhibit 827. Do you recognize that photograph?
A. Yes.
Q. Is that a closeup photo of the street sign?
A. Yes, it is.
MS. WILKINSON: Government offers 827.
MR. TRITICO: No objection.
THE COURT: Received, 827.
BY MS. WILKINSON:
Q. Tell the jury what they're seeing there.

A. This particular object is the -- the post in which the sign was affixed to, and it was leaning over in that condition when we saw it.
Q. And when you told his Honor that you removed some of the bolts -- or Mr. Tritico -- some of the bolts, are you talking about removing it from that pole there depicted in this picture, Government's Exhibit 827?
A. Yes.
Q. Now, did you continue to collect evidence and take swabs on April 21, the following day?
A. Yes.
Q. Did you work with Mr. Kelly that day?

Q. Did you work with Mr. Kelly that day?
A. Yes.
Q. Were you in the vicinity at or around the time Mr. Kelly recovered Government's Exhibit 664, which has also been referred to as Q507?
MR. TRITICO: Objection, leading.
THE COURT: Well, Mr. Tritico, these are not suggestive questions. Your objection is overruled.
THE WITNESS: Yes, I was.
BY MS. WILKINSON:
Q. And at any time when you were at the crime scene, did you see Government's Exhibit 664, Q507?
A. Yes.
Q. Was it placed in a plastic bag prior to you viewing it?

A. Yes, it was.
Q. Now, when you and Mr. Kelly collected evidence, did you wear gloves?
A. Yes.
Q. What was your procedure that you followed?
A. When we collected the evidence, the procedure was a -- what I would refer to, what I like to call a Phase 1 and a Phase 2, which is the -- Phase 1 is the first set of rubber gloves, and then the second set is another pair of rubber gloves on top of that original pair. So for all collections, don a pair of rubber gloves -- that's your working glove. Then the second one is the actual physical retrieval of the item, and that's placed into the bag. So then, once you're completed retrieving the item, the second pair of gloves is removed and now you work with everything with the first pair of rubber gloves.
Q. It may be obvious, but tell us why you wear two pairs of gloves to collect evidence.
A. Well, the obvious thing to do is to prevent contamination.
Q. Let me show you Government's Exhibit 664.
I believe 664A and B are also in there, the two plastic bags. If you can take a look at all three of those items, please.
Do you recognize those items?
A. Yes, I do.
Q. Did you conduct any kind of analysis of Government's

Exhibit 664 when you were at the crime scene?
A. No.
Q. Why not?
A. Well, it was not the right environment to conduct any chemical analysis on the evidence itself. That's something back in the laboratory to perform.
Q. Why is that?
A. Well, once you're back into the laboratory, you're in a controlled environment and you can better work with the particular material.

Q. And are you trying to again avoid contamination of the evidence by doing it in the laboratory setting?
A. Yes. That's why -- Once you're out of the actual scene itself and back into a more controlled environment, you have better controls over that. And obviously, contamination is the priority that you want to remove.
Q. Did you later examine Government's 664 in the laboratory?
A. Yes.
Q. When you received it, how was it packaged?
A. It was received by me in two plastic bags, and it was in a sealed condition when I received it.
Q. Now, when you saw it at the crime scene, was it in one plastic bag, or two plastic bags?
A. I seem to recall that it was in two plastic bags when I saw it.

Q. Do you know for sure?
A. I don't know for sure, but I have a -- I seem to recall that it was in two plastic bags.
Q. Now, before you left Oklahoma City, did you participate in other searches?
A. Yes.
Q. Did you participate in a search of Mr. McVeigh's Mercury Marquis?
A. Yes.
Q. How did that come about?
A. We -- Mr. Kelly and myself, that is -- actually took this, several pieces of evidence down to the Evidence Control Center for checking in. And at the time that we were down there, we were advised that a vehicle was -- it was being brought in for processing and that we would be there for that when it finally arrived.
Q. Did you use any instruments when you conducted the search of Mr. McVeigh's Mercury Marquis?
A. Yes.
Q. What instrument did you use?
A. We had the Baringer ion scan instrument that's based on IMS technology. It was at the scene, and we had it at the Evidence Control Center for processing. When I say "the scene," it was actually housed at the Evidence Control Center.
Q. When Mr. McVeigh's car was brought into the storage

facility, were you one of the first persons to touch the car, or examine the car?
A. Yes.
Q. Was the car locked, or unlocked when you got to it?
A. It was locked.
Q. How do you know that?
A. It was locked because I -- I attempted to unlock the right front door, and I was unsuccessful.

Q. So how did you get the car open?
A. I had to turn it over to Mr. Kelly, who was able to do it faster than I would be able to do it.
Q. Did Mr. Kelly assist you in the search of the Mercury Marquis?
A. Yes.
Q. Before you actually searched the vehicle, did you take any precautions or take any steps to prepare for the search?
A. Yes, we did.
Q. What did you do?
A. Both Mr. Kelly and myself donned Tyvex suits with protective foot gear, and we also had the double glove preparation on our hands.
Q. Now, did you wear those Tyvex suits when you were out at the crime scene?
A. No.
Q. Why not?

A. One, we were arriving in our clean clothes, and one of the things that we wanted to do was to make sure that our gloves were clean. So that's the front line of defense that we were working at the crime scene.
Q. Then why did you need to put a Tyvex suit on when you inspected the Mercury Marquis?
A. Anytime you actually leave the crime scene and go to another scene itself, that's when you have to take full precaution not to transfer anything from the scene itself to some other object. So going from that scene to the vehicle itself, we had to take full protective precautions; and that's when we donned the suits themselves.
Q. Were you the only two in these Tyvex suits?
A. Yes.
Q. Were you the only two conducting the residue examination of the Mercury Marquis?
A. Yes.
Q. And what were the results of that search?
A. No explosive residues were detected inside the vehicle itself from the swabs that we were taking.
Q. As you were conducting that search, did you see anything on the front seat of the Mercury Marquis?
A. Yes.
Q. What did you see?
A. Observed an envelope on the front seat of the vehicle.

Q. Was it sealed, or unsealed?
A. It was in a sealed condition.
Q. What did you do with it?
A. The envelope itself, there was a decision made to actually open up the envelope and see the contents of that envelope.
Q. Did you take the envelope out of the car?
A. Yes.

A. Yes.
Q. Did you give it eventually to someone else?
A. Yes, to have it logged in.
Q. Who did you give it to?
A. I'm drawing a blank right off the moment.
Q. Did you give it to another special agent?
A. It went to another special agent who was checking the evidence in.
Q. And did you then continue with your explosive residue search of the Marquis?
A. Yes.
Q. After that search was completed, were you asked to travel to Junction City, Kansas?
A. Yes.
Q. When did you travel to Junction City?
A. That would have been the following day.
Q. April 22?
A. Yes. In the morning.
Q. Okay. And do you remember what day of the week April 22

was back in 1995?
A. Well, Wednesday being the 19th . . . I guess that's Saturday.
Q. Okay. And what did you do when you got to Junction City?
A. Once we arrived in Junction City, we met up with an Evidence Response Team that was headed by supervisory Special Agent Mary Jasnowski.
Q. What were your duties with Agent Jasnowski?
A. We were there to assist in the collection of physical evidence, explosive residue evidence that may be present.
Q. Did there come a time when you learned that the Government had obtained an authorized -- a search warrant to search Mr. Nichols' residence?
A. Yes.
Q. Were you asked to participate in that search?
A. Yes.
Q. Did you make a plan?
A. Well, we discussed the entire search and search warrant, which was read by all of the members that would be responding to that incident.
Q. What did you decide to do?
A. Well, the initial decision was that those that would make the initial entry into the building would actually don special protective gear, both foot and outer-shell protection, gloves, and that team, that initial team that would go in would have

that on.
Q. Who was on that initial team?
A. It would have been myself, Mr. Kelly, Special Agent Jasnowski, and I believe two other individuals who were part of the Evidence Response Team, one being a photographer, another

the Evidence Response Team, one being a photographer, another being a recorder.
Q. And the five of you went into Mr. Nichols' house before the rest of the search team; is that right?
A. Yes.
Q. What was your purpose?
A. Our initial scan of the entire structure was to move through the building one room at a time, making the first weave through the building, looking for evidence that might be potential explosives or explosive residue evidence. As we moved through the building, other teams moved in behind us.
Q. After you completed your search, did you go back and participate in the remaining search with the other team members?
A. Yes.
Q. And did you actually examine some of the evidence that was found in Mr. Nichols' home?
A. Yes.
Q. Do you recall seeing some, what you later learned was Primadet in Mr. Nichols' house?
A. Yes.

Q. What is Primadet?
A. Primadet is an initiation system. It's a plastic tubing that has on the end of the plastic tubing a detonator. And that plastic tubing which is the unique portion of this entire device, it's a tubing that has a high explosive dispersed very thinly on the inner walls of that plastic tubing.
Q. Now, you said a detonator. Is that also commonly referred to as a blasting cap?
A. Yes.
MS. WILKINSON: Your Honor, may I have one moment?
THE COURT: Yes.
MS. WILKINSON: Your Honor, I would like to publish Government's Exhibit 140 which has been previously admitted into evidence.
THE COURT: All right.
BY MS. WILKINSON:
Q. Recognize this photo, Agent Burmeister?
A. Yes, I do.
Q. Is that the Primadet that you found in Mr. Nichols' residence, does it appear to be?
A. It appears to be. It's in the same container and where I recall it being found.
Q. Was some of that material sent back to you in the laboratory?
A. Yes.

Q. Did you test it?
A. Yes.
Q. What did you determine?

A. The interior components of the tubing is consistent with the type of explosive that's found in that product.
Q. What type of explosive is that?
A. It's a combination of HMX and aluminum powder.
Q. And what does the HMX do in that device?
A. The HMX mixed with the aluminum powder is a high explosive and when initiated will actually transverse the entire tubing, a very fast, rapid explosion throughout the interior of that tubing.
Q. Going back to some of the testimony you gave earlier, you told us if you had something like ammonium nitrate fuel oil, you would need a booster; correct, to make that detonate?
A. Yes.
Q. And you would also need a detonator?
A. Yes.
Q. Could the Primadet serve as a detonator for such a device?
A. Yes.
Q. How would the detonator, blasting cap on the end of the Primadet serve as a detonator for that type of device?
A. Well, the detonator is an object which is to initially get the speed high enough to initiate the next material. And so we call it an explosive train. So as the train picks up speed, it

travels down to the end which the final product is the overall explosive getting started.
Q. And where -- which end would you put into the main charge and the booster, the end of the shock tube or the detonator, itself?
A. Well, the detonator would go into the booster and then the booster is placed into the large volume of the explosives that you're trying to initiate.
Q. And how would you detonate the shock tube to begin this whole explosive train you've just described?
A. There's a variety of initiation methods, you could use spark or some heat source or electrical source.
Q. Are you familiar with safety fuse?
A. Yes.
Q. Could you use that to detonate the shock tube?
A. Yes.
Q. How would that work?
A. Well, if you initiate the safety fuse, the safety fuse being connected to the end of the shock tube or the red plastic tubing that we see here, that would initiate the HMX and aluminum, it would travel down through that plastic tubing, all the way down to the end, which is the detonator, the detonator will initiate. The detonator once it initiates, it will initiate the booster, the booster will then initiate the large quantity of material.

Q. Were you also asked to participate in other searches in the

Junction City area on April 22?
A. Yes.
Q. What other searches were you asked to participate in?
A. I -- a storage shed.
Q. And what were the results of that study -- of that search?
A. We examined the storage shed and found no residues of explosives.
Q. Okay. Did you conduct any other searches in that area that you recall?
A. None that I recall.
Q. Now, were you sent back to the crime scene after you finished your searches in Junction City?
A. Yes.
Q. How long did you remain at the crime scene?
A. For a short period of time.
Q. What happened?
A. I had been called to travel back to Washington, D.C., to collect some notes and then to travel to New York City for testimony.
Q. Was that testimony in an unrelated case?
A. Yes.
Q. And after you testified in New York City, did you return to the laboratory?
A. The same day that I testified, I returned back to the

lab -- back to the Washington, D.C., where I went home.
Q. On what date did you return to the laboratory to commence working on evidence in this case?
A. I physically got back into the laboratory on the 28th which is the Friday morning.

MS. WILKINSON: Your Honor, this might be a good time for the break.

THE COURT: All right. We'll do it.

You may step down, and we'll have you back in 20 minutes.

Members of the jury, we'll take our afternoon recess with the usual precautions of course of continuing to keep open minds and avoid discussion in connection with the case or anything connected with it. Also continuing to avoid anything outside the evidence, recognizing that you have to decide on the evidence. You're excused now, 20 minutes.

(Jury out at 2:58 p.m.)

MR. JONES: Your Honor, may we approach the bench?

THE COURT: Yes.

(Bench Conference 102B1 is not herein transcribed by court order. It is transcribed as a separate sealed transcript.)

(In open court:)

(In open court.)
THE COURT: We'll be in recess till 3:20.
(Recess at 3:02 p.m.)
(Reconvened at 3:20 p.m.)
THE COURT: Please be seated.
(Jury in at 3:20 p.m.)
THE COURT: Please resume the stand.
Ms. Wilkinson, you may continue.
MS. WILKINSON: Thank you, your Honor.
BY MS. WILKINSON:
Q. Agent Burmeister, before we broke, you were telling us that you got back to the laboratory sometime in late April; is that right?
A. Yes.
Q. When was that?
A. Actually, physically was back into the laboratory on April 28, a Friday.
Q. And you began testing some of the evidence in this case at that -- or at or around that time?
A. Yes.
Q. Now, before we get into the items that you actually tested, you've told us that there are different types of explosives that you can look for; is that right?
A. Yes.
Q. And are there different categories commonly referred to as

inorganic and organic?
A. Yes.
Q. Let me show you -- let's begin with inorganics and let me show you Government's Exhibit 838. Did you prepare this chart prior to coming to court today?
A. I assisted in the preparation of this chart.
Q. And does it summarize the type of instrumental techniques you use in inorganic analysis?
A. Yes, it does.
MS. WILKINSON: Government offers 838, your Honor.
MR. TRITICO: No objection.
THE COURT: All right. 838 is received.
BY MS. WILKINSON:
Q. Agent Burmeister, before you explain these techniques, can you tell the jury the difference between an inorganic and an organic explosive?
A. I would refer to an inorganic explosive in which it is typically one that is water-soluble. An organic explosive is one which is typically soluble in an organic solvent, such as one that is carbon-based, such as methanol, ethanol or acetone. That would be an organic.
Q. All right. And what are examples of an inorganic explosive?
A. An inorganic explosive would typically be those that are in the nature of a nitrate or a perchlorate or chlorate-based

explosive.
Q. Would that include ammonium nitrate?
A. Yes, it would.
Q. What is an oxidizer?
A. An oxidizer is a material which essentially provides oxygen for any type of a reaction to take place.
Q. And are inorganic explosives often considered oxidizers?
A. Many of them are considered -- not the explosive itself, but components within these explosives are considered oxidizers.
Q. Would ammonium nitrate fall in that category?
A. Ammonium nitrate is considered an oxidizer, yes.
Q. Now, when you're looking at a piece of evidence or an item that's submitted to the laboratory, do you conduct different tests when you're looking at what you believe is inorganic materials than the tests you conduct when you're looking at organic materials?
A. Yes.
Q. And referring to Government Chart 838, can you tell the jury the type of techniques you use to look for inorganic materials?
A. Well, all of this -- all of the Items 1, 2, 3, and 4 are components which I use for the inorganic analysis of an explosive.
Q. And when you -- No. 1, the optical microscopy?

A. Yes.
Q. Would that be one of the first tests you do when you're looking for an inorganic explosive?
A. Well, that's part of the first step for both an organic and inorganic, but particularly an inorganic analysis will involve an optical examination; and the optical examination is typically with a microscope.
Q. What are you looking for when you first look through the microscope?
A. Well, with the microscope, it's one -- it's a tool for you to examine an item where your naked eye is unable to see that close onto the surface. It just magnifies the surface up where you can do some better examination.
Q. And if you saw a inorganic material, what would it look like under the microscope?
A. Well, an inorganic material has a variety of shapes; but typically it's in a crystalline form.
Q. Now, briefly tell us what these two techniques are under No. 1 under "optical microscopy." How do you use them?
A. Well, the first one over here, the microscope is definitely just that: It's a microscope in which you're magnifying the object that you're placing underneath it so that you can look a lot closer to the surface.
Q. What about the polarized light microscopy?
A. The polarized light microscopy is a specialized microscopy

technique, where you're actually passing a beam of light through an object and looking at its characteristics when the light is bent a certain way. And it's a specialized method to look at characteristics of crystals.
Q. Moving on, the X-ray diffraction technique or the X-ray techniques, can you tell the jury what those two techniques are briefly?
A. Both of these X-ray techniques are ones in which you can examine a particular object underneath -- or rather with an X-ray beam being placed onto the object and examine for crystalline structure and crystalline nature of a particular material.
Q. And do they tell you something unique about the crystal that you're looking at?
A. Yes. You can actually tell what type of material it is. It looks at the entire complex, it looks at the entire molecule, and it determines specific information about that entire molecule which can be compared back to a known material.
Q. So would the X-ray techniques help you actually identify what the crystal is that you're looking at?
A. Some experts in the area of X-ray -- for example, X-ray powder diffraction will say they can identify a particular material; but I use it very closely not quite for identification. I need more analytical information in order to say I've identified a particular substance.

Q. So if you were identifying a crystal, would you use several of these techniques before you identified the substance?
A. Yes.
Q. Okay. Let's move on to No. 3, the SEM/EDXA, the elemental exam. What is that?
A. No. 3, the SEM -- let's just start out with the SEM portion. The SEM is considered the scanning electron microscope, and all that's doing is a high-powered microscope that looks very closely at little, tiny particles. And with that microscope we can look at very minute areas and focus the scope of our examination field down to a small spot.
Q. What about the other portion of the test?
A. The other portion of this test, the EDXA portion over here, is an attachment that goes onto the side of the scanning electron microscope and will actually examine for the elements that are present in that little, tiny spot which we looked at with the scanning electron microscope.
Q. When you say "elements," what do you mean?
A. We're looking at things that are our periodic chart, which are things like element -- or things like iron, silver, lead, nitrogen, oxygen. I can go on the list, but these are what we consider our elements in our environment.
Q. Now, the machine that you use back in the laboratory for this Analysis No. 3: Can it read every item on the periodic chart?

chart?

A. The way it's set up, it will not look at items below the atomic number of 11, which is the number for sodium. So things that are below sodium, such as nitrogen, hydrogen and oxygen, it will not see these items. But things that are higher in weight to sodium, it will see those items, which is sodium and lead, iron.
Q. So if a substance contained nitrogen or oxygen, you would not see it using this test. Is that right?
A. That's correct, yes.
Q. Let's move on to No. 4, the cations and anions, and briefly tell us about these tests.
A. When we look at inorganic materials, we look at the overall crystalline structure, and the crystalline structure being it's a salt; and a salt is composed of two different components. One portion of the salt is positively charged, and the other portion is negatively charged. And it's very much like the ends of magnets that are attracted to one another; that crystals are the same way.

And if we look at something like sodium chloride, it's the best possible picture to show this; that if we took sodium chloride and broke it down into two different components, we would have sodium over here and chloride over here. While there is a charge placed on these things, an actual electrical charge placed on the sodium, there is an electrical charge placed on the chloride. And what glues that together is the

attraction of the positive and the negative, and they're glued together electronically.

Well, the positive side, which in the sodium chloride -- we call that a cation -- and the negative side -- we call that an anion -- and the same thing goes on with a battery, when we call something a cathode or anode. You see that on the sides of some of the batteries. They'll actually label it that way.

We're doing the same thing here. For a cation analysis, we're looking at those things which have a positive charge to them; and when we do an anion analysis, we're looking at those with a negative charge to it. And there are specific types of analysis for those two separate components.
Q. Those are the ones you have listed here on this chart; right?
A. Yes.
Q. Now, when you talk about looking at a crystal and looking for the anions and cations, when you first have the crystal, do you have it as one compound?
A. Yes, it is.
Q. And are you breaking it apart with this test to look at cations and anions?
A. Yes. It's going into a solution.

Q. So if you had an ammonium nitrate crystal and you conducted one of these tests, what would you find?

A. Well, we can go down the list, if you'd like. I can start with the first one. The chemical spot test that's the first one is basically adding some other chemical to the crystal itself and looking to see what kind of response we actually receive out of it. Typically, the chemical spot test that I apply is a diphenylamine solution, which once I add that, we're looking for a color response. And if it turns a certain color, it's a certain material, such as an oxidizer. In the case of ammonium nitrate, I will receive a strong blue color.

The next step is ion chromatography. Ion chromatography is a chromatography method which is a separation tool to look for the different types of materials, such as the cations and the anions.

Q. If you put ammonium nitrate in there, what would you find?

A. Well, the ion chromatography will show you and identify the presence of ammonium ions, which is the positive thing we were talking about; and it will show the nitrate ions, which is the negatively charged item. Now, these are separate instruments, and the one instrument will look for the positively charged materials. I will go to a separate instrument which will look for the negatively charged materials.

Q. Okay. Now let's turn to organic analysis. Did you create a chart for the jury to show them the types of tests you do when you're looking for organic explosives?

A. Yes.

Q. I'm going to show you what's been marked as Government's Exhibit 837. Do you recognize that?

A. Yes.

Q. Are these the type of instrumental techniques you use when you're conducting an organic analysis?

A. Yes.

MS. WILKINSON: Government offers 837.

MR. TRITICO: I have no objection, your Honor.

THE COURT: All right. 837 is received and may be used.

BY MS. WILKINSON:

Q. Before you tell us about these tests, what type of explosives are organic explosives?

A. Organic explosives are typically those that are carbon-based explosives. They're classically the high explosives; and these would include things like nitroglycerine, RDX, PETN.

Q. What is TNT?

A. TNT is another high explosive.

Q. What is HMX?

A. HMX is another high explosive, yes.

Q. What about EGDN?
A. EGDN, another high explosive.
Q. So those are all organic explosives?
A. Yes.

Q. Do the techniques that you've listed here look for some of these explosives that you and I have just named?
A. Yes.
Q. Let's start at the top. And could you explain briefly what gas chromatography is and the three detectors that you have listed there?
A. Again, chromatography, if we look at it -- it's a separation tool. It's one in which we take a bunch of complex materials, place it into the front of this instrument, and it will separate it according to the particular setup that you have.

The best analogy is if I took a bunch of multi-colored balls and placed it into the front end of this thing, as it travels down through this instrument, I could conceivably separate out all the blue balls and all the red balls and all the pink balls; and that, I can collect.

Well, you need to have some sort of method to determine what type of balls that are coming out on the end of this, and so you need a detector.

And in this situation, what's propelling those balls through the system happens to be gas. And we'll see there is another way of propelling these balls through the system; but in this case, it's gas that's propelling it through.

Then there is specific detectors that are used to examine the balls that come off of the end.

Q. Now, under the first portion, the gas chromatography is a separation technique?
A. Yes.
Q. Does that give you some data that you use in your analysis?
A. Yes, it does.
Q. What type of data does it give you?
A. Well, it would develop a retention time; that is, the time in which, for example, the red balls will come off of the system. That's a unique time. We can clock that. Then when the blue balls come off, we can clock that as well. The time in which they come off is a unique time called a "retention time."
Q. So if you were to put a sample into a gas chromatography instrument and it had PETN on it, would you know the retention time for the gas chromatography machine for PETN?
A. As long as I ran a standard through of known PETN, I would develop a retention time for that PETN and then correlate that to the sample itself.
Q. You can then match the questioned sample with the known standard, is that right?

standard; is that right?
A. Yes.
Q. And see if they have the same retention times?
A. Yes.
Q. And is that what you do in part to identify or at least analyze questioned substances when you put them into these type

of machines?
A. Yes.
Q. And what type of data do you get from the detectors?
A. Well, you can determine what type of material -- the organic material that's present in your sample.
Q. So the electron capture, the chemiluminescence, or the mass spectrometry actually tells you whether you have a green ball or a red ball or a blue ball?
A. There are methods that will help you make that determination, yes.
Q. Okay. Turning to the No. 2, Fourier Transform Infrared Spectroscopy -- and let's refer to it as FTIR, as you have it there -- tell us what that does.
A. The first part of up here, the Fourier Transform portion, is just a mathematical method to acquire large amounts of data and place it into a computer. It's a complex portion.

The end of this, which is the important part, the infrared spectroscopy, is a technique which has been around for years; and typically the old systems would require several minutes to run a sample. Now that we've coupled that front end computer portion that can acquire large amounts of data, we can now do it in seconds vs. minutes before.

But what you're doing is passing a beam of infrared energy through the sample and measuring how much is actually absorbed.

Q. Now, gas chromatography: Has that been around for a while also?
A. Yes, it has.
Q. Is the FTIR based on a totally different scientific principle than the gas chromatography?
A. Yes.
Q. And what about the Ion Mobility Spectrometry, or IMS? What does that do?
A. Basically, it's a methodology where a sample is introduced into a reaction chamber; the material itself is broken into little, tiny pieces. And these little, tiny pieces are allowed to travel down an electronically controlled tube. And the actual mobility is measured in a time, and that's where this particular thing comes, the ion mobility; and that's the device that's used there.
Q. Next we have the liquid chromatography. Is that similar to the gas chromatography?
A. It's the same thing that we talked about up in No. 1. The

A. It's the same thing that we talked about up in No. 1. The difference here is we're propelling the sample through with a liquid.
Q. What about the detectors you have listed there?
A. Again, there are specific detectors that are used to aid in that -- the analysis at the end for what type of ball we're actually seeing.
Q. And finally, the Solid Probe Mass Spectrometry: What is

that?
A. Well, the Solid Probe Mass Spectrometry is an adaptation of the first portion up at the top, where we have the gas chromatography with the mass spectrometry up at the top here. It's just that we're actually introducing the sample itself into the instrument vs. having it travel through the gas chromatograph.
Q. Now, all of these techniques listed on Government's Exhibit 837 and the techniques listed on 83, the chart for inorganic: Did you use some or all of these tests when you analyzed Mr. McVeigh's clothing?
A. Yes.
Q. And did you use some or all of these techniques when you examined Government's Exhibit which is known as Q507?
A. Yes.
Q. Now, have you developed in the laboratory a protocol or procedure for what order you conduct these type of techniques?
A. Yes, we have.
Q. Let me show you Government's Exhibit 914. Do you recognize that?
A. Yes, I do.
Q. How do you recognize it?
A. Well, that is our explosive residue protocol that I use in the laboratory.
Q. Was this the protocol you followed in 1995 when analyzing

Q507 and Mr. McVeigh's clothing?
A. I will follow this protocol for the analysis. I may have modified certain sections where I deemed that certain analyses were not to be conducted; but yes, that's the protocol that I used.
Q. Is that something you do when you conduct every test, make a determination of whether further testing is necessary?
A. Yes. There are times where certain portions of the protocol are not applicable and some will not be done, and you will follow the flow chart down to a particular region.
MS. WILKINSON: Government offers 914, your Honor.
MR. TRITICO: No objection.
THE COURT: 914 received.
MS. WILKINSON: May we publish?
THE COURT: Yes.
BY MS. WILKINSON:

Q. Now, Agent Burmeister, I don't want you to describe this chart in detail. There is a lot of things written here, but tell the jury very generally how it works.
A. Okay. Beginning at the top with our substrate, we talked about that as our material itself that we're examining. The next thing I will do is a microscopic examination, looking at the material for anything that I can physically remove off of that object.
Q. Would that formally be those inorganic particles that you

were talking about earlier?
A. It's inorganic or can be organic particles themselves, but these --
Q. Go ahead.
A. These are particles that I can physically remove off of the surface.
Q. What do you do next?
A. The next thing -- once it's determined that there is really no physical material that can be mechanically removed, the next step is a solvent extract of the material; and we've broken that down into the organic and inorganic, being the organic over here and the inorganic over here.
Q. Okay. I think that's enough of the protocol.
Can you erase those marks, please.
A. Yes.
Q. Not to hurt your feelings, but . . . let's move on to April 28, 1995. Did you receive some of Mr. McVeigh's clothing on that day?
A. Yes.
MS. WILKINSON: Your Honor, may I approach?
THE COURT: Yes.
BY MS. WILKINSON:
Q. Agent Burmeister, do you have a pair of gloves with you?
A. Yes, I do.
Q. Look at those items in front of you, Agent Burmeister, and

see if you can -- they're already introduced in evidence, but see if you recognize those items. You should have Government's Exhibit 428, which is also known to you as Q20, the jeans. See those?
A. I see the Government's Exhibit 428, yes.
Q. Okay. Let's start with those. Now, did you receive Government's Exhibit 428 on April 28, 1995?
A. Not on April 28, no.
Q. When did you receive it?
A. May 17.
Q. From whom did you receive it?
A. Mr. Brett Mills.
Q. And how was it packaged when you received it?
A. I received it in a plastic bag.

Q. Was the plastic bag sealed?
A. Yes.
Q. And tell us what you did after you received this item and others.
A. Well, once I received the item --
THE COURT: Well, excuse me. You said "this item and others"?
MS. WILKINSON: I'm sorry, your Honor. I'll go over all the items he received that day, and then I'll go back to what he did.
THE COURT: All right.

BY MS. WILKINSON:
Q. Agent Burmeister, did you receive other items along with the jeans on May 17?
A. Yes, I did.
Q. Did you receive Government's Exhibit 429, which should also be Q24, the T-shirt?
A. Yes, I did.
Q. Is that the T-shirt with the writing on the front and back, the picture on it, also?
A. I recognize that, yes.
Q. Okay. Do you also see in front of you Government's Exhibit 430, also known as Q23, the other T-shirt?
A. Government's Exhibit 430?
Q. Yes, sir.
A. Yes.
Q. Did you receive that on May 17?
A. Yes.
Q. And I'm not sure I asked you: Did you receive Government's Exhibit 429, the other T-shirt, on May 17?
A. May 17 for 429, yes.
Q. Look at Government's Exhibit 431, the jacket, also marked as Q19.
A. Yes.
Q. When did you receive that item?
A. That came in on May 17 as well.

Q. Now look at Government's Exhibit 432 and 433, the left and right boots marked Q21 and Q22. Do you recognize those?
A. Yes, I do.
Q. When did you receive those items?
A. These were received May 17, 1995.
Q. So you received the jeans, two T-shirts, the jacket and the two boots on May 17?
A. Yes.
Q. Did you receive other items that day, also?
A. Yes, I did.
Q. Now, after you received those items, Government's Exhibit 428, 429, 430, 431, 432 and 433, from Mr. Mills in sealed packages, what did you do with them?

packages, what did you do with them?
THE COURT: He hasn't testified they were all sealed yet.
MS. WILKINSON: I'm sorry.
BY MS. WILKINSON:
Q. Agent Burmeister, how were all those items packaged when you received them?
A. Each one of the items that we mentioned were all in a sealed condition.
Q. Were they all individually wrapped?
A. Yes. They were all individually in their own separate plastic bag.
Q. Each bag -- was each bag marked?

A. Yes.
Q. And each bag was sealed?
A. Yes.
Q. After you received them, what did you do?
A. Well, the next thing that I did is I inventoried basically what I had received, and the next step was to begin the actual examination of the items themselves.
Q. Did you prepare your work area before conducting any examinations?
A. Yes.
Q. What did you do?
A. The work area that I was about to conduct this chemical examination was first cleaned with a solvent and then also a bleach solution.
Q. What is the purpose for that?
A. Well, one, for keeping the area clean, not only bacterially clean but also to remove any type of material that may be there that may interfere with this examination.
Q. What did you do next?
A. The next thing, the -- I donned a clean laboratory jacket.
Q. How do you know the laboratory jacket was clean?
A. Because I launder it myself.
Q. What did you do after you put on your clean laboratory jacket?
A. The next thing I did is I placed a pair of rubber gloves

on.
Q. What did you do after that?
A. And I applied to the table surface a piece of brown paper.
Q. Is that disposable brown paper?
A. Yes, it is.
Q. And after you laid down the paper, you were wearing your one pair of gloves at that time?
A. The first pair of rubber gloves, yes.
Q. What was your next step?
A. The next step is to bring the actual piece that I was about to examine close to the area that I would examine that

particular piece.
Q. Do you examine all the pieces at once or one at a time?
A. No, each item is examined separately from everything else.
Q. Now, do you recall which piece of evidence you examined first?
A. I believe I examined the item which is not displayed out here.
Q. Okay. And before you examined that first item, what did you do?
A. The area was blanked for any type of background conditions.
Q. Okay. Tell us what you mean by "blanked"?
A. One of the things that I did is took a swabbing of the area that was surrounding that particular site on the table surface.
Q. A swabbing to test that brown paper area, covered area?

A. Well, it's actually -- it's a vacuum/swabbing that is actually taken.
Q. And what did you do after you did that vacuuming?
A. I then ran that particular sample on the instrument to determine whether or not I had anything to worry about in that general vicinity.
Q. What were the results?
A. They were negative.
Q. Which means?
A. No explosives were detected.
Q. Okay. And what did you do with that vacuum sample after you examined it in the instrument?
A. That sample is discarded.
Q. What's your next step -- or what was your next step? Excuse me.
A. The next step would be to take the item for examination, place it onto the table surface where I'm about to examine the particular item. The bag is opened with the first pair of gloves. At that point, a second pair of gloves is donned.
The item itself is actually removed out of the bag and placed onto the table for examination.
Q. You do that yourself; correct?
A. Yes.
Q. So when you handle a piece of evidence -- and let's move to the jeans -- were you wearing a second pair of gloves?

A. Yes, I was. I was the only one examining these items.
Q. What did you do with the jeans when you removed them from the sealed plastic bag?
A. The jeans themselves were placed out onto the table, and a microscope that is on a moveable pedestal was brought in for examination.
When I moved the microscope in, I discarded the first pair of rubber gloves because I had to move that vehicle in for evidence examination.

Q. Then what did you do?
A. Focused it into the particular area where I was ready to work, donned a second pair of gloves on the operation hand that would move the evidence around, and the other hand was used to focus the microscope.
Q. You were then looking for the visible particles that you've told us about earlier?
A. Yes.
Q. And after you completed that, what did you do?
A. Once I examined the entire object -- and if we're looking at the pair of jeans, in this particular case, I found no particles that I actually physically removed. The next step was an actual solvent extract of the object.
Q. Would that be looking for organic explosives?
A. Yes.
Q. How did you do the solvent extraction?

A. In this case, I wanted to go to an area which I know is a high-traffic area, and the high-traffic area being the pockets. And so that's what I centered on.
Q. And how did you remove the material from the pockets?
A. The actual pocket itself was cut and removed away from the jeans themselves.
Q. Did you cut those pockets out yourself?
A. Yes.
Q. And then did you use your solvent extraction on those two pockets?
A. Yes.
Q. And did you mark those as separate testing samples?
A. Yes.
Q. Okay. Now, other than cutting out the pockets, did you follow the same procedure with each piece of evidence that you've discussed, the two T-shirts, the jacket and the boots?
A. In each case, the table surface, the brown paper that was on the table surface was removed. The table surface was cleaned one more time, new piece of paper was applied to the table, new gloves, and the next item was placed for examination; and the entire procedure was repeated one more time.
Q. So you do that every time. Do you also blank the table each time?
A. Yes.

Q. Do you put -- did you put away the piece of evidence that you had been working on before you brought out the new piece of evidence and put down the new butcher paper?
A. Yes, definitely. Once it's out for examination -- only one item is out at any one time for examination. Once it's finished exam, it's placed back in the bag.
Now, in particular cases where there is solvents still remaining on the item -- for example, acetone still on the

remaining on the item -- for example, acetone still on the item -- I will allow it to evaporate before placing it back into the bag because I don't want the bag to be filled with acetone vapors.
Q. Now, you said that you do a solvent extraction. Did you do that on all the pieces of that evidence that we've been discussing? Do you recall?
A. I did it on the jeans and the shirts.
Q. And once you do a solvent extraction, what do you do with that material, the liquid?
A. Well, the extract is usually a larger volume of the solvent. That large volume needs to be reduced down to a smaller volume, and so it's dried down to a concentrated solution.
Q. What do you do with that concentrated solution?
A. That concentrated solution is then examined with the instruments that we talked about earlier.
Q. In this case, when you tested the jeans and the T-shirts,

what type of testing did you use on that dried, extracted sample?
A. It was both chromatography, IMS, the GC chemiluminescence technique, and mass spectrometry.
Q. Did you conduct several tests on each piece of evidence that we've been discussing?
A. Yes.
Q. And after conducting those tests, did you review the data?
A. Yes.
Q. Did you come to some conclusions about any explosives residue that were found on Mr. McVeigh's clothing?
A. Yes.
Q. And before coming to court, did you prepare or assist in preparing a chart that sets forth those test results?
A. Yes.
Q. Look at Government's Exhibit 437. Do you recognize that? Is that the chart -- you don't see it? Hold on one second.
MS. WILKINSON: Your Honor, if we could have this displayed just to the witness.
BY MS. WILKINSON:
Q. Now do you see it?
A. Yes.
Q. Is that the chart that you assisted in preparing before coming to court today?
A. Yes, it is.

Q. Now, at the bottom of that chart is another item, Government's Exhibit 426. Is that correct?
A. Yes.
Q. Did you also receive that item from Mr. Brett Mills?
A. Yes, I did.
Q. Do you recall on what day you received Government's Exhibit

Q. Do you recall on what day you received Government's Exhibit
426?
A. It was on the same day.
MS. WILKINSON: Your Honor, may I approach?

THE COURT: Yes.
BY MS. WILKINSON:
Q. Do you recognize Government's Exhibit 426?
A. Yes, I do.
Q. What is it?
A. Government's Exhibit 426 is a test tube, and inside the test tube are two lime green earplugs.
Q. When you received those earplugs from Mr. Mills, in what condition were they?
A. They were in the shape of what I have seen earplugs to look like.
Q. Can you describe what you mean by that?
A. Well, they're foam-rubber-type objects that are designed for placing into the ear, and they're sort of in a cylindric -- a tubular-type shape, cylindrical-type shape.
Q. Can they be molded to fit inside someone's ear?

A. Yeah, that's the object of an earplug. It would be inserted into the ear.
Q. Did you put those earplugs in the test tube, or did they come to you that way?
A. No. Once I started my examination, I placed them into the test tube. And that's where the extraction took place, inside that tube. They're in here now because I left them in the tube.
Q. Why did you examine those earplugs for explosives residue?
A. One, because they would be a good surface for the handling of an explosive. It would be a nice -- very much like foam and suction-type material that would attract and hold certain explosives. For example, high explosives would be absorbed very readily into this material. And obviously, if you're handling it to place it into an ear or something like that and if it's on your fingers, it would be transferred to that particular object; so that's the reason why I looked at these.
MS. WILKINSON: Your Honor, we would offer Government's Exhibit 437, the test results.
THE COURT: I'd like to hear more about these earplugs and how he received them.
MS. WILKINSON: Okay.
BY MS. WILKINSON:
Q. Agent Burmeister, tell us in what condition those earplugs were in when you received them. I mean, how were they

packaged?
A. I received a sealed plastic bag containing a variety of also -- what we call "also submitted" items which ranged from

his -- his wallet, there was some money, some other miscellaneous items that were in there. I'd have to look at the actual inventory of the overall items, but I remember earplugs being contained within that package of material.
Q. The earplugs did not have a Q number, did they?
A. No.
Q. They have just what you just referred to as "also submitted" marking?
A. Yes, and that's an A/S designation.
Q. When you received these items from Mr. Mills, did you receive a laboratory work sheet setting forth what you were supposed to be receiving?
A. It was a laboratory work sheet which on that laboratory work sheet had an itemized listing of those items found in the "also submitted" package.
Q. If I showed you, would it refresh your recollection as to what other items were submitted in that package when you received it?
A. Yes.
MS. WILKINSON: May I have a moment, your Honor?
THE COURT: Yes.
MS. WILKINSON: Your Honor, perhaps I could show

Mr. Burmeister his notebook of notes and he could find it.
THE COURT: All right.
BY MS. WILKINSON:
Q. Did you find it?
A. What I have -- what I have is the mis -- missing in here is the actual work sheet, which is what we're looking for.
MS. WILKINSON: I think I have it right here, your Honor. May I show it to him?
THE COURT: All right.
THE WITNESS: Thank you.
BY MS. WILKINSON:
Q. Is that it, Mr. Burmeister?
A. Yes. This is the work sheet that I received. Yes.
Q. Is it stamped down at the bottom with your name and the page number from your notes?
A. Yes.
Q. Okay. Take a look at that and see if it refreshes your recollection as to what else you received with the earplugs.
A. This work sheet, I would have circled the items that I actually received at the time that the submission came in, yes.
Q. What items did you receive?
A. Circled is $225 in cash, two Bicentennial gold coins, a wallet, a black belt, two earplugs, a container, a Rolaids packet that was open, and a Casio watch.
Q. And did you receive those separately from the clothes?

A. Yes. They came in a sealed plastic bag.

Q. Now, did you test those items for explosives residue?
A. I tested the entire group as well, yes.
Q. And then did you move on specifically to the earplugs?
A. Yes.
Q. And why did you do that?
A. I wanted to get a reading first of all from the entire package; and then I moved to the actual item, which I thought was a nice candidate for residue analysis.
Q. Did you get a general -- or a reading from all the "also submitted" items that you did?
A. Yes.
Q. Was it a positive?
A. Yes.
Q. And did you continue to examine the earplugs?
A. Yes.

MS. WILKINSON: Your Honor, we would offer Government's Exhibit 437.

THE COURT: And it's to illustrate his testimony?

MS. WILKINSON: Yes.

MR. TRITICO: I'll object at this time, as there is no foundation laid for the introduction of this exhibit as it relates to his findings and conclusions that he's made.

THE COURT: Well, all it is is illustrating his findings and conclusions.

MR. TRITICO: Yes, sir.

THE COURT: So are you objecting to his findings and conclusions?

MR. TRITICO: Since there has been no testimony as to how the tests were performed and how he arrived at the conclusions, at this time I think it's improper to admit this document.

THE COURT: Overruled. 437 is received to illustrate his conclusions.

MS. WILKINSON: May we publish?

THE COURT: Yes.

BY MS. WILKINSON:
Q. Agent Burmeister, first on the list is Government's Exhibit 431, the jacket received from Mr. McVeigh. Did you test that jacket?
A. Yes.
Q. What were the results of your testing?
A. No explosives were detected.
Q. What does that mean, "no explosives were detected"?
A. My terminology for "no explosives detected" -- there is a set number of explosives that I will examine for. And obviously, I cannot examine for the entire world of explosives out there, so I hone in on a specific set. And these were examined for, and none of those candidates were found.
Q. Now, why is it that you can't examine for every single

explosive?
A. There is -- if I looked for every explosive present, I might be here -- still examining the jacket to this day; and I may not be done next year, because of the number. There is a huge volume of explosives that are out there. There is a text, a 10-volume set of explosives that are out there; so the number is extremely large.
Q. Do you and your colleagues in the explosive residue community focus on certain common high explosives or relatively common high explosives?
A. We've identified a series -- a number of explosives that are readily found in the environment as far as explosion environments, and so these are the ones that we will hone in on when we look for these.
Q. When you state that there is none detected, could it also mean that it was below the levels of detection of certain instruments?
MR. TRITICO: I'll object to that as leading.
MS. WILKINSON: I'll rephrase it, your Honor.
THE COURT: All right.
BY MS. WILKINSON:
Q. Do the instruments have any limitations?
A. All these instruments have a point at which they will not be able to see any explosive if it is, in fact, present. We call that a level of detection.

Q. Are you familiar with the levels of detection of each of your instruments?
A. Yes.
Q. And do certain of your instruments have different levels of detection?
A. Yes.
Q. Do you consider that when determining which tests to conduct?
A. If we're seeing a certain explosive present in one test, in order to confirm it, we have to go to another test with equal sensitivity.
Q. And did you do that in this case?
A. Yes.
Q. Okay. Let's turn to the next exhibit, which is 428, the jeans. Explain to the jury what you found in the left pocket of Mr. McVeigh's jeans.
A. The left pocket portion was extracted. The liquid extract was then run on the various instruments, and the results that were found are shown in the chart.
Q. First, it has "nitroglycerine identified."
A. Yes.
Q. Explain what that means.
A. The instrumental results identified nitroglycerin high explosive on the object.
Q. And you have "PETN consistent for the presence of." What

do you mean by that?
A. The PETN was observed in the particular sample, was not able to actually identify the fact that it was actually there.
Q. So do you distinguish between "an identification" and "consistent with"?
A. Yes.
Q. How do you distinguish between those two terms?
A. Essentially, it's having the alternate instrument being the cross-check for the actual item itself. So I would need another instrument to be there to cross-check and identify its actual presence.
Q. Now, you're aware that Mr. McVeigh was carrying a gun when he was arrested. Correct?
A. Yes.
Q. So can you tell us what, if any, significance there is to nitroglycerine being identified in his left pocket?
A. For me there is really three possible reasons for the presence of nitroglycerine. One, nitroglycerine can be found in some heart medications and nitroglycerin patches. That's a possibility.

The second being that it's present in ammunition which is found in weapons, and anyone who is a shooter or goes out to fire weapons can actually develop nitroglycerin and get it on their clothing.

The third being that nitroglycerin is present in

explosives, and anyone who is exposed to an explosive that would contain nitroglycerin could get it onto their clothing.
Q. You can't tell from this finding where that nitroglycerine came from, can you?
A. No.
Q. Now, what type of explosives have nitroglycerin in them?
A. Nitroglycerine is found again, like I said, in some propellants, but it's also found in dynamites.
Q. You also analyzed the right pocket of Mr. McVeigh's jeans. Correct?
A. Yes.
Q. And there you're telling us you found nitroglycerine and you identified it. Correct?
A. Yes.
Q. And that's the same explanation that you've given for the left pocket? You can't tell where that came from?
A. That's correct, yes.
Q. But here in the right pocket you've actually identified PETN. Is that correct?
A. Yes. I was able to cross-check that, and definitely it was identified in the right pocket.
Q. Now, is PETN found in nature?
A. No.
Q. Where do you find PETN?
A. PETN is a high explosive.

Q. So what is the significance of finding PETN in Mr. McVeigh's right pocket?
A. The presence of -- the presence of PETN, someone would have had to have been exposed to the material PETN in order to have contact onto the object.
Q. What explosives do you find PETN in?
A. PETN itself is a white, crystalline, powdered explosive in its raw form, very much like table salt or sugar in the -- in the crystalline form. In that manner, you can actually get it onto you in the powdered or particle method.

PETN is also found as a component in other explosives, high explosives, for example, Semtex, which contains other explosives; and it's a component within another material.
Q. I'm not sure if I heard you correctly. You find PETN in a powder form sometimes in an explosive?
A. Yes.
Q. In what type of explosive would you find PETN in a powder form?
A. A commercial product that contains PETN in a powder form is considered det cord, in which there is a liner down the center of this powdered explosive; and it's wrapped on the outside with some sort of cloth or plastic coating.
Q. If you were to cut that det cord or detonation cord to attach it to a detonator, is the chances that some of that powder be exposed and actually fall out of the detonation cord?

MR. TRITICO: Excuse me, your Honor. I object to that as leading.

THE COURT: Overruled.

THE WITNESS: The det cord itself, like I said, is a tubular type -- looks like string -- or rope, rather -- is about the best way to put it. And if I were to cut that rope, down the center of it is this powder. And the powder itself is loose. It's not compacted or casted. And so if you cut it, it's going to flake around in a little powdered form; so it's easily transferred into the air.
BY MS. WILKINSON:
Q. What if you were working with a cut section of the detonation cord and you were trying to attach it to a blasting cap or detonator?
A. Again, as you're working with this material, the PETN powder will be dispersed onto your hands. It will be dispersed onto the outside of other objects and will be floating around.
Q. Now, what is the significance of finding PETN or identifying PETN in the right pocket but only finding "consistent with PETN" in the left pocket?
A. The level of PETN detected was higher in the right pocket than it was in the left pocket; and this was done basically through the fact that the pocket itself was cut out. And basically, a quantitative analysis was done essentially in the

basically, a quantitative analysis was done essentially in the left pocket and the right pocket, and the responses were then

compared.
Q. So you found more PETN in the right pocket. Is that --
A. Yes.
Q. -- a colloquial way of putting it?
A. Yes.
Q. Are you aware of whether Mr. McVeigh is right-handed or left-handed?
A. The only thing I can say is I've observed him actually writing here in the courtroom and that I've seen him writing with his right hand.
Q. Now, what would it mean, knowing that an individual is right-handed, about where they would leave trace evidence if they had been in contact with explosives?
A. Your activity into the pocket -- you would have more activity into a right pocket with your hand; so I would consider that that right pocket would have more explosive placed into it.
Q. Let's turn to the boots, Government's Exhibit 432 and 433. You found no high-explosive residues on those items, or none were detected. Is that correct?
A. Yes.
Q. Now, Government's Exhibit 430, the T-shirt with blue arms, you've identified PETN on that T-shirt. Is that right?
A. Yes.
Q. Can you tell us where on the T-shirt you found -- you

identified the PETN?
A. When I examined the Government's Exhibit 430, the T-shirt, I did a solvent extract on the lower half of the shirt from about mid level down. And that was a solvent extract on that shirt.
Q. So can you only tell us it was somewhere in that area?
A. Somewhere from the midsection down.
Q. Do you recall how many different tests you conducted on Government's Exhibit 430 to determine or identify PETN on that T-shirt?
A. There were quite a few tests, which is kind of overkill; but, yeah, there were quite a few tests conducted.
Q. What is the significance of using that many machines or instruments to identify PETN on Mr. McVeigh's T-shirt? What does it tell you?
A. Well, it tells me that the levels were definitely there in identifiable levels and that each technique cross-checked the other technique, so it was a positive finding.
Q. Now, you said "identifiable levels." Do you do any kind of quantitative analysis in explosive residue examinations?
A. No.
Q. Why not?

A. One, finding it in a particular object to me, a quantitative level doesn't mean anything in the sense that if I do conduct a quantitative analysis, I would have to conduct

that in the known area each time in the same type of conditions.
Q. What do you mean "known area"?
A. Well, if I took a spot, say, that big and did a quantitative analysis of, say, my jacket, every single jacket that I would look at, I would have to use that same spot as a reference source each time. If I broaden that area, I'm only increasing the concentration.

If I go even larger, I've increased the concentration; or we can go conversely and go smaller. The levels are going to change.

So each time I would have to use the same area.

Every time we get a specimen in, we don't have the same size to work with; so the numbers could change. That's why a quantitative level is not something I really work with.

I mentioned about the jeans because in the jeans, I cut out a known spot; and the known spot was the actual interior of the pocket. The pockets were the same in the left and the right.
Q. So you were able in a general sense to do a quantitative comparison of those two pockets. Is that what you're telling us?
A. A semi-quantitative analysis, yes.
Q. Now, Government's Exhibit 429, the other T-shirt that has the writing on it: You've also identified PETN on that shirt?

A. Yes.
Q. Approximately how many tests did you conduct before you made the identification of PETN on Government's Exhibit 429?
A. Approximately four tests were conducted.
Q. What is the significance of those four tests?
A. The significance of these tests, the fact that a positive finding was observed and that the PETN was identified on that object.
Q. Again, were these of significant identifiable quantities?
A. Yes.
Q. Finally, look at Government's Exhibit 426, the earplugs. And you've listed three residues that you found. Can you explain those three findings?
A. Well, if we break them down individually, if we look at the nitroglycerine, we're back up to the same level with the nitroglycerine as being possibly from a propellant.

As we move across to EGDN, that's another high explosive. Now, EGDN is a material which is often added to dynamites for temperature regulation for cold weather use; so EGDN in combination with nitroglycerin now sort of elevates the

interest level of nitroglycerine. Those two in combination to me suggest a dynamite.

PETN alone obviously is in the same category as before, something from a det cord, for example.

Q. Is EGDN found in nature?

A. No.

Q. Is it found in any other substances other than explosives that you're aware of?

A. No.

Q. So this is an -- EGDN or PETN are not the kind of substances that you would commonly find in public areas. Is that right?

A. Yes.

Q. Now, when you find three residues like that on one item, does that have any significance in terms of whether these items have been contaminated during your testing?

A. I think it indicates that the likelihood of contamination is small.

Q. Why is that?

A. Well, these are diverse items, and they're only found in that one particular specimen.

Q. Now, in this case, have you reviewed the chain of custody to determine whether these residues that you've found and are displayed in Government's Exhibit 437 could have been introduced after the clothes had been seized by the Noble County officials?

A. Yes.

Q. What conclusion have you come to?

A. I followed the pathway that these items took from the Noble County Jail all the way through into my possession at the FBI

laboratory. It's based on my finding that there is really no possibility that contamination could have come into play.

Q. What do you base that on, Mr. Burmeister?

A. I base it on several different factors: the exposure that people would have had to high explosives, the environment at which it was collected, the vessels at (sic) which it was collected in, and the type of explosives that we're actually looking at.

Q. Meaning that these aren't commonly found in nature or public settings?

A. Yes, and also in particular PETN -- it's transferability is different from something like nitroglycerine.

Q. I'd like you to explain that a little bit. Tell us how nitroglycerine can be transferred.

A. All of the explosives that we know have what we call a vapor pressure, and the vapor pressure is a phenomenon as to how much vapors are actually emanating or coming off of a particular object. Some materials such as nitroglycerin have high vapor pressures, where vapors are coming off quite

nıgn vapor pressures, wnere vapors are comıng orr pretty readily.

PETN has a very low vapor pressure, so there is very few vapors actually coming off of the surface. So as far as vapors being transferred, it would be unlikely. More so, it would actually be the particle itself being moved around.

Q. Is PETN relatively speaking a hard substance?

A. It's a crystalline material, yes.

Q. And are you aware of any research or studies that show that PETN transfers through paper bags or paper boxes in any kind of short time period?

A. I'm not aware of any specific research in that particular area.

Q. And do you believe that PETN could transfer through a paper bag over several days?

A. It's my opinion that it would not transfer through the paper bag in several days.

Q. What about through a plastic bag?

A. The same for the plastic bag.

Q. It would not transfer?

A. Yes.

Q. Now, as part of your review of the chain of custody, did you also review some records of Noble County showing the arrest of a defendant for possession of explosives?

A. Yes.

Q. And do you recall what kind of explosive device that defendant was supposed to have possessed?

A. Yes.

Q. What was it?

A. The individual was supposed to have possessed a railroad torpedo.

Q. And do you know what a railroad torpedo is?

A. Yes. I've contacted the manufacturer to find out what components are found in that material.

Q. Before you tell us the components, tell us what a railroad torpedo is.

A. A railroad torpedo is essentially an object that's placed on the rail track prior to men or women that are working on the railroad; and as a train is approaching that construction area, the train will roll over this particular device. It will fire a charge, it will let off a bang; and the folks down the way will know that a train is approaching.

Q. What are the components of these railroad torpedoes?

A. The chemical components are inorganic -- for the most part, inorganic, other than organic binders that hold it all together; and the organic component is potassium chlorate and sulfur. Then there is a gum that holds it all together.

Q. Did you find any of these items, potassium chlorate, sulfur, or gum dextrine on Mr. McVeigh's clothing?

sulfur, or gun deposits on Mr. Hoveigh's clothing?
A. No.
MS. WILKINSON: Your Honor, may we remove those so we can do the next part -- the final part of his analysis?
THE COURT: All right.
BY MS. WILKINSON:
Q. You can keep Q507 up there, Agent Burmeister.
I'm also handing you Government's Exhibit 663.
As part of this investigation, Agent Burmeister, did

you also examine Government's Exhibit 664 or what we all refer to as Q507?
A. Yes, I did.
Q. When did you receive that in the laboratory?
A. This was received by myself on April 28, 1995.
Q. From whom did you receive Government's Exhibit 664?
A. Government's Exhibit 664 was received from Mr. Brett Mills.
Q. How was it packaged when you received it?
A. I received it in a sealed condition in two plastic bags.
Q. Did you begin examining it at or around April 28, 1995? Do you recall?
A. I believe it was sometime after that, some short time after that; but I'm not sure of the exact date.
Q. Did you receive other portions of the Ryder truck when you were examining Government's Exhibit 664?
A. On April 28, I received several pieces of items, items of evidence, for examination.
Q. Were some of them other portions of the box of the Ryder truck?
A. Yes.
Q. And did you examine those and come to any conclusions about the results of the tests of those other items?
A. Yes.
Q. Did you find any explosives or any inorganic materials on those other items?

A. No.
Q. And were some of those items tested before you examined Government's Exhibit 664 or Q507?
A. Yes, they were.
Q. Was that significant to you?
A. As a part of my analytical approach, I was examining those items for residues at the time I was still searching for whatever I was looking for.
Q. Okay. When you received Government's Exhibit 664 from Mr. Mills in a sealed package, what did you do with it?
A. Well, the first thing that I did is obviously logged it into my notes. The next thing is a physical examination of the object through the plastic bag.
Q. What type of procedures did you follow in preparation for that examination?

A. Well, first of all, the area was cleaned off. My microscope area was cleaned off again with the two solvents that I used, the bleach and the organic solvent.
Q. Did you follow the same procedures that you described earlier of putting on your lab coat and gloves?
A. Yes, a new lab coat was donned that particular day. The gloves again, the normal operating gloves was applied. The bag was placed into the area. A piece of paper was placed over the microscope stage.
Q. And once you had performed those procedures, what did you

do with Government's Exhibit 664?
A. Next, a second pair of gloves was actually placed on the hand. The object was removed out of the plastic bag, placed underneath the microscope, and the material was examined with the microscope in sort of a crisscross, back-and-forth manner, as if you were sort of mowing the grass back and forth.
Q. And I think I interrupted you earlier. Before you conducted the microscopic examination, did you conduct some kind of visual examination?
A. Well, the visual examination was through the plastic bag, just a general overall physical exam. And that was done for every single item that I received.
Q. Take out Government's Exhibit 664. Would you? Tell the jury what you noticed about 664 when you did a visual inspection.
A. Well, the first thing that I noticed about Government's Exhibit 664 was the definite color scheme that was on the front or what I would call the one side, the front one side, which had what appeared to be some sort of coating or the red adhesive coating on the one side with the yellow painted area.
This was then on top of some sort of fiberglass material and some wood material on the reverse side.
Q. Have you compared Government's Exhibit 664 to a portion of the Ryder truck that you received from Ford?
A. A portion of the truck that I was provided, yes.

Q. Is that in front of you?
A. Yes.
Q. How is that marked? Is it Government's Exhibit 663?
A. It is marked as Government's Exhibit 663.
MS. WILKINSON: Your Honor, we'd offer Government's Exhibit 663 for demonstrative purposes only.
MR. TRITICO: I don't have a copy of that, your Honor. May I take a moment to look at it?
THE COURT: Yes, you may look.
MR. TRITICO: I have no objection.
THE COURT: All right. 663 is received.
BY MS. WILKINSON:
Q. Tell the jury what 663 is, Agent Burmeister, and hold it up

and display it for them, please.
A. Okay. Government's Exhibit 663 is a cutout portion of the side panel of a Ryder truck.
Q. And did you compare Government's Exhibit 663 to Government's Exhibit 664?
A. Yes.
Q. What -- can you hold it up next to it?
A. One of the first things that struck me was the overall thickness of the specimen, Q507, which is --
Q. Government's Exhibit 664?
A. -- 664. And the overall thickness was quite striking to me. And that's what I used initially to determine that this

thing had definitely gone through some severe damage.
Q. Did that assist you in your analysis of the materials that you found on Government's Exhibit 664?
A. Yes, it did.
Q. Let's turn to the testing that you did on Government's Exhibit 664. You said you put it under the microscope and took a look at it; is that right?
A. Yes. The whole object was examined microscopically, both sides.
Q. Now, turning to the unpainted side, what did you find when you examined that side of Government's Exhibit 664 under the microscope?
A. There was a portion of this object that had a covering of a white crystalline or clear crystalline material.
Q. What did it look like under the microscope?
A. Under the microscope, it looked like little particles of table salt.
Q. Were they all over Government's Exhibit 664?
A. No. It was isolated to a particular region within the range of the microscope screen. Some of the particles were actually embedded up in the wood-type surface, up underneath it; and some were yet -- actually had to pull back the fiberglass materials to some of these crystals that were embedded up underneath.
And that was -- that's what was observed.

Q. What did you do when you saw those crystals?
A. Well, like in the past when I have seen objects like that for testing, I will take and remove one of those crystals and perform a color spot test on that crystal to check for a possible oxidizer.
Q. What did you determine?
A. That it gave a strong positive for diphenylamine.
Q. Which means what?
A. Well, a strong positive with diphenylamine indicates to me that it's a possibility of a strong oxidizer present, and a strong oxidizer being something like ammonium nitrate or a chlorate-type salt.

chlorate type salt.
Q. After you conducted that initial test, what did you do with Government's Exhibit 664?
A. The next thing that I wanted to do from the fact that I had this identified or shown to these crystals -- to show the response that I had, I wanted to photograph the crystals in place, and that's what I did next. I photographed it.
Q. Did you take a series of photographs of those crystals in place?
A. Yes, I did.
Q. Okay. And have you selected one photograph from that series to show the jury the crystals that you found on Government's Exhibit 664?
A. Yes. There is one photograph which I think really

demonstrates it quite well.
Q. Did you ask to have that exhibit enlarged so you could actually show the jury where the crystals were?
A. Yes.
MS. WILKINSON: Your Honor, may I approach?
THE COURT: Yes.
MR. TRITICO: Your Honor, may I go ahead and move over to take less time?
THE COURT: Yes.
BY MS. WILKINSON:
Q. Agent Burmeister, I'm going to show you Government's Exhibit 836. Is that the photograph that you picked out before coming to court today?
A. Yes.
Q. That this has some significant to you?
A. Yes, it does.
MS. WILKINSON: Government offers 836, your Honor.
MR. TRITICO: No objection.
THE COURT: 836 is received, may be displayed.
MS. WILKINSON: May Agent Burmeister step down to display to the jury --
THE COURT: Yes, he may.
BY MS. WILKINSON:
Q. Would you like the pointer, Agent Burmeister?
A. I'll use my pen.

Q. Tell the jury what's depicted in this photograph.
A. This is a photograph that's an enlargement of the actual surface area of Q507, the wooded side of that object. It's taken with a microscope which had a camera attachment on the top end of it so I could focus in on the area that I needed to photograph.
What is striking about the photograph are these particles that are on the surface right here. Each one of those particles, these little crystal-like material -- it's as if we had sugar or salt on the surface. These are the

particles which were very significant to me at the time. I took one of those particles and that's what I used to test with the diphenylamine solution. And to me, that's striking that these crystals are on the surface.

Some were actually embedded in underneath the fiberglass or wood material.

Q. What was the significance of the fact that some of these crystals were actually embedded into this material?

A. Well, obviously, something had forced it into the surface in -- and embedded it into the surface material.

Q. And how would -- how could those crystals be embedded into the surface?

A. Well, it would have been embedded by some sort of force; and I would believe from the blast that it would have been forced into the surface.

Q. You can take your seat.

Now, after you took this series of photographs as Government's Exhibit -- or Q507, did you continue to do additional testing on the crystals?

A. Yes.

Q. Now, you told us you pulled one crystal out to do that initial test.

A. Yes.

Q. I take it from your photograph that there were numerous crystals on Government's Exhibit -- on Q507 -- Government's Exhibit 664.

A. There were numerous crystals on the surface, and I felt that I could definitely take one off and do the first initial spot test with it.

Q. After you took these photographs, did you remove additional crystals for testing?

A. Additional ones were removed for further testing, yes.

Q. And did you conduct a series of tests to determine what that -- what those crystals were that were on Government's Exhibit 664?

A. Yes.

Q. Did you use some of the tests that you described earlier for us as inorganic test techniques?

A. Yes.

Q. Let me show you what's been marked Government's Exhibit

842. Do you recognize that?

A. Yes, I do.

Q. This is a chart you had prepared to explain the tests and the results of the tests that you conducted on Government's 664, also known as Q507?

A. Yes.

Q. Would this assist you in explaining the results of your tests to the jury?

A. Yes, it would.
MS. WILKINSON: Government offers 842.
MR. TRITICO: I have the same objection I did to the last one.
THE COURT: All right. The objection is overruled. 842 may be used to illustrate his testimony.
MS. WILKINSON: Thank you. May we publish it?
THE COURT: Yes.
BY MS. WILKINSON:
Q. Agent Burmeister, at the top of this chart, you have the chemical spot test you've just described. Is that right?
A. Yes. That's the first thing on the top of the chart.
Q. And over to the right you have an arrow and it says "inorganic."
A. Yes.
Q. What are you telling us there?
A. That's just -- it's an identification of the presence of

some sort of inorganic oxidizer being present.
Q. So when you conducted that first test, that's all you knew. Is that right?
A. Yes.
Q. Did you proceed and have other tests conducted on the crystals?
A. Based on that initial finding, I moved to the next level, which was -- which was a strict instrumental technique.
Q. Briefly tell us about these techniques that you have listed here.
A. Okay.
Q. I think you've explained several of them previously, haven't you?
A. Yes. The polarized light microscopy. We went over that earlier. It's a microscoping technique with a microscope.
We went over the Fourier Transform Infrared Spectroscopy. Again, we're passing a beam of infrared radiation through the sample. The unique part of that particular test is a microscope that's attached to this instrument so we can focus our attention down to the single little particles, and that's what was used on that technique.
The next test, the X-ray diffraction, is one in which it's a X-ray technique where we're looking at the crystal itself.
With the use of the Gandolfi camera attachment, we can

take an individual crystal -- that is, plucking off of the surface a single crystal, inserting it into this instrument, and developing an array of X-ray beams that are diffracted off of that sample. We can get a known crystalline pattern.
Q. When you do that, can you compare it, the questioned pattern, with a known pattern?
A. Yes. That's what the advantage of that instrument -- you

A. Yes. That's what the advantage of that instrument -- you can then compare it to known samples that have been run and see similarities. It's very much like a fingerprint-type match.
Q. Was that done in this case?
A. Yes, it was.
Q. And these three tests that you've just described: Did they all indicate the presence of ammonium nitrate crystals?
A. Yes. Each one was consistent with ammonium nitrate.
Q. Did you conduct further tests?
A. Yes.
Q. Tell us about those tests.
A. Further down we have ion chromatography. There we're looking at the negative portion of the material, the nitrate ions. And in the case here we identified the presence of the nitrate ions.
Q. Does the chart speak for itself -- you did another test on nitrate ions, and then you found ammonium ions on two other tests?
A. Yes.

Q. Based on all those results -- that is, the first two boxes -- did you make an identification of the crystals that were found on Q507?
A. The culmination of all of those techniques identified the crystals as ammonium nitrate.
Q. And did you have any doubt after conducting all those tests that those were ammonium nitrate crystals embedded in Q507?
A. No doubt whatsoever.
Q. Did you conduct additional tests to determine any other materials that were present on Q507?
A. Yes.
Q. Are those results indicated in the last box on this chart?
A. Yes, they are.
Q. Tell us what those tests were.
A. Well, the SEM/EDXA, the scanning electron microscope with the energy dispersive X-ray analysis -- that's an elemental exam. We went over that earlier, but that's looking at the elements that are present in the crystal itself.
The next two tests --
Q. Go ahead.
A. Sorry.
Q. No, go ahead.
A. Okay. The next two tests were the tests to see if there were any high explosives present in the sample.
Q. So you found no high explosives, or you detected no high

explosives on Q507. Is that right?
A. Yes.
Q. Now, when you conducted this SEM/EDXA test, that top test in the last box, you found aluminum, silicon and sulfur. Is that right?

that right?
A. Yes.
Q. Approximately when did you conduct that test?
A. It was at the same time that I ran the other examinations for Q507.
Q. That would have been back in April or May of 1995?
A. Yes.
Q. Did you record that data in your notes?
A. It was a recorded printout, yes.
Q. And at that time, did you know the significance of those three elements being present in the ammonium nitrate crystal?
A. At the time, I did not know the exact significance of the aluminum, silicon and the sulfur.
Q. But you had recorded that data at that time; is that right?
A. Well, the data itself was useful for the overall determination even for the ammonium nitrate. But at the time, the particular elements that were there, I couldn't come to any conclusion as to their source.
Q. Now, you don't indicate that you found oxygen or nitrogen or the other components of ammonium nitrate in that elemental analysis. Why is that?

A. Because those items are below the Element No. 11, which is on the periodic chart; and those elements are, like we just talked about, nitrogen, oxygen, and hydrogen. And so ammonium nitrate is composed of just those items, nitrogen, hydrogen, and oxygen; therefore, we would not see those detected. But what -- we would see anything else higher than sodium.
Q. So that doesn't mean ammonium nitrate wasn't there; it just means this machine couldn't detect those elements; is that right?
A. That's correct. But the fact that we're not seeing anything higher than sodium helps support the fact that there is actually nitrogen, hydrogen, and oxygen present because they're below the sodium.
Q. So you detected no other elements other than the ones you've set forth here above the periodic weight of 11; is that right?
A. Right. Yes.
Q. Now, did you later conduct further analysis to determine the significance of the aluminum, the silicon, and the sulfur?
A. Yes.
Q. Did you go to ICI in Canada and conduct tests with their chemists?
A. Yes.
Q. What did you do?
A. Samples of prills and also some ground or crystalline

ammonium nitrate, which was taken from a search site, was taken by myself to ICI in Canada for examination.
MS. WILKINSON: Your Honor, may I have a moment,

please?
THE COURT: Yes.
MS. WILKINSON: May I approach?
THE COURT: Yes.
BY MS. WILKINSON:
Q. Now, in front of you is Government's Exhibit 148, which has previously been introduced into evidence. Do you recognize that?
A. Yes, I do.
Q. And what is that?
A. This is a bottle labeled "Ammonium Nitrate Fertilizer Prills," and this was taken off of a search site.
Q. Were you present when that was seized?
A. Yes.
Q. Where was it seized?
A. This was in Herington, Kansas, from Mr. Nichols' residence.
Q. Did you take a sample from that for testing?
A. Yes, I did.
Q. Do you see Government's Exhibit 148C in front of you?
A. Yes.
Q. Is that one of the samples that you took?
A. Yes, it is.

MS. WILKINSON: Government offers 148C.
MR. TRITICO: May I? I haven't seen it.
THE COURT: Yes.
MR. TRITICO: I have no objection.
THE COURT: 148C admitted.
BY MS. WILKINSON:
Q. Agent Burmeister, before you went to ICI to conduct this further testing, had you already analyzed the prills seized from Mr. Nichols' house?
A. Yes, I did.
Q. Had you made a determination as to what substance they were?
A. Yes.
Q. Had you identified them?
A. Yes.
Q. What were they identified as?
A. They were identified as prills of ammonium nitrate.
Q. Did you take Government's Exhibit 148C with you to ICI for examination?
A. Yes.
Q. And what type of tests did you conduct with ICI?
A. While at ICI, an elemental test using the scanning electron microscope with that elemental attachment on the side -- that was employed, along with an ion chromatography analysis was conducted, as well as an ICP, which is a quantitative method

for a specific element present.

Q. During the testing, did you learn of ICI's formula or recipe for their low-density prills produced in Joplin, Missouri, in 1994?
A. Yes.
Q. And did you review the elements that are in that formula or recipe?
A. Yes, I did.
Q. Did you make a comparison of those elements and look at a known ICI prill that had been manufactured in Joplin in 1994?
A. Yes, I did.
Q. Did you and the scientists at ICI conduct this elemental analysis of the exterior and the interior of those known prills?
A. Yes, we did.
Q. Did you also conduct that same type of analysis for the prills seized from Mr. Nichols' residence?
A. Yes, we did.
Q. Did you compare the data?
A. Yes.
Q. What were the results?
A. The prills that were from Mr. Nichols' residence closely related to the prills that were from the Joplin plant -- ICI, Joplin, plant; and the results were consistent with one another.

Q. Did Mr. Nichols -- the prills seized from Mr. Nichols' residence have the same elements in the additive that were in the known ICI prills?
A. Yes.
Q. Did they have the same elements that were in the known ICI prills in the coating?
A. Yes.
Q. And after you conducted that analysis, did you go back to your laboratory and review the elemental analysis that you had done on Q507?
A. Yes. When I reviewed it, it struck me.
Q. Okay. Let's go back to the chart, if we could publish that again on the screen, please. It's Government's Exhibit 842.
Now, you've told us that early in your analysis you came up with aluminum, silicon, and sulfur in the Q507 crystals. Is that correct?
A. Yes.
Q. And after learning the ICI formula, what did you determine about the ammonium nitrate crystals that were embedded on Q507?
A. I was seeing the same elemental profile in the ICI prills that we were examining as the ones that I saw on the Q507.
Q. Now, did you see every single element that you had seen on the ICI prill?
A. When the ICI prills were examined for the interior portion, I was seeing the same elemental profile, yes.

Q. How about for the coating?
A. Not for the coating, no.
Q. So what were you able to determine about the crystals on Q507?
A. The crystals were consistent with originating from a prill, a commercial prill.
Q. Why is that significant that these crystals came from a prill?
A. Because they're -- having these elements present, they did not come from a crystalline form -- pure crystalline form of ammonium nitrate.
Q. You told us earlier, I believe, that some different explosives have ammonium nitrate in them. Is that correct?
A. Yes.
Q. What type of explosives contain ammonium nitrate?
A. Some dynamites, emulsions and water-gel-type explosives.
Q. And are you aware of the manufacturing process generally used to put ammonium nitrate in those dynamites, emulsions and gels?
A. Yes.
Q. Normally, do they put prilled ammonium nitrate or some other form of ammonium nitrate in those explosives?
A. Generally speaking, it's the crystalline form of the ammonium nitrate that's present in these products.
Q. So tell us again the significance of finding those elements

and the ammonium nitrate crystals on Q507?
A. Based on this elemental profile, it was consistent with originating from a prilled form of ammonium nitrate.
Q. And not from a dynamite or a gel or an emulsion. Is that correct?
A. Yes.
MS. WILKINSON: We have no further questions, your Honor.
THE COURT: All right. Mr. Tritico?

CROSS-EXAMINATION

BY MR. TRITICO:
Q. Good afternoon, Special Agent Burmeister.
A. How are you?
Q. My name is Christopher Tritico. You and I have never met before, have we?
A. No.
Q. I've never had the privilege and the opportunity to sit down and talk with you about the testing and the work that you've done investigating this case, have I?
A. No.
Q. When you went to Oklahoma City and conducted your searches and later did your testing, you found no PETN on the scene in Oklahoma City, did you?
A. That's correct, yes.
Q. When you did your searches and you did your later testing

back in Washington, you found no EGDN in Oklahoma City, did you?
A. That's correct, yes.
Q. When you did your searches in Oklahoma City and you did your later testing at your lab, you found no HMX in Oklahoma City, did you?
A. That's correct, yes.
Q. When you did your searches and you later did your forensic work at your lab, you found no evidence of Tovex Blastrite in Oklahoma City, did you?
A. Well, a component within the Tovex, there is a component that is present; and that is ammonium nitrate. Now, ammonium nitrate is an object that I found on Q507.
Q. So the ammonium nitrate found on Q507 is one of the elements that is in Tovex; is that right?
A. Yes.
Q. Not in a prilled form, though, is it?
A. I'm not sure whether some Tovex formulations have prills in it, but I do not believe -- I think it's all crystalline in nature.
Q. You found no remains of shock tube in Oklahoma City, did you?
A. I in particular wasn't looking for the remains of shock tube at the site, but I'm not aware of any shock tube being recovered.

Q. You certainly didn't analyze any, did you?
A. Only the Primadet from Mr. Nichols' residence.
Q. Right. And that was not found in Oklahoma City, was it?
A. Right.
Q. In Oklahoma City, you found no evidence of the remains of safety fuse, did you?
A. That's correct.
Q. In Oklahoma City, you found no remains or evidence exhibiting to be the remains of a blasting cap, did you?
A. Again, I wasn't specifically looking for the remains of a blasting cap, but the explosive that was contained were not. You're right.
Q. You didn't find any; right?
A. Right.
Q. That would be electric or nonelectric blasting cap; right?
A. Yes.
Q. Now, you testified earlier that you had found -- or identified in one pocket PETN of Mr. McVeigh and "consistent with PETN" in the other pocket. Do you recall that?
A. Yes.
Q. Is it your testimony to this jury that there is no other possible way that Mr. McVeigh could have gotten the PETN in his pocket other than contact with an explosive?
A. I cannot rule out to a hundred percent, but I'm confident that it is there.

Q. There are other ways that he could have gotten the PETN in his pocket?
A. Other than exposure to the PETN?
Q. Yes.
A. Beyond a hundred percent, the only other way -- I'm not aware of any other way.
Q. Do you know Dr. John Lloyd?
A. Yes, I am (sic).

Q. Do you find him to be an expert in the field of forensics?
A. In the area of forensics, I would consider him such, yes.
Q. Trace analysis?
A. In trace analysis, yes.
Q. Do you consider -- do you respect his work -- strike that.
Let me ask you: Would you rely on his work?
A. I have read some of his papers that he has published, and I have found those papers to be very good.
Q. Do you know Dr. Jehuda Yinon in Israel?
A. Yes, I do.
Q. Do you consider him an expert in the field of forensics?
A. Again, you need to define the area of forensics that you're talking about.
Q. How about trace analysis?
MS. WILKINSON: Objection, your Honor. Can we say whether it's explosives trace analysis? I think that's contributing to some of the confusion. There is different

types of trace analysis.
THE COURT: If you wish.
BY MR. TRITICO:
Q. Well, let's do it two ways: Do you consider him an expert in the field of explosives trace analysis? I'm referring to Dr. Yinon.
A. I'm not aware of how much exposure Dr. Yinon has had to actual crime-scene analysis. I know he has extensive background in the mass spectrometry analysis of high explosives.
Q. Do you consider him an expert in that field?
A. Yes, I do.
Q. Rely on his work?
A. Yes, I do.
Q. Do you consider Dr. Yinon an expert in -- generally in the field of trace analysis?
A. Again, I don't know the scope of his abilities in the general world of trace analysis. I'm only aware of his capabilities in the area of mass spectrometry. And that area, I do respect.
Q. Are you familiar with any of the books or articles that Dr. Yinon has authored?
A. If you're referring to the text that he's had with

A. If you're referring to the text that he's had with
Dr. Zitrin, yes.
Q. Do you consider that work to be a good work?

A. I found it to be a good text, yes.
Q. A book that you can rely on in your field?
A. We have used it as a textbook which I would recommend for others to read, yes.
Q. You joined the Federal Bureau of Investigation when, sir?
A. I joined it in March of 1987.
Q. And if I understood your direct examination, prior to that, you were -- after graduating from college, you were privately employed?
A. After college?
Q. Yes.
A. Are you considering graduate school?
Q. I was referring to graduate school, yes, sir.
A. No. I worked for a short period of time at the Allegheny Crime Lab.
Q. Is that in New York?
A. No. It's in Pittsburgh, Pennsylvania.
Q. How long were you there?
A. That period was approximately five or six months.
Q. And were you the only -- were you practicing forensic science at that time?
A. I was working with another individual in the area of trace analysis, and that involved paint analysis; but the area that I was working in was arsons and explosives analysis.
Q. In the trace field, or generally?

A. At the crime lab in the area of trace analysis, that was the overall department that I was assigned to; but the specialty which I was working in was in the area of arsons and explosives analysis.
Q. And you were there for a few months?
A. Yes.
Q. And from there, you went to the private company?
A. Yes. Pharmakon, Incorporated.
Q. I'm sorry. Pharmakon, Incorporated?
A. Yes.
Q. How long were you with Pharmakon, Incorporated?
A. Up until March of 1987.
Q. That's when you joined the Federal Bureau of Investigation?
A. Yes.
Q. What were your duties at Pharmakon?
A. At Pharmakon, I was the laboratory manager as well as the supervisor of the forensic division, which was a subdivision of Pharmakon.
Q. Does Pharmakon handle trace analysis for explosives work?
A. The forensic division did that, yes, along with other forensic-type samples.

Q. And that's the division you were in?
A. Well, I was the laboratory manager which handled toxicology work, but I was also the supervisor of their forensic division. It was under the same overall roof, if you will, but it was a

subdivision of the overall parent company.
Q. As the laboratory manager, I take it you spent a great deal of your time managing and not practicing forensic science?
A. No. I'd say contrary to that, I spent a lot of time doing both.
Q. Rather be doing the forensic science than the management, I take it.

You joined the Federal Bureau of Investigation in 1987; is that right?
A. Yes.
Q. When you joined the FBI, was it your intent to work in the lab, or was it your intent to be an FBI agent?
A. Actually, my intent when I got into the FBI was to work in the FBI laboratory.
Q. And it took several years, as I understand your testimony, for you to attain that goal?
A. Well, it was -- there were limited positions available in the laboratory, and I was able to see a posting one day to see that there was a position available. And it fit perfectly with what I wanted; and I was quite pleased to find that.
Q. And with your education?
A. Right.
Q. How long were you an FBI agent before you joined the lab?
A. Well, like I said, from March of 1987, after following through with the training period, I then was assigned to the

Alexandria and Washington field office, where I conducted criminal investigations; and from there, it was November of 1991 that I actually received notice that I was accepted into the laboratory. And I did some back-and-forth visits to the laboratory to get acclimated to it and then actually reported on duty in '92, January.
Q. Now, when you first joined, you went to some school that the FBI has for its new agents. Is that right?
A. Yes.
Q. How long is that school?
A. It's approximately 16 weeks. 13 to 16 weeks.
Q. And they have regular classes every day, I'm assuming, five days a week?
A. It's a rigorous schedule.
Q. A full schedule of classes from 8 or so in the morning until 5 or so in the afternoon?
A. It's a full plate, right.
Q. Covering a variety of topics involved in law enforcement, I take it.

A. Yes.
Q. It did not cover forensic science, I take it?
A. No, we had a block on forensic science.
Q. Well, not -- the course that you took when you were a new recruit into the FBI did not cover the use of the machines that you talked about here today, I take it.

A. You're right.
Q. Okay. This was a general overview of forensic science so that people in the field know what to do and not to mess things up; right? Is that fair?
A. It's a review of all of the capabilities that the FBI laboratory has to offer. It's an introduction into forensic evidence. It's an introduction into fingerprinting, ballistics, those kinds of things.
Q. So this covers every aspect of the FBI, not just the analysis for explosives section; is that right?
A. I'm not sure if it covers every aspect, but the major components of the laboratory are covered.
Q. Okay. And after you completed the -- did you say 16 weeks? I apologize.
A. I'm having trouble. It's 13 to 16, something like that.
Q. That's fine. After you finished the 16 weeks, you took your regular assignment. Right?
A. Yes.
Q. And how long were you in the first assignment?
A. Well, I was in my first assignment -- I'm not sure -- probably there for about a year, year and a half before the actual Alexandria field office closed down and was absorbed into the Washington metropolitan field office. And that's where I remained since the time I came into the laboratory.
Q. Now, as a special agent, you're required to carry a

firearm, are you not?
A. That's correct, yes.
Q. Still?
A. Yes.
Q. And you're required to go to the firing range from time to time to qualify with that firearm?
A. Yes.
Q. How often?
A. By our manual of operations -- has us qualify at a minimum of four times a year. And in each one of those times, you have to qualify.
Q. You have to pass the test?
A. Yes. You have to pass the test.
Q. Okay. And when you go to the range, the firing range -- do you go to the range more than just your qualifying time? Do you go at other times to make sure that you're still shooting straight?
A. I go for me personally?

A. I -- for me personally?
Q. Yes. I'm asking about you personally.
A. I'm currently delinquent.
Q. Okay. I take it by your testimony, then, when you finish here you will be going to take your test. Okay.
Now, do you go shooting from time to time to keep up with your skills?
A. The shooting that I get in is pretty restricted to the

times that I qualify during the year.
Q. Okay. When you go to the range to qualify, is this an FBI range?
A. It's at Quantico. A range is set up for training purposes, yes.
Q. And when you go there, do you wear some protective ear -- something to protect your ears?
A. Yes.
Q. And have you had occasion to view the other people that are at the range either shooting or the instructors watching?
A. Well, you can see the opponents that are on the range training area, yes.
Q. The opponents?
A. The other individuals that you're out there with.
Q. Okay.
A. Not like war games or anything.
Q. Well, just so we get this straight, you're all in one line; right? You're not -- okay.
That's quite a school.
A. Sorry.
Q. Now, are they wearing ear covers?
A. Yes.
Q. And are the instructors wearing protection for their ears?
A. Yes, they are.
Q. You don't find it unusual that people who shoot firearms

wear something to protect their ears, do you?
A. No.
Q. Didn't find it unusual -- you knew Mr. McVeigh was a shooter. You found that out, didn't you?
A. Yes. I'm aware of that.
Q. Didn't find it unusual that he had earplugs, did you?
A. It's -- someone who would have a firearm would have earplugs for shooting, yes.
Q. Do you know, sir -- well, you don't know of your own personal knowledge where Mr. McVeigh may or may not have stored those earplugs when he wasn't using them shooting; right?
A. I don't know that.
Q. Now, since we're almost out of time today, let me just ask you a few questions and we'll try to finish tomorrow. How much -- how many pounds of debris did you -- did you and the other members of the FBI collect in Oklahoma City?

other members of the FBI collect in Oklahoma City?
A. A lot. I don't think that I can put a number to it.
Q. Does over 7,000 pounds ring a bell to you?
A. I can't put a number to it. I just know that there was a lot of metal. To me, one piece weighs a lot, so it's a lot of pieces.
Q. And that was all transferred to the lab?
A. I'm not sure if every single item was transferred to the lab. I know a lot of pieces were transferred to the laboratory.

Q. And out of all the evidence that you had available to you, you found only the particles on Q507. Is that right?
A. From the scene?
Q. Yes.
A. Yes.
Q. Now, you said Dr. Whitehurst trained you at the lab?
A. Yes.
Q. Do you consider him to be one of the finest forensic scientists you've ever met? Is that right?
A. At the time that he was training me, I respected his credibility -- his capabilities. Yes, I did.
Q. You no longer respect him?
A. I haven't had exposure to him for several years now, so I can't make a judgment.
Q. I'm sorry. I didn't mean to interrupt you. The last time you worked with him, you had the opinion that he was one of the finest forensic scientists you had ever worked with; right?
A. I respected his capabilities.

MR. TRITICO: Your Honor, that's a pretty good place to stop.

THE COURT: Since it's 5:00, you're right.

You may step down, and you'll return tomorrow.

Members of the jury, we will, as has been our practice, recess now until tomorrow; and again, of course, as I was mentioning to you at the noontime, with each witness that comes in here, the scope of what you have to avoid contamination with as far as anything outside of the evidence increases. So once again, please, be very careful about anything you may read, see and hear, to avoid anything which could influence you in your decision. Keep open minds, and don't discuss the case with anybody, including other jurors.

We'll excuse you until 9:00 tomorrow morning.

(Jury out at 5:00 p.m.)

THE COURT: Recess, 9 a.m.

(Recess at 5:01 p.m.)

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INDEX

Cross-examination by Mr. Tritico

PLAINTIFF'S EXHIBITS

Exhibit	Offered	Received	Refused	Reserved	Withdrawn
148C	9674	9674			
437					
437	9642	9643			
663	9661	9661			

PLAINTIFF'S EXHIBITS (continued)

Exhibit	Offered	Received	Refused	Reserved	Withdrawn
826	9588	9590			
827	9592	9592			
829	9592	9592			
836	9664	9664			
837	9620	9620			
838	9612	9612			
842	9667	9667			
846	9565	9567			
914	9626	9626			

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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 19th day of May, 1997.

_____

Paul Zuckerman

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Kara Spitler