IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO

Criminal Action No. 96-CR-68

UNITED STATES OF AMERICA,

Plaintiff,

vs.

TERRY LYNN NICHOLS,

Defendant.

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REPORTER'S TRANSCRIPT
(Trial to Jury: Volume 99)

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Proceedings before the HONORABLE RICHARD P. MATSCH, Judge, United States District Court for the District of Colorado, commencing at 8:45 a.m., on the 1st day of December, 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 RYAN, United States Attorney for the Western District of Oklahoma, 210 West Park Avenue, Suite 400, Oklahoma City, Oklahoma, 73102, appearing for the plaintiff.

LARRY MACKEY, BETH WILKINSON, GEOFFREY MEARNS, and AITAN GOELMAN, Special Attorneys to the U.S. Attorney General, 1961 Stout Street, Suite 1200, Denver, Colorado, 80294, appearing for the plaintiff.

MICHAEL TIGAR, RONALD WOODS, and JANE TIGAR, Attorneys at Law, 1120 Lincoln Street, Suite 1308, Denver, Colorado, 80203, appearing for Defendant Nichols.

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PROCEEDINGS

(In open court at 8:45 a.m.)

THE COURT: Be seated, please.

Good morning.

MR. TIGAR: May I approach?

THE COURT: Yes.

(At the bench:)

(Bench Conference 99B1 is not herein transcribed by court order. It is transcribed as a separate sealed transcript.)

(In open court:)

(Jury in at 8:48 a.m.)

THE COURT: Members of the jury, good morning.
JURORS: Good morning.
THE COURT: You will recall that when we recessed on Friday, we were hearing testimony from agent Steven Burmeister, and we will continue with his testimony this morning.
Agent Burmeister, if you'll resume the stand under the oath taken last week --
THE WITNESS: Yes.
THE COURT: -- we'll continue.
(Steven Burmeister was recalled to the stand.)
THE COURT: Miss Wilkinson.
MS. WILKINSON: Thank you, your Honor.

DIRECT EXAMINATION CONTINUED

BY MS. WILKINSON:
Q. Good morning, Agent.
A. Good morning.
Q. When you left on Friday, you were about to tell us about your examination of a piece of wood fragment from the bombing scene; is that right?
A. Yes.
Q. And I believe you were about to discuss some photographs that you had taken?
A. Yes.

Q. Could you just remind the jury when you took those photographs?
A. The photographs were taken after I received the items in April, just after April 28, 1995.
Q. Had you removed anything from Government's Exhibit 664, the portion of the truck, before you took those photographs?
A. No. I'm sorry, I removed various small particles for some color testing prior to the photograph.
Q. Did other particles or crystals remain on the wood fragment?
A. Yes. Yes.
MS. WILKINSON: Your Honor, may I exhibit those photographs to the jury?
THE COURT: Yes, what part --
MS. WILKINSON: They're the ones we moved in on Friday. They're a series, and they're large photographs.
THE COURT: How are they designated?
MS. WILKINSON: I believe they're 831 through 835. I'd have to go up to the front to --
THE COURT: For the record, we need to know which --
MS. WILKINSON: Sure.
There's Government Exhibits 830 through 835.
THE COURT: All right. Yes, you may use them. They're in evidence.
BY MS. WILKINSON:

Q. Agent Burmeister, if you can grab that wood pointer. Let's start, if we could, with Government's Exhibit 834. Did you take this photograph?
A. Yes, I did.
Q. Can you tell the jury what they're looking at in this photograph.
A. This is a photograph, a black-and-white photograph of what I'm designating as Q507, the Government Exhibit 664. It's the wooden side of that particular fragment.
Q. Now, could you take 664 out of the bag and hold it up to the photograph and show the jury how you match it up to the edge of the photograph. You can stand up from your seat.
A. Okay. Here we see the actual fragment itself, 664, and if I'm holding it up next to it, the top as we follow along the top is just up here on this portion here. Let me point it out. Along in here, all the way, is this particular edge right in there. So you can sort of it hold that way.
Q. Now, if we turn that over to see what we would be looking at if you could flip this photograph, what is the color is the side of this large portion here on the upper right-hand corner?
A. We would see that it would be the red side over on this side as we see on this specimen.
Q. So this portion would be what color, if you could turn it over?
A. That would be the yellow side.

Q. And did you examine this entire exhibit under the microscope?
A. Yes, I did.
Q. Did you focus on particular areas of Government's Exhibit 664 when you were looking at it under the microscope?
A. Well, I sequentially looked at the entire item back and forth as if you're mowing grass, you would go sequentially back and forth. That's the same technique, so I cover every square inch of that item.
Q. Did you find certain areas of interest when you looked at Government's Exhibit 664?
A. Yes, I did.
Q. Did you photograph those areas?
A. Yes.
Q. Let me show you 835. Did you take that photograph?
A. Yes, I did.
Q. What are we looking at here?
A. It's the same specimen, Q507. It's an enlarged area. Now we're looking closer onto the surface, but it's this general area right here that I wanted to focus in on.
Q. Why is that?
A. It's in this general area right here I started noticing a line of crystalline material, some embedded but on the surface of this particular wooden area.
Q. Was there just one crystal here or numerous crystals?

A. No, there was a whole series of crystals all the way through here and also extending down this particular line and some actually in here.
Q. How were the crystals attached to the wood fragment, Q507?
A. Some of them were actually down inside the wooden area, embedded into the surface. Some were on the top of it over in this area, and they were adhering to the particular material.
Q. Did you use a certain term to describe how these crystals were -- or how you observed the crystals attached to Q507?
A. Yes, I did.
Q. What is that?
A. In my notes I described them as a glaze on the surface, and that's generally a glaze being just a covering over this particular area.
Q. Now, I'm going to show you 832. Is this an enhancement of what we were just looking at?
A. Yes, it is.
Q. And explain to the jury what this is.
A. Now we're actually looking closer at the surface. We've magnified the actual image with the microscope, looking deeper and closer into the material. And we can see right along here, this deposit on the surface right here, the crystalline particles; each little, tiny particle is a crystal itself. And they're sort of clear, very much like a small particle of sugar or salt, but that's what it would look like on the surface

here. And you can see those little individual particles.
Q. How did you distinguish between these little particles and little particles we see up in this area?
A. That was part of the initial testing with the color spot test. I talked on Friday about diphenylamine where we could take an individual particle and then react it with this chemical and look for the color response. And in this case, a deep color was produced indicating that there was a strong oxidizer present, and that allowed me to go to the next step. So sequentially testing some of these particles all the way through, and especially in this particular area, some even up in here, were giving me this strong blue color.
Q. Did you examine these crystals in this area and up here for their crystalline structure?
A. Yes.
Q. Did you see similarities in the crystalline structures of some of these small particles that you pointed out to the jury?
A. Yes.
Q. Agent Burmeister, did you also take color photographs of this -- Government's Exhibit 664?
A. Yes, I did.
Q. Let me show you 830. What is this?
A. This is a color photograph of the same surface on Government Exhibit 664 or what I'm calling Q507. But again it's in this particular area; we see the deposit all the way

along in this line and some, as we saw on the previous photo, up in -- into this area and some down in here. But it's principally along this area, but it's a color photograph of the same material.
Q. Were the crystals that you found glazed on Q507 in this general area here?
A. Yes.
Q. Did you find them on the entire Government's Exhibit 664?
A. No.
Q. And here is Government's Exhibit 831. Does this focus on that same upper right-hand portion of Q507?
A. Yes. It's now we're coming away from the object. We're still focusing on this particular area right in here. We look at the particular item itself. We're actually focusing on this particular spot right in here. I always like to -- if you're -- if you have this item and you're trying to compare it to the photo, not only the ridges across the top, but this little indentation right here is sort of a good landmark to try to key in on where the particular item is. But it's right along this ridge right here.
Q. Does the color photograph assist you in any way in seeing the contrast with the crystals?
A. It does assist in that -- I prefer the black and white, but the color does show some depth to the particular wood.
Q. Why do you prefer the black-and-white photographs?

A. Because I can see the crystals a little bit better on the photo.
Q. After you took these photographs, Agent Burmeister, did you conduct a series of tests on the crystals that you found on Government's Exhibit 664?
A. Yes.
Q. And did you take notes as to the results of that testing?
A. Yes, I did.
Q. Did you analyze the data that you received?
A. Yes, I did.
Q. Did you come to some conclusions about the crystal?
A. Yes.
Q. And have you formulated a chart for the jury that summarizes the testing and your results?
A. Yes.
Q. Let me show you Government's Exhibit 1744. Do you recognize that?
A. Yes, I do.
Q. Is that the chart that you prepared?
A. Yes.
Q. Or assisted in preparing?
A. Yes.
Q. And does it summarizes the tests and the results of those

tests that you performed on the crystals on Q507?
A. Yes, it does.

MS. WILKINSON: Your Honor, we'd offer 1744 under Rule 1006 as a summary chart of Agent Burmeister's results.

MR. TIGAR: May I inquire from here, your Honor?

THE COURT: Certainly.

VOIR DIRE EXAMINATION

BY MR. TIGAR:
Q. Mr. Burmeister, I've got one, two, three, four, five, six, seven, eight, nine, ten, eleven tests reflected here; is that correct, sir?
A. I'd have to see the chart to verify that, but it sounds correct.
Q. Okay.

There you are.
A. You're right. Yes.
Q. And each one of these tests is the subject of a lab report; correct?
A. It's incorporated within the particular laboratory report as far as the data that's derived from these tests and are used to interpret to come to the result that's in the laboratory report.
Q. Okay. So just one report that has all these tests in it?
A. The results of all these tests were incorporated together to form the opinion which is in the report.

MR. TIGAR: Your Honor, no objection for demonstrative purposes. It doesn't meet 1006.

THE COURT: Yes, it's not 1006. It includes his opinions.

MS. WILKINSON: We'll show it for demonstrative purposes.

THE COURT: All right.

DIRECT EXAMINATION CONTINUED

BY MS. WILKINSON:
Q. Will this assist you, Mr. Burmeister, in explaining to the jury the testing you did on Q507?
A. Yes.
Q. Now, first, Mr. Burmeister, you told us that you took photographs of the crystals that you found; isn't that right?
A. Well, the initial testing was doing a microscopic examination, and several particles which were interesting-looking particles were removed. A color test was performed on those particles. Subsequent to that, a photograph was taken of the area.
Q. The results of that first test showed you there was a reading for a oxidizer?
A. Yes.
Q. And can you tell us again what an oxidizer is.
A. An oxidizer is a material that will readily promote the

A. An oxidizer is a material that will readily promote the release of oxygen. In the world of explosives, it plays a very important part because materials that do release oxygen are those that look for a fuel source which can come together to

form an explosive material.
Q. Now, when you took the photographs of Q507 or Government's Exhibit 664, why did you take photographs?
A. The purpose was to record its actual location and to show its actual crystalline form on the particular surface.
Q. Did any of the crystals that you photographed survive on Q507 today?
A. No.
Q. Okay. Did -- after you finished conducting your tests on the crystals you found on the exhibit, did you send that exhibit in the FBI Laboratory for further testing?
A. I returned it to the individual who presented it to me, and it went for further testing, yes.
Q. And would that further testing -- could that further testing have affected the crystals that you found?
MR. TIGAR: Object to what could have been.
BY MS. WILKINSON:
Q. If you know.
MS. WILKINSON: Excuse me, your Honor.
THE COURT: Okay.
BY MS. WILKINSON:
Q. Agent Burmeister, if you know, could that testing have affected the crystals on Q507?
A. It's entirely possible, yes.
MR. TIGAR: Objection as to possibility.

THE COURT: Yes, it's stricken as to possibility.
BY MS. WILKINSON:
Q. Are you aware of Mr. Buechele's testing on Q507?
A. Yes.
Q. And did he do a paint analysis?
A. He looked at the coating material that was on the surface, the opposite painted surface.
Q. And only if you know, could that affect the crystals on Q507?
THE COURT: Well, again, the question here is did it, not could it.
BY MS. WILKINSON:
Q. Did it, Agent Burmeister?
THE COURT: If you know from your own knowledge.
THE WITNESS: I don't know for a fact if that was the particular part of the examination that removed or caused it to disappear.
BY MS. WILKINSON:
Q. Okay. But the crystals did disappear from Q507 since you did your testing; is that right?

A. Yes.
Q. And do the photographs show the crystals that you actually saw under the microscope?
A. Yes.
Q. Can you describe for the jury generally the crystalline

structure of those particles that you examined under the microscopes?
A. The particles themselves looked like crystals of table salt or sugar. That would be the size -- not the size, but much smaller than that, but still it's a crystalline form as if we looked at sugar or table salt.
Q. Are you familiar with the crystalline structure for ammonium nitrate?
A. Yes, I am.
Q. And what were -- if you -- can you tell us whether the results of your microscopic examination of the crystalline structures of those particles on Q507 was consistent with your knowledge of the crystals of ammonium nitrate -- the crystalline structure of ammonium nitrate?
A. Certainly was consistent with it, yes.
Q. What test did you conduct next?
A. The next test that I conducted was a polarized light microscopy examination of the particle. It's again using a microscopic test, but it's looking at the particular crystals themselves, using a specialized microscopic examination.
Q. What were the results of those tests?
A. It was consistent with ammonium nitrate.
Q. And what are you looking for in that type of test?
A. Essentially you're looking at the material's ability to essentially bend light. Essentially that's what you're looking

for.
Q. Did you cause another test to be conducted after that?
A. Yes.
Q. What test was that?
A. After that was conducted, a FTIR or Fourier transform infrared spectroscopy examination was conducted.
Q. Can you tell us generally what FTIR does.
A. I know that's a mouthful. It's essentially taking the material and passing a beam of infrared energy through the material and sort of capturing how much of that infrared beam is actually absorbed into the material itself, and you can record that on the opposite side and measure a spectrum, if you will, a fingerprint pattern of how much of that light is absorbed.
Q. How does that assist you in identifying what the particle is?
A. You can run the sample and then run a known sample and compare the two and determine whether it's consistent with that

particular spectrum.
Q. At that point did -- had you concluded that the crystals were consistent with ammonium nitrate?
A. Yes.
Q. Did you inform the operator of the FTIR machine of that conclusion?
A. Yes, I did.

Q. And did she compare a known sample of ammonium nitrate with the crystal -- or the crystals that you gave her from Q507?
A. Yes.
Q. What were the results of that comparison?
A. That it was consistent with ammonium nitrate.
Q. Did you cause further testing to be conducted?
A. Yes.
Q. What type of tests were conducted after that?
A. Next it was a ion chromatography test, basically to determine what ions were present in the particular substance itself.
Q. Now, are ions different from the crystal itself?
A. Yes.
Q. How is that?
A. Once you take a material and place it into water, the material will break down into its ions, and the ions are basically charged particles. If we look at something like sodium chloride, sodium has a positive charge to it. It's entire positive charge. Chloride has a negative charge. And it works the same way as batteries or magnets where they will attract one another, the positive and the negative will attract one another. In the world of chemistry, we look at the same way we look at batteries. The positive side of any cat -- any ion is considered a cation, and it's also consistent with batteries where it's called cathode on a battery. The negative

side of a particular ion is called an anion, and it corresponded to a battery's anode, so it's the same way for electrical impulses, but ions are formed when material are placed into water, they will break down into their charged particles.
Q. Did you break down some of the ammonium nitrate crystals in that type of testing?
A. Yes. Now, ammonium nitrate, when placed into a water solution, will break down into ammonium ions which have a positive charge and nitrate ions that have a negative charge. Now, they're floating around in the solution. We have to find a way, now, to analyze those particular ions.
Q. What were the results of that testing?
A. Based on ion chromatography for the cations, it was identified that ammonium ions were present in that particular material.
MR. TIGAR: Your Honor, I'd like some -- I object to

MR. TIGAR: Your Honor, I'd like some -- I object to the form of the question and answer. We don't know who's doing the testing here. It's in the passive voice and no basis or foundation for the opinion.

MS. WILKINSON: I believe I said "under your direction" or "caused it to be conducted" --

BY MS. WILKINSON:

Q. Agent Burmeister, did you conduct every one of these tests yourself?

A. No.
Q. And is that your policy in the laboratory?
A. Yes.
Q. Do you have technicians who operate instruments for you?
A. Yes.
Q. And who interprets the results of that instrument testing?
A. I interpret the results, yes.
Q. Are you the only one who did that for Q507?
A. Yes.
Q. Now, did you conduct these tests on the ions, yourself?
A. I had an operator conduct the actual examination on the instrument under my direction.
Q. And did you review the results?
A. Yes.
Q. And did you interpret the results?
A. Yes, I did.
Q. And what did you find?
A. The material for the cation analysis identified ammonium nitrate -- ammonium ions. When the anions were identified, it was identified as nitrate ions.
Q. Did you cause any other tests to be -- well, let's stop there.

In your laboratory, do you make different kinds of findings when you're trying to identify substances?

A. There are different findings, yes.

Q. Do you sometimes say something is consistent with?
A. Yes.
Q. And do you sometimes actually identify something as a substance?
A. Yes.
Q. What is the difference between "consistent with" and "identified"?
A. The "identified" is an absolute. We have two alternative technologies coming up with results, and the two must match together for an identification. These are two different technologies. If I have the same finding with those two different technologies, it's an identification. When I have one finding, I will consider that consistent with the material being present.
Q. All right. At this point in your examination, before you

Q. All right. At this point in your examination, before you conducted further testings, were you able to identify the crystals as ammonium nitrate?
A. At this point in time, I would have considered it an identification, yes.
Q. Despite that, did you conduct further testing?
A. Yes.
Q. Or cause further testing to be conducted?
A. Further testing was conducted.
Q. Did you work with any other examiner in your laboratory at that point?

A. Yes.
Q. Who did you work with?
A. A Special Agent Bruce Hall.
Q. And what is his area of specialty?
A. He is a minerologist and a microscopist.
Q. And why did you work with him on Q507?
A. He has an ability to actually look at the microcrystalline areas of particular materials, and I wanted to see what his opinion was on looking at the particular material itself.
Q. Did you both look under the microscope at the crystals on Q507?
A. Yes.
Q. And what additional test did he assist you with?
A. One of the things that he was able to conduct -- one, he has the abilities with the various reagents and chemicals to conduct this, but to make the determination of the actual refractive index, and when I talked about how much light was actually bent by that particular material, that's what I call refractive index. It's a very specific number for particular materials, especially for crystalline materials.
And one of the things that you have to do to determine
this refractive index is have a series of known materials to -- known refractive indexes that you compare to. He has all of those chemicals, and that's the reason why I went to him, because he had all the chemicals present, and I did it side by

side with him.
Q. Did you have additional testing done outside of the FBI Laboratory?
A. Yes, I did.
Q. What did you do?
A. A particle of material was analyzed using a technique called x-ray diffraction, but it utilizes a special type of tool with x-ray diffraction, called a Gandolfi camera.
Q. Does the FBI Laboratory have a Gandolfi camera?
A. No, it does not.
Q. Where did you go to have this type of analysis done?
A. The Smithsonian Institution has a Gandolfi camera which we

used to conduct that particular test.
Q. How -- and just simply if you could -- how does a Gandolfi camera operate?
A. The Gandolfi camera operates by taking an actual tiny particle, an actual crystal itself, placing it into the instrument, and striking that little, tiny particle with a beam of x-rays. And if we look at a simple analogy of taking a flashlight and shining it onto the surface of the mirror, we see that the beam can strike the mirror and be reflected off at a different angle. Well, if you imagine a crystalline material as having hundreds and thousands of little, tiny mirrors built up inside and if you shine the flashlight on that particular material, the beams will be diffracted or bent off at different

angles. That's what's going on inside the particular material when you strike it with a beam of x-rays. The x-rays are bent off at various angles. The angles at which it can be bent off can be analyzed, and that forms a fingerprint pattern for a particular substance.
Q. And was a picture of this fingerprint taken of the crystals or a crystal from Q507?
A. Yes.
Q. And did you and others compare that to a known photograph of ammonium nitrate crystals?
A. Yes.
Q. And what were the results?
A. It was consistent with ammonium nitrate.
Q. Did you cause any other testing to be done on crystals from Q507?
A. That was the end of the examination.
Q. Did you look at Q507 itself for any high explosives?
A. Yes, I did.
Q. And what were the results of those tests?
A. They were negative for any of the explosives we tested for.
Q. And did that assist you in coming to the conclusion that the crystals on Q507 were ammonium nitrate?
A. Yes.
Q. How did it assist you?
A. It essentially ruled out any other particular materials

that were present.
Q. Did you find any other elements on Q507?
A. One of the things that was also conducted was an elemental examination of the materials itself.
Q. What elements did you find on Q507?
A. The trace elements that were present on the crystalline material on Q507 were silicon, aluminum, and sulfur.
Q. After conducting all these tests, Agent Burmeister, what were your conclusions as to the identification of the crystals on Government's Exhibit 664, what you refer to as Q507?

A. The crystalline material on Q6 -- Item 664 or Q507 was identified as ammonium nitrate.
Q. You are -- are you familiar in your work with explosives that contain ammonium nitrate?
A. Yes.
Q. And what type of explosives contain ammonium nitrate?
A. There's wide number of explosives that actually contain ammonium nitrate. There's dynamites that contain ammonium nitrate. There's slurries and emulsions which are explosives out on the market today. There's various blasting agents -- for example, ammonium nitrate and fuel oil which is ANFO -- which contains ammonium nitrate.
Q. Now, after you came to these conclusions that you could identify the crystals as ammonium nitrate, did you review the chain of custody for Q507, Government's Exhibit 664?

A. Yes, I did.
Q. And did you determine whether the chain of custody could have contaminated -- or the handling of Government's Exhibit Q507 or 664 could have contaminated that item?
A. Yes.
Q. What were your conclusions?
A. That it would not have contributed to any contamination on that item.
Q. Knowing that -- you see Government's Exhibit 664 in front of you; correct?
A. Yes, I do.
Q. And do you see the two plastic bags, 664A and B?
A. Yes.
Q. Was 664 contained in those plastic bags when you received it?
A. They were in these plastic bags when I received it, yes.
Q. In your opinion, could the ammonium nitrate crystals have penetrated the plastic bag to land on Government's Exhibit 664?
A. No.
Q. And could they have appeared in that crystalline structure if they had somehow penetrated the plastic bag?
A. No.
Q. During your work on this case, did you also examine plastic fragments that were taken from the bombing crime scene?
A. Yes.

Q. I'm going to show you 785, 785A, 786, and 786B. Excuse me, I'm not going to show you 785A. The others are 785, 786, and 786B. Did you recognize those?
A. Yes, I do.
Q. And did you -- are they also designated Q112 and Q116?
A. Yes.
Q. Were they tested by the Chemistry and Toxicology Unit?
A. Yes, they were.
Q. Were they tested for high-explosives residue?

Q. Were they tested for high explosives residue?
A. Yes.
Q. And during that testing process, what type of solution did you put on the plastic fragments?
A. During the testing process, there would have been two solutions that were placed onto them. The first one would have been water. The second one was methanol.
Q. And would those solutions have consumed any powders or any particles that were on the outsides of the plastic fragments?
A. Yes, that's -- would have been the purpose of the solutions.
Q. Do you recall when you conducted that testing for high-explosive residue on the plastic fragments?
A. Offhand, the exact date, I'm not sure of.
Q. Do you recall the month?
A. Without checking my documents, I'm a little -- having trouble right at the moment recalling the exact date.

Q. If I showed you a document to refresh your recollection in chain of custody, would that assist you?
A. Yes.
Q. Does that refresh your recollection?
A. Yes, it does.
Q. When did you test the Q112 and Q116 for high-explosives residue?
A. It would have been shortly after April 26, 1995.
Q. And did you find any high-explosives residues on the plastic fragments?
A. No.
Q. Agent Burmeister, from examining Q507 and identifying the crystals as ammonium nitrate, can you identify or can you tell the jury how those crystals were placed on Government's Exhibit Q507?
A. The crystals were on the surface of the material as well as embedded up inside the wooden area of the material, penetrated some parts of the material itself.
Q. Based on that examination, can you tell the jury whether or not those crystals could have been reformed; that is, that they were applied there from the rain or some water solution instead of embedded in some other way?
MR. TIGAR: Object to what could have been, your Honor.

THE COURT: Perhaps you ought to use "consistent

with."
MS. WILKINSON: I'll rephrase it. Thank you.
THE COURT: Thank you.
BY MS. WILKINSON:
Q. Mr. Burmeister, can you tell us whether the crystalline structure that you saw of the ammonium nitrate on Q507 is

consistent with the reformulation of ammonium and nitrate on that Government's Exhibit 664 from a water solution, or from rain, or from something like that?
A. It's not consistent with that crystalline form, no.
Q. Why is that?
A. The crystalline form of recrystallized ammonium nitrate is in a different visual format. It's more of a flattened, all one segment of crystalline development. It's not individual particulate crystals. It's just a flattened all-one-mass that usually is formed.
Q. So were the crystals that you saw in Government's 664 or Q507 consistent with being in the original crystalline structure of ammonium nitrate?
A. Yes.
MS. WILKINSON: We have no further questions, your Honor.
THE COURT: All right.
Mr. Tigar.

CROSS-EXAMINATION

Steven Burmeister - Cross

BY MR. TIGAR:
Q. Good morning, Agent Burmeister.
A. Good morning.
Q. In May of 1995 -- April, May of 1995, you were the sole person qualified in the FBI Laboratory as an expert on explosives; is that right?
A. No. That's not correct.
Q. Who else was?
MS. WILKINSON: Objection, your Honor, relevance.
THE COURT: Well, I don't know yet.
BY MR. TIGAR:
Q. Who else --
THE COURT: For this particular question, I overrule the objection.
BY MR. TIGAR:
Q. Who else was qualified?
A. Mr. Kelly was partially qualified in the area of explosives examination on bulk analysis. He was not qualified for the residue side.
Q. In terms of explosives residues, were you the person best qualified in the laboratory?
A. I would consider myself, yes.
Q. And since then you've been promoted; you're the acting chief; is that right?
A. Yes.

Steven Burmeister - Cross

Q. So -- and you agreed that you should be acting chief; correct?
MS. WILKINSON: Objection, your Honor.
THE COURT: Sustained.

BY MR. TIGAR:

Q. Well, I'm just saying, you're qualified to give the opinions you've given; correct, sir?
A. The courts make that determination. But I feel so, yes.
Q. And are you able to tell the jury what the bomb that blew up the Murrah Building was made of?
MS. WILKINSON: Objection, your Honor; that's beyond his area --
THE COURT: Sustained.
BY MR. TIGAR:
Q. Well, let's start, sir. You identified some ammonium nitrate on Q507; correct?
A. Yes.
Q. You tested Q507, Government 664 -- if we can take this down, now. I'll put it up on . . .
You testified on direct examination that you tested it for high-explosive residue; correct?
A. Yes.
Q. Why did you do that?
A. It's part of the entire protocol and procedure that I follow. The materials will always be tested for the inorganic

side as well as the organic side. The organics will fall under the side of the high explosives.
Q. And you did that because you were trying to find out what was in the device; right?
A. It is part of the test used to determine what explosives are present on a particular item.
Q. Well, you testified, sir, on direct examination that you saw the reports of the weather on the evening of the 19th; you remember that?
A. Only from the television reports.
Q. Right. And you were concerned when you saw the weather reports; correct?
A. Yes.
Q. Why were you concerned?
A. For me as a person who's involved with determining residues, anytime something is deluged with rain, it's certainly an environmental-type situation that I have to deal with where potentially water-soluble explosives could be washed off of particular items.
Q. And that . . . You dealt with that concern in part by trying to test items at the scene on the underside; that is correct, sir?
A. That is correct, yes.
Q. And you tested glass fragments; is that right?
A. Yes.

Q. Did you pick up any foam?
A. Not off of the surface, but I did remove some foam from the

A. Not off of the surface, but I did remove some foam from the protected areas of vehicles.
Q. And did you test that for high-explosive residue?
A. Yes.
Q. Did you find any?
A. No.
Q. Did you pick up some plastic?
A. I don't recall whether I retrieved any particular plastic pieces, myself.
Q. A number of plastic pieces were retrieved; correct?
A. Yes.
Q. And they were sent to your laboratory; correct?
A. Yes.
Q. How many of them were sent to your laboratory?
A. I have no idea the number of pieces of plastic.
Q. Hundreds?
A. I really can't come up with a number.
Q. Did Mary Tungol work under your direction?
A. Yes.
Q. Was she responsible for looking at the plastic?
A. I have no idea whether she was involved with that.
Q. Who washed the pieces of plastic that you have in front of you with water and methanol?
A. That was myself.

Q. Are those the only pieces that you washed?
A. I conducted residue examination on numerous pieces of

items, and the extraction practice with solvents was conducted on many of those items.
Q. Well, my question was, sir, the pieces of plastic in front of you, are those the only pieces of plastic from the crime scene that you washed with water and methanol?
A. I really am not sure. There's a possibility other pieces were examined. I'm not sure.
Q. Well, what was the purpose, again, of your washing those particular pieces?
A. For explosive residues.
Q. And you didn't find any; correct?
A. That's correct. Yes.
Q. Now, you said that the purpose of washing them wasn't to make them clean, was it?
A. No. My examination is for explosive residues.
Q. And is it your testimony that that washing removes every trace of everything that was on there, makes them just spotless?
A. No. There are materials still left behind. Even with the rinsing, there's some materials -- for example, high explosives -- that will be absorbed into particular plastic material.
Q. And these plastics that you have there, they're distorted,

they have little pockmarks on them; correct?
A. Well, I don't know what their original form was, but they're irregular shapes.
Q. And is it your testimony that the washing you did would remove everything that was on them, anything that might have adhered?
A. It would not remove everything, but it would assist me in conducting an examination.
Q. Now, did you also -- were you -- why were you looking at plastic?
A. One of the many types of surfaces that are extremely useful for explosive residue analysis happens to be plastic materials, plastic, foams, rubber material, glass, pieces of metal -- all are very good surfaces, including wood surfaces -- are very good to capture and hold. Plastic, for example, is an outstanding surface for high explosives because in the area of organic explosives, likes dissolve in likes; and here we have a case that likes, the high explosives, the organics, would be soluble in plastic which are organic in nature.
Q. Well, when we talk about high explosives, you mean things like what's contained in a blasting cap, PETN?
A. That's correct.
Q. Okay. And then there's the stuff that's inside that orange shock tube that's in Primadet that's called HMX; correct?
A. Yes.

Q. Is that a high explosive?
A. Yes, it is.
Q. Ammonium nitrate is not a high explosive, is it?
A. It can be considered a high explosive, yes.
Q. I'm talking about ammonium nitrate that I go to the hardware store and buy in a bag. Is that considered a high explosive?
A. Certain types of ammonium nitrate, certainly mixed with certain fuel samples can instantly become a high explosive.
Q. Well, I didn't ask you that, sir. I asked you if ammonium nitrate that I buy at the hardware store is a high explosive.
A. It could be.
Q. How do I get it to detonate?
A. There's various methods of detonating particular -- particular ammonium nitrate samples. The ammonium nitrate itself has been shown under the right conditions can be detonated, itself.
Q. By burning it; correct?
A. No. Burning will not actually detonate the ammonium nitrate itself.
Q. What do I have to do to it to make it explode?
A. You have to have some other high force that's applied to it in order for it itself to detonate.
Q. Such as by mixing fuel oil with it and putting a charge-like blast right with it or putting dynamite with it?

Would that -- that would make it explode, wouldn't it?
A. Dynamite would allow that combination, if properly mixed with -- your ammonium nitrate and fuel oil is properly mixed.
Q. If I have a bag of ammonium nitrate in my house and I don't have any fuel oil and I don't have any other things like that, it's just fertilizer; correct?
A. Well, it's been shown that ammonium nitrate can be exploded by itself under the right conditions.
Q. And what are -- I'm sorry, but you have to add something to it; correct?
A. Not necessarily, no.
Q. What do you have to do to it, sir?
A. You again have to apply some sort of high energetic force to have it detonate.
Q. What kind of high energetic force do you have to apply it?
A. It would have to be something that's a high explosive that's operating in a strong force-like manner to break it down.
Q. So it has to be ammonium nitrate plus something -- right -- plus some other chemical substance; right?
A. No, that's not necessarily correct.
Q. Well, how -- the high explosive you're talking about is another chemical substance, isn't it, sir?
A. The other material that would be providing that extra force in order to initiate is another high-explosive material.

Q. Now, when you went to the crime scene, did you cause people to look for plastics that were inside, underneath the protected areas of the Murrah Building?
A. These would be areas that would be good locations to look for.
Q. All right. And did you test any of those things for high explosives that you found inside? Explosive residue?
A. There were numerous items submitted, the exact location of those items, I'm not sure.
Q. Did you test a piece of blue PVC plastic that you found inside the building?
A. I don't recall examining that.
Q. You know that there was one; correct?
A. I recall seeing various pieces of blue plastic that were submitted for the polymer individuals. I never looked at those particular items, myself.
Q. Well, was the plastic that you have in front of you examined under your direction?
A. I examined these pieces of plastic, myself, yes.
Q. Well, how did you choose which ones you were going to examine and which ones you were not?
A. Initially these were the items that were submitted to me for examination for explosive residue.
Q. And who made the choice as to which ones you were going to look at?

look at?

A. I would have made the initial request for various pieces of plastic for the examination, and they would have been provided to me for examination.
Q. On what basis did you make your choice?
A. Again, plastic material being a good surface to adhere to high explosives.
Q. Why were you looking for high explosives?
A. This is again part of the overall protocol that I will follow on any crime scene or any bombing matter that I will go to or any item.
Q. Well, you wanted to know what it was that caused that ammonium nitrate, if it was ammonium nitrate, to detonate; correct, sir?
A. No. My mission was to examine the particular item, determine what explosives and explosive residues were actually on the surface.
Q. You were the auxiliary examiner; correct?
A. That would have been the designation for the examination, yes.
Q. And were you telling us that you were just doing the technical work and that any conclusion drawing was to be left to the principal examiner?

MS. WILKINSON: Objection, your Honor. Depending on what he's talking about, on the residues or on the type of bomb. That's two different questions.

THE COURT: Overruled.
BY MR. TIGAR:
Q. You can answer.
A. I make all my determinations as to what chemicals are present on the particular item. That's my job and that's my responsibility. No one else makes any chemical determinations other than myself.
Q. My question is: Did you leave to somebody else a decision as to what the significance of your findings was?
A. I'm the one who determines what materials are actually on the surface of that particular item, the significance of any of the other materials that are present on it.
Q. Do you determine what to test for?
A. For the high explosives, is that what --
Q. Yes, sir.
A. I'm the one who determines what kinds of chemical analysis will be examined -- will be performed on that particular item.
Q. There are many, many, many kinds of high explosives; correct?
A. Yes.
Q. You can't test for all of them; correct?
A. That's right.
Q. You have to choose; correct?

Q. You have to choose, correct?
A. Yes.
Q. And you did choose, didn't you?

A. It's within the realm of material that we examined for in the lab, yes.
Q. Right. No, sir. You chose -- correct -- which things to test for; is that right?
A. It's within the scope of the actual procedures that we followed. There's a limited number of items that we can actually explore, but these are ones which are determined within the protocol and procedure that I employ.
Q. Okay. I'm asking what Special Agent Steven Burmeister did. Did you choose what things to test for?
A. This is part of the protocol --
THE COURT: Well, answer that question. Can't you just answer the question he's asking you?
THE WITNESS: I don't individually take and choose out of the entire protocol what items to test for. The protocol will assume a variety of different items, and that's what the protocol is, to encompass as many different materials as possible.
BY MR. TIGAR:
Q. You followed the protocol, didn't you?
A. Yes.
Q. And the protocol said test for HMX, didn't it?
A. The test itself does not specifically say that.
Q. Did you test for HMX?
A. For this particular item, it's not within the screen of

particular items.
Q. Did you test any of the items that were submitted to you in connection with this test for HMX?
A. Yes.
Q. And you know that HMX is what lines the orange shock tube of Primadet; correct?
A. Yes.
Q. You testified on direct examination that Primadet was found in Mr. Nichols' home; correct?
A. Yes.
Q. Did you ever find any HMX?
A. I found HMX on the interior of the Primadet tube.
Q. Did you find any in the bomb scene residues?
A. No.
Q. Now, HMX consists of the -- the kind you had was the 200-millisecond delay No. 8 Primadet; correct?
A. I don't know that particular numeric numbers.
Q. Okay. You're familiar with what Primadet is; correct, sir?
A. Yes, I am.
Q. And you know that it -- it's made in different delays; correct?

A. That, I'm aware of, yes.
Q. It's made in different lengths; correct?
A. Yes.
Q. And the particular kind you had that you found -- was found

in Mr. Nichols' house was 60-foot length; correct?
A. That particular number, I'm not sure of without referring to the actual item itself.
Q. All right. I'll find a photograph in a minute, sir.
If -- now, did you also look at Primadet for Mr. Fortier's house -- or from -- that had been recovered from someone that Mr. Fortier gave it to?
A. I don't recall the exact examination.
Q. Okay. Showing you now, sir -- thanks to Government counsel -- what's been received in evidence as Government Exhibit 141. Does that refresh your recollection, sir, about the Primadet?
MS. WILKINSON: Excuse me, your Honor. Perhaps the marshal could take down the easel. I believe it's blocking the jury's view.
THE COURT: Okay.
MR. TIGAR: Thank you, Marshal.

THE WITNESS: I can't see the Government exhibit number, but that's --
BY MR. TIGAR:
Q. All right. I'll show you the bottom. There it is, 141. Do you see it?
A. Yes, I do.
Q. All right. Now -- and that's the 60-foot length; correct?
A. Yes.

Q. And it has an "8" on the little tag; correct?
A. Yes.
Q. So we're talking about 60 foot. And this thing here that I'm pointing to, that's a blasting cap; correct, sir?
A. Blasting cap or detonator, yes.
Q. Now, the way this works is that this end that I'm pointing to down here, you can't see it, that's crimped; correct?
A. Yes.
Q. And in its natural state, if you don't handle it, the HMX is not supposed to come out of there; correct? It's not supposed to leak out?
A. I don't know that for a fact, but that's part of the crimping, I would assume.
Q. Well, on direct examination, you said that you would not expect that -- any HMX to get out of there because it was sealed; do you remember saying that?
A. Yes.
Q. Well, is it true?

A. That would assist in allowing it to filter out. You'd have to vibrate it or something like that in order to get it to come out.
Q. Vibrate?
A. Yes.
Q. Okay. Now, are you familiar with this Primadet product? I mean have you read up on it?

A. I'm aware of the chemical materials that's on the interior of the Primadet surface itself. Product information, I'm not fully aware of.
Q. Do you know that there's a minute quantity of HMX on that; correct?
A. Yes.
Q. And are you aware that when this stuff is used, that the orange shock cord survives?
A. I'm not aware of that.
Q. Have you spoken in connection with your study of Primadet that you told us about on direct examination to any representatives of the Ensign Bickford Company that manufactures this product?
A. No.
Q. And you've never read any of their product literature; is that right?
A. Oh, I've read their product literature, but I haven't spoken to any of the representatives.
Q. When you read the product literature, were you looking to see whether or not portions of this would survive a blast?
A. No, I didn't look for that.
Q. As a person interested in examining residue from crime scenes, is it important to you to know what sorts of things survive and don't survive blast events?
A. Yes.

Q. Did you find any orange plastic at the crime scene?
A. I personally don't recall looking for orange pieces of plastic.
Q. Did -- was any orange plastic submitted to you?
A. I don't recall seeing any pieces of orange plastic.
Q. So we have no HMX -- correct -- at the crime scene?
A. None that I detected.
Q. Uh-huh. And we have no orange plastic; correct?
A. I don't know what was submitted as far as plastic. I never received any orange plastic.
Q. You never saw any orange plastic, okay.
Now, did you find any pieces of timing mechanisms that you tested for residues?
A. I don't know what you're referring to as timing mechanisms.
Q. Bomb -- bomb-type timing mechanisms?
A. Again, I don't know. I wouldn't -- I wouldn't be looking at material that's specifically timing mechanism

at material that's specifically timing mechanism.
Q. Okay. Did you find any pieces of leftover pieces of the metal, metal fragments consistent with blasting caps and detonation cord?
A. Again, I don't recall any particular pieces that were designated that way.
Q. Now, did you participate in the decision to send pieces of plastic to Smurfit?
A. No.

Q. Now, I want to ask you, sir, now about the chain of custody. Did you review the testimony of Mr. Kelly and Agent Wilson about how this matter -- how this item, Government Exhibit -- if I can retrieve it from you.
These are the bags in which it was?
A. Yes.
Q. Government Exhibit 664: Did you review the testimony of those agents as to how and where it was found?
A. No.
Q. Do you know -- Mr. Kelly has worked for you for a long time; correct?
A. He's technically in the strata of the FBI. He has only worked with me since January of this year when I assumed the acting unit chief position. Prior to that time, he did not work for me.
Q. He worked with you. He's worked with you for how long, sir?
A. I would say for the last three years he's worked with me.
Q. Now, when you retrieve things -- when one retrieves something in the field, okay, that's going to be tested for residue, it is important to follow retrieval procedures; correct?
A. There are -- there are procedures in place for collecting particular items.
Q. And at this bombing crime scene, the procedure was that the

item was supposed to be either marked on a map or photographed in place; correct?
A. I did not designate any procedures like that, no.
Q. Do you know whether those are the proper procedures?
A. I don't know what the exact procedures that were actually employed.
Q. My question is: Do you know whether it's proper to mark it on a map or photograph it in place if you recover something at a bomb crime scene, sir?
A. There is various techniques of doing it, one of which would be to take a map and mark on a map where a particular item is. It's not always the case.
Q. How about photography? Is it important to photograph things in place?
A. It's not always the procedure to photograph things in

place.
Q. Have you looked at photographs of 664, where Mr. Kelly said he found it?
A. Yes.
Q. And does that photograph help you in any way in your testimony that you're presenting today?
A. The only way that it would help me would be the actual configuration at which it was recovered.
Q. And what's helpful about that, sir?
A. The particular surface of the particular item was recovered

in a mode where it was in a protected mode. The wooden side would have been protected from the elements.
Q. Now, when you say "would have been protected from the elements," are you assuming that the item came to rest there at shortly after 9:02 a.m. on the 19th and remained in exactly the same position until 10:30 a.m. on the 21st?
A. I don't know.
Q. Well, you told us it had been protected from the elements. The picture of it shows that it's lying with this side, the color side, up -- correct -- and that the red is lying on a piece of metal? Do you remember that picture?
A. I vaguely recall that configuration, yes.
Q. Showing you now page 10 of what's been received in evidence as Defense Exhibit E5.
Do you remember seeing that picture before?
A. If you can back off from the magnifications so that I could see the entire photo.
Q. Yes, sir. There you are.
A. Yes, that photo looks familiar.
Q. Okay. And do you remember that as a photo taken at the crime scene?
A. I know it was taken at the crime scene, yes.
Q. And do you know who took it?
A. No.
Q. Now, at -- were you walking around the crime scene on the

21st?
A. Yes, I was.
Q. And you were walking around it on the 20th; correct?
A. Yes.
Q. Did you see the pink painted circles that were on the ground on the 20th and 21st?
A. I saw them, yes.
Q. And did you know how those were made?
A. No.
Q. Did you have some understanding for your investigative purposes as to how they were made?
A. No.
Q. Do you see what appears to be pink paint on the ground

here, where I'm pointing?
A. I see a pink area that you're referring to.
Q. Yes. Now, does Government Exhibit 664 have any pink on it?
A. My recollection of 664 has an area on the painted side that would be of a pink color.
Q. All right. Right here; correct?
A. Yes.
Q. Is that correct? Okay.
Now, 664, it's fair to say -- excuse me -- it's what used to be a regular piece of plywood; correct?
A. It was much thicker than that.
Q. As it started out, it was a thick piece. And it's fairly

light; correct? It's light.
A. I'd agree with you, it's a light object.
Q. In a -- is it light enough that it could be picked up and turned over in a windstorm?
A. I don't know.
Q. Okay. But we could lie it on the ground and blow on it or run a fan; we could find out, couldn't we?
A. You could set up a test scenario to demonstrate it, I'm sure.
Q. We could do it.
Now, is there a practice with respect to whether items -- if they are going to be photographed, should be moved before they're photographed?
A. There's no designated procedure written down that says one way or the other that I'm aware of.
Q. All right. Well, from your standpoint, do you think it's better to pick them up and put them in a bag and move them and then try to remember where you move them back, or to take a picture of them right where they were?
A. It's my opinion that I would photograph the item in place in its original form. That's the best way to conduct that type of recovery.
Q. And then the next thing is that of course the item should be documented all the way through; correct?
A. There should be documentation with that particular item.

Q. Now, you say that you received this item at the warehouse; is that correct?
A. No.
Q. Who received it? Where did you first see it?
A. First time I saw the item, it was in a collection of other items; but it was at the crime scene itself.
Q. And at that point did somebody give it to you?
A. Yes.
Q. So you received -- what did you do with it?
A. I took custody of the items and then transported those items to the Evidence Control Center in Oklahoma City.
Q. So it is not the case that Agent Wilson took it to the

Q. So it is not the case that Agent Wilson took it to the Evidence Control Center and gave it to you there? That didn't happen?
A. My recollection is that I received custody of these items at the crime scene.
Q. My question is: It is not the case, sir, that Agent Wilson gave it to you at the Evidence Control Center?
A. He did not give it to me at the Evidence Control Center.
Q. Now, when you got to the Evidence Control Center, as you remember it, you gave the items to whom, Mr. Elliott, Mr. Norman?
A. No.
Q. To whom?
A. I signed it in to the custodian that was at the evidence

center, and that was a June Buckner.
Q. And then the next time you saw it was when you opened up your package; correct?
A. The next time I saw it was when I was at the FBI Laboratory, and I received it from Mr. Mills.
Q. Now, did Mr. -- did you get it from Mr. Mills in a box in which it had been shipped?
A. I received it in a envelope that it was packaged in, and then packaged in plastic bags.
Q. Let me show you now what's been marked as Government Exhibit E132. Is that what arrived with the package?
MS. WILKINSON: Excuse me, he said Government exhibit marked 1 --
MR. TIGAR: I'm sorry, Defense Exhibit E132.
MS. WILKINSON: Could I take a look at that?
MR. TIGAR: Of course.
MS. WILKINSON: You're talking about this entire --
MR. TIGAR: I'm going to show it to him, yes.
MS. WILKINSON: This is different --
MR. TIGAR: We'll find out.
MS. WILKINSON: Your Honor, I'm going to object to him showing this item. He's including two different documents.
THE COURT: Let the witness tell us what it is.
MR. TIGAR: Your Honor, I object to the sidebar. I'm going to show the witness an item received from the Government,

and I'm going to ask the witness what that is.
THE COURT: You may do that.
BY MR. TIGAR:
Q. Sir, this consists of a number of pages. And I just want to ask you: Is page 1 something that you got when you got the item in from Mr. Mills.
A. No.
Q. Okay. Then -- so -- do you recognize this item as being any part of your records?

any part of your records?
A. I would not keep this in my records, no.
Q. Okay. And do you have any personal knowledge as to how it was made?
A. The front item of this was filled out at the time, at the Evidence Control Center. Aside from that, I have no other information where it was --
Q. So page 1 was filled out at the Evidence Control Center; is that right?
A. Yes.
MR. TIGAR: We offer page 1. E132.
The Government may withdraw the other.
THE COURT: Well, these are loose pages.
MR. TIGAR: Yes, your Honor.
MS. WILKINSON: He's only offering page 1. If we could just mark it as a separate exhibit, I would have no objection.

MR. TIGAR: Page 1 is what he has in front of him.
MS. WILKINSON: I'm sorry. I thought he was showing me what he was offering.
MR. TIGAR: I'm showing the other pages of the exhibit.
THE COURT: Let's take a look at what's being offered.
MR. TIGAR: Uh-huh.
MS. WILKINSON: Your Honor, I'm going to object to this. I don't think this was the page that Mr. Burmeister said was filled out. I think it was the first page with the signature on it.
THE COURT: I heard him say it was filled out at the Evidence Control Center.
Take a look at it again.
MR. TIGAR: Yes, I'm sorry, sir --
THE WITNESS: There is some more to --
MR. TIGAR: -- what was was, and what wasn't wasn't.
BY MR. TIGAR:
Q. Was this filled out at the Evidence Control Center: That page I'm showing you here now?
A. That's my understanding this was, but there's more to it.
Q. All right. Well, then, let's took through and see what more there is to it.
A. Okay. I'm familiar with this particular page.
Q. All right. That's a part of the chain of custody; correct?

A. Right.
Q. And then page 3: Part of the chain of custody?
A. Uh-huh.
Q. And page 4: Part of the chain of custody; right?
And then these remaining pages are part of a search log. Does that look like what that is?

A. It's information that I would not receive.
MR. TIGAR: All right, then. So, your Honor, we would offer these four pages.
THE COURT: Perhaps we should staple them or something to make them --
MR. TIGAR: Yes, I will. I could not do that until I found out --
THE COURT: I understand.
MS. WILKINSON: Your Honor, may I just voir dire?
THE COURT: You may.

VOIR DIRE EXAMINATION

BY MS. WILKINSON:
Q. Agent Burmeister, you said you're familiar with this page. Is that the page with your signature on it?
A. Yes.
Q. Can you verify any of the other signatures on this page?
A. No, only mine.
Q. And what about the signatures on the remaining pages?
A. My signature appears on the other pages.

Q. Okay. Agent Burmeister, is this document the complete chain of custody for Government's Exhibit 664?
A. No. I don't know what the -- I'm just aware of the pages themselves from my signature.
Q. Do you keep a chain of custody for exhibits when they come into the laboratory for your review?
A. Yes.
Q. And did you provide that chain of custody in your notes?
A. Yes.
Q. And would that complete the chain of custody for Government's Exhibit 664?
A. Yes.
MS. WILKINSON: Your Honor, we would object, unless we offer those other pages that show the complete chain of custody.
MR. TIGAR: I have no objection to that, your Honor.
THE COURT: All right.
MS. WILKINSON: Thank you.
THE COURT: Well, where are they?
MS. WILKINSON: I'll pull them out.
MR. TIGAR: In the meantime, I ask Miss Hasfjord to staple what we have.
THE COURT: All right. We'll staple this, and this will be E132.
MR. TIGAR: Yes, your Honor.

THE COURT: And it's being received subject to the

addition of --
MR. TIGAR: -- the other material.
THE COURT: Which we will call a Government exhibit, and they will relate.
MR. TIGAR: Right.
THE COURT: Go ahead. Well, I guess -- can somebody else look at this?
MS. WILKINSON: I've got it right here, your Honor. I'm sorry.
THE COURT: Well, we can come back to that on redirect. Let's continue with the examination.
MR. TIGAR: Yes, your Honor. I only want to ask him two questions about the front page.
THE COURT: All right.
MR. TIGAR: It's been received. I can put it up.

CROSS-EXAMINATION CONTINUED

BY MR. TIGAR:
Q. Mr. Burmeister, showing you now what's been received as 132, you note that Items 1 through 5 and 7 through 15, and then there's a note here. Do you know what that means?
A. No.
Q. It says, "Item 6 stored at Room A, Row 1, Unit B, Shelf 2"; correct?
A. That's what it looks like.

Q. Now, Item 6 is what's now been received as Government's 664; correct?
A. I'm not sure how -- what that Item 6 designation calls for.
Q. Item 6 is Item 06 off the evidence log; is that right?
A. I'd have to see the evidence log to demonstrate that.
THE COURT: There's no dispute about that, is there?
MS. WILKINSON: No, your Honor. I believe it's down further on the page.
THE COURT: You can accept: 06 is the same as Item 6.
BY MR. TIGAR:
Q. Do you know why Item 6 is stored in a different place? That's the only question.
A. No.
Q. Now, in addition to concerns about what happens at the crime scene, chain of custody is also important because it can affect the significance of your findings; correct?
A. Yes.
Q. That is, if somebody finds an object and brings it to you and says, Well, I found this six months ago but I really don't know where it's been since then, would that cause you some concerns?
A. If someone doesn't know how they packaged it and stored it, that would be a variable.
Q. It's a variable; correct?
A. Uh-huh.

Q. And that can affect the reliability of the conclusions that you draw in terms of the particular case you're working on; correct?
A. It would depend on the particular finding that you're discussing.
Q. Now, you are -- you have some experience in the investigation of arson scenes; correct?
A. Yes.
Q. And you are aware that in an arson scene -- that it's necessary to protect items of physical evidence that may have some significance, evidentiary significance; correct?
A. There's procedures to take for that, yes.
Q. Yes. And in terms of investigating arson scenes, physical evidence should be thoroughly documented before it's moved; correct?
A. Documentation is part of the procedures.
Q. No, my -- well, are you familiar with the NFPA Guide to Fire and Explosion Investigations?
A. Yes.
Q. And do you accept that as an authority with respect to the investigation of arson scenes?
A. It's a guide tool. I don't know if it's the actual gospel authority for it. It's a tool that people can use.
Q. Sir, we're not talking about the Gospels. No blasphemy meant. We're talking about the investigation of arson scenes.

Do you accept this as authoritative with respect to the investigation of arson scenes?
A. It's one of many items that's used as a guide tool for people to use when they go to investigate incidents with accelerant-type materials.
Q. And do -- my question, sir: Do you, Steven Burmeister, accept it as authoritative.
A. I would of numerous documents, I would accept it as a document to refer to if I want to find various information.
Q. And there are similarities, are there not, between the investigation of arson crime scenes and bombing crime scenes, techniques?
A. Some of the techniques are used.
Q. And that -- and that's because the search for accelerants and residues is a feature that's common to the investigation of bombing scenes and arson scenes; correct, sir?
A. There are some similarities.
Q. Is one of the those similarities that both involve the search for accelerants and residues?
A. No. The only -- if I can explain what I mean by "similarities." The similarities are really in the area that some accelerant materials have an ability to be vaporized and penetrate, and some high explosives have the ability to penetrate through various packaging items. That's why it would recommend some packaging methods. That's really the difference

between the two investigations.
Q. Come back to that.
Do you agree with me, then, that physical evidence should be thoroughly documented before it's moved; do you agree with that?
A. Yes.
Q. Do you agree with me that plastic bags are not the best way to store evidence that may contain or have accelerant residues?
A. What type of plastic bags do you refer to?
Q. Ordinary plastic bags, Ziploc.
A. Ordinary plastic bags are not recommended for accelerant-type evidence.
Q. Now, the advantages of plastic bags are that they're readily available, they're economical, and you can look at the evidence without opening the bag; correct?
A. Yes.
Q. The disadvantages are that they're susceptible to easy damage, such as by tearing and penetration, resulting in the contamination of the physical evidence in them; correct?
A. Ordinary plastic bags, yes.
Q. And by "ordinary" -- Now, does the FBI use ordinary plastic bags, or unordinary ones?
A. These are evidence bags that we utilize in the FBI Laboratory. I wouldn't designate them as ordinary plastic bags, since --

Q. I'm holding up now 664B, which has a zip-type top on it. What is the difference between this and a Ziploc I could buy at the store?
A. It's the thickness of the bag is somewhat different.
Q. Okay. This is thicker?
A. Yes.
Q. Well, what's the difference between this and a bag I buy at the store marked "freezer bag"?
A. That, I don't know.
Q. Okay. What's the difference between this and a bag I could buy advertised on television that shows a piece of meat inside and an animal that can't find it?
A. I don't know that type of bag.
Q. Okay. Plastic bags have this characteristic that they can be penetrated by certain evidence. They can't be penetrated by ammonium nitrate; correct?
A. Plastic bags -- right -- ammonium nitrate doesn't penetrate the plastic bags.
Q. And that's because ammonium nitrate is not organic; correct?
A. That's correct, yes.
Q. Now, certain hydrocarbons can penetrate; correct?
A. Hydrocarbons can penetrate certain types of plastic bags.
Q. Can they penetrate polyethylene plastic bags like this?

A. Yes.

Q. And do hydrocarbons include fuel oil?
A. Yes.
Q. And nitromethane?
A. Yes.
Q. And gasoline?
A. Yes.
Q. Hydrocarbons are petroleum. That's what most hydrocarbons are; right --
A. Yes.
Q. -- that we see in common use? Okay.
And can HMX penetrate plastic bags?
A. At a certain time period, it will; but its ability to penetrate plastic bags -- the chemical configuration of it will restrict it from penetrating very quickly. It's certain explosives that will go quick. It's one of the ones that will go on a lesser scale.
Q. What happens if you put a whole bunch of plastic bags in the same box? Things can cross. Hydrocarbons that might be there can cross from one sample to another; correct?
A. If it's in the improper plastic bag, it could occur, yes.
Q. Did you find any hydrocarbons or hydrocarbons on 664?
A. I didn't look for any.
Q. Were you aware that hydrocarbons -- that there was a theory that hydrocarbons might have been used as a part of this bomb?
A. At what particular point are you referring to?

Q. At the time you were doing your tests.
A. That's certainly one of the many types of materials that could be mixed with various materials. A finding of ammonium nitrate, looking for a fuel oil, that would be one particular fuel that you could look for.
Q. Okay. Well, now, you say at one particular time. You had the opportunity to test 664 as many times as you wanted; correct?
A. I could have requested it as many times as I liked, yes.
Q. And, for instance, in -- on July the 21st, you could have requested it; correct --
A. Yes.
Q. -- 1995?
A. Yes.
Q. And were you aware that prior to July of 1995, there had been a theory that this was an ANFO device?
A. I'm not aware of that particular theory in place.
Q. Well, were you aware that your principal examiner put out a theory that this was an ANFO device?
A. I don't know whether at that particular time frame anything had been written down about that by any particular individuals at that time frame.
Q. Well, you were the auxiliary examiner; correct?

Q. Well, you were the auxiliary examiner, correct?
A. Yes.
Q. And as the auxiliary examiner, you have the right to look

at this and to test it; correct?
A. Yes.
Q. Are you aware that at some period of time, when you still had access to 664, your principal examiner wrote down a conclusion that this was an ANFO device?
A. I'm not aware of that.
Q. Are you telling this jury that you don't know -- well, who is your principal examiner?
A. The principal examiner on this particular matter was Special Agent Dave Williams.
Q. Are you telling this jury that you don't know that Mr. Williams expressed a conclusion in a written report that this was an ANFO device? Is that what you're saying?
A. Well, you have to put a time frame on it.
Q. All right. Prior to August 1, 1995.
A. I'm not sure of the exact date that I had learned that something had been written down. I'm not sure of the exact date.
Q. You're aware that at sometime that report was written; correct?
A. Again, I'm not sure of the exact written format of that particular document. I know something had been written down. When it had been written down, I'm not aware of it.
Q. Now, let me see if I could refresh your recollection, sir. Showing you this --

MS. WILKINSON: Excuse me, could I just --
MR. TIGAR: Uh-huh.
BY MR. TIGAR:
Q. I'm going to show you now this, and just to refresh your recollection. You see the date, sir?
A. Yes.
Q. Okay. Do you see that?
A. I see what you're pointing to.
Q. Yes. Okay. Does that refresh your recollection as to when somebody at a time when you still had control or access to 664 expressed a conclusion?
A. No.
Q. Do you remember being questioned about a conclusion reached by Mr. Williams that this was an ANFO device?
A. By whom?
Q. By anyone connected with the Department of Justice.
A. There were individuals who did question me about that, yes.
Q. And did they ask you -- did they inform you that Mr. Williams had reached a certain conclusion?
MS. WILKINSON: Objection, your Honor.
THE COURT: Sustained.

BY MR. TIGAR:
Q. When you got to the crime scene, sir, on the 20th, was the possibility that this device was made of ammonium nitrate and fuel oil one that you were considering?

A. I'm not sure if I considered it. I'm sure that it was of the entire grouping of materials that I would have considered. Whether I was specifically focusing on that particular one, I doubt it, since I was staying open to whatever was available.
Q. I didn't ask you about a conclusion, sir. Was this one of the options, one of the items you thought could be?
A. Any large bombing crime scene --
THE COURT: Just answer the question, will you.
THE WITNESS: It could be. I don't remember whether I
was specifically focusing on that particular material.
BY MR. TIGAR:
Q. You're a scientist; right?
A. Yes.
Q. And you don't want to leap to conclusions; right?
A. Absolutely.
Q. Okay. And so we got to be careful; right?
A. Yes.
Q. Let's start. Ammonium nitrate: How many billion pounds of ammonium nitrate are sold in America every year?
A. I don't know.
Q. Do you know Paul Rydlund?
A. I'm aware of the name.
Q. Do you know that he -- do you accept him as an expert in the field of ammonium nitrate and fuel oil combinations?
A. I would accept him as an expert in that particular field,

yes.
Q. You know that he holds a master's degree that has to do with timing devices or blast delays? Did you know about that?
A. No.
Q. Do you know that he held a patent?
A. I'm not aware of that particular patent.
Q. But you know that he's an expert -- correct -- in the field of ammonium nitrate and fuel oil; correct?
A. Yes.
Q. And ammonium nitrate, you know is used for fertilizer; correct?
A. Yes.
Q. How many pounds a year are sold and used for fertilizer?
A. I have no idea.
Q. Do you know how it's sold, in what form?
A. I'm not an expert in the packaging of ammonium nitrate.
Q. You testified on direct examination that ammonium nitrate prills would not come out of a sealed fertilizer bag. Do you

remember that?
A. Yes.
Q. How do you know?
A. I have seen bags of ammonium nitrate in a prill form in bags, and I've seen how they -- they would withheld -- withhold the particular material inside.
Q. And do you know how those bags are filled?

A. No.
Q. Do you know whether they're sewed or heat-sealed?
A. The ones that I have seen were heat-sealed.
Q. And they're made of plastic or paper and plastic?
A. I have seen some that were in a combination of both with a plastic liner on the interior and some which were plastic overall.
Q. All right. And the ones that are paper and plastic in the interior: Is it your testimony that those are heat-sealed?
A. The ones that I saw had a heat-sealed interior plastic lining.
Q. And did you have any opinion as to how the heat seal could be applied through the paper?
A. I really don't know how that would be applied.
Q. Did you -- had you looked at any pictures of the back storage room of the Kansas co-op, looked at pictures of the floor there?
A. No.
Q. So did anybody show you pictures and did anybody show you the testimony or talk to you about the testimony of Mr. Schlender about how their floor gets dirty and they have to sweep it out?
A. No.
Q. Have you ever watched any manufacturing process in which ammonium nitrate bags are filled to be shipped in commerce?

A. No.
Q. Well, then on what basis are you giving an opinion that an ammonium nitrate bag purchased at a feed store -- that there's no way the ammonium nitrate could leak out of it?
A. The only experience is looking at bags themselves and seeing how they're heat-sealed and seeing that prills do not penetrate outside of the bag.
Q. And -- but did you -- where did you do that?
A. This was several years ago when I visited ICI in Canada. I saw plastic bags that were filled up there and looking at the construction of those particular bags.
Q. Now, these were all-plastic bags?
A. Some were paper and some were plastic.
Q. So that's the basis for your opinion; right?
A. Yes.
Q. Okay. You didn't look -- you didn't look at the pictures of an actual place where these things are stored, correct? Is

or an actual place where these things are stored; correct? In a farm supply store -- you never did that?
A. No.
Q. Well, you're not aware of how much ammonium nitrate is sold all over the country -- correct -- and we've established that?
A. Right.
Q. Now, you also -- one of the possibilities that you looked at -- that you thought this bomb might have been a urea nitrate bomb. That was a possibility; correct?

A. It certainly was a possibility.
Q. Now, is there a way that -- is there a similarity between urea nitrate and ammonium nitrate improvised explosive devices?
A. There are some chemical similarities in the sense of its detonation abilities and speeds.
Q. Now, is it possible to -- in testing to mistake an ammonium
nitrate for a urea nitrate?
A. Using what method?
Q. Well, is it possible to make up a sample containing ammonium nitrate and things that you might find just around your house and have that show up as a urea nitrate on the machine, on the testing machine?
A. Again, you have to tell me which instrument you're referring to.
Q. Yes. Well, did you ever have an experiment in which you tried to see whether or not a machine reading for urea nitrate was actually urea nitrate, or whether the machine could be -- could read out a urea nitrate even though it wasn't a urea nitrate sample? You've done that; right?
A. Yes.
Q. And how did you do it?
A. Was using an instrument called a "solids probe mass spectrometer," one which was not used in this particular case; but that's the particular instrument that was used to make that type of a finding.

Q. Uh-huh. And what you did was you had some ammonium nitrate at your house?
A. No.
Q. Where did you get the ammonium nitrate to use there?
A. It was from a test vial.
Q. All right. And was that an ammonium nitrate bought in commerce or at a hardware store?
A. I don't know where the FBI purchased it from.
Q. And then something was added to it; correct?
A. Yes.
Q. What was added to it?
A. It was urea, prills of urea.
Q. All right. And didn't you and Mr. Whitehurst add something else?

case.
MS. WILKINSON: Objection, your Honor.
THE COURT: Well, the objection is overruled.
BY MR. TIGAR:
Q. Didn't you and Mr. Whitehurst add something else to the sample?
A. No.
Q. Didn't you have a test in which you and Mr. Whitehurst mixed up some ammonium nitrate and something else that you and Mr. Whitehurst, or one of you, had provided to see if you could make the machine read out urea nitrate?
A. No. The only mixture was the one that I made with ammonium

nitrate and urea.
Q. Is it your testimony, sir, that you never participated in an experiment in which you or Mr. Whitehurst urinated into a beaker, reduced it down, and added it to ammonium nitrate and got a machine reading on it?
A. The urine study that you're referring to was never one in which ammonium nitrate was added to the urine. It was flat out extracts of urine were examined using the solids probe mass spectrometer. There was nothing added to the urine.
Q. And that read out urea nitrate?
A. The results were the presence of urea and nitric acid, which is consistent with a sample of urea nitrate placed into that particular instrument.
Q. Is it your testimony, sir, that you never did an experiment involving urine and ammonium nitrate?
A. There were no experiments where urine and ammonium nitrate were added together.
Q. Is it your testimony, sir, that you never did an experiment involving urine and ammonium nitrate?
A. Together?
Q. No.
A. Separate?
Q. Separately.
A. The test was one of which urine was tested and then the combination of ammonium nitrate and urine, two separate ones.

Q. Ammonium nitrate and urine?
A. I'm sorry. Now you got me fouled up. It's ammonium nitrate and urea mixed together was one test. The other test was the urine dried down. So there were two separate.
Q. And what was the purpose of that?
MS. WILKINSON: Objection, your Honor.
THE COURT: Overruled.
BY MR. TIGAR:
Q. What was the purpose of doing that?
A. This was -- the purpose of this entire test was in the World Trade Center bombing case. We were looking at various articles of clothing where extracts were removed from the

clothing. These were invisible residues. And based on those invisible residues, we were getting findings of the presence of urea and nitric acids, using the solids probe mass spectrometer. The testing was done in order to find out whether that particular instrument could receive other samples and still produce the same type of a signal.
Q. Now, we've talked now about ammonium nitrate. We've talked about some of these high explosives. You -- did you ever test 664 to see if any fuel oil residues were present?
A. No.
Q. Why not?
A. I made a determination early on that the samples themselves would not be tested for any type of hydrocarbon material based

on the location of that particular -- of items removed from that particular parking lot area. These were items that were potentially exposed to hydrocarbons within the air, so a finding would not be of any significance.
Q. Did you make -- did you test anything that was found away from the parking lot for hydrocarbons?
A. Nothing from that entire crime scene was tested for hydrocarbons.
Q. Now, the blast center was in the parking pullout just in front of the Murrah Building; correct?
A. Yes.
Q. And this Item 664 was found a hundred-and-some feet from the blast center; correct?
A. I don't know the exact distances.
Q. A number of feet; correct?
Now, if you paced off the same number of feet towards the Murrah Building, you'd be inside the building; correct?
A. That, I'm not sure.
Q. I'm going to show you what's been received in evidence as Government 940. The truck was parked -- the crater that you saw was right here -- sort of front and center of the Murrah Building on N.W. 5th; correct?
A. Yes.
Q. 664 was found over here, by the Athenian Building; correct?
A. In that general area, yes.

Q. So if we paced off the same number of feet, we'd be into the Murrah Building; correct?
THE COURT: I'm not sure I understand "the same number of feet."
MR. TIGAR: The same number of feet from the crater, your Honor, but taking a different direction.
THE COURT: All right.
BY MR. TIGAR:
Q. Taking the truck as the center point, we'd be within the Murrah Building?

A. Well, if I measure it off, myself, with my fingers, I'm outside the Murrah Building.
Q. So that debris that was inside the Murrah Building would be closer to the center of the blast than 664 was found; is that correct?
A. Yes.
THE COURT: Is this an interrupting point? We ought to take the recess.
MR. TIGAR: Yes, your Honor, thank you.
THE COURT: All right. You may step down.
And we're going to take our usual morning break, members of the jury; and of course this week, like all other weeks and all other days of trial, I must again caution you to keep open minds, avoid discussion about the case or any aspect of it among yourselves and with others, and continue to avoid anything outside of our evidence that could influence your decision in the case.
You're excused now, 20 minutes.
(Jury out at 10:23 a.m.)
THE COURT: All right. We're in recess.
(Recess at 10:24 a.m.)
(Reconvened at 10:44 a.m.)
THE COURT: Please be seated.
MR. MACKEY: May we approach?
THE COURT: Yes.
(At the bench:)
(Bench Conference 99B2 is not herein transcribed by court order. It is transcribed as a separate sealed transcript.)

(In open court:)
THE COURT: Okay.
(Jury in at 10:46 a.m.)
THE COURT: Please resume the stand, Agent Burmeister.
MR. TIGAR: Excuse me, your Honor.
BY MR. TIGAR:
Q. Mr. Burmeister, before coming to court today, did you participate in any moots?
A. Years ago. Several years ago.
Q. And that was to help you to become familiar with what it means to testify; correct?
A. That was -- that was one aspect of the entire process.
Q. And that is a part of your training as an FBI agent who may be giving testimony in court, the moot?
A. It's part of the training process, yes.
Q. And then you met with Government counsel to discuss the basis of your testimony; correct?

basis of your testimony, correct?
A. Again, years later.
Q. Yes, of course. Years later.
A. Yes.
Q. Before coming here today, you've discussed it with Government counsel; correct?
A. Yes.
Q. And you're aware that there are certain guidelines that you're supposed to follow while you're testifying; correct?

A. There are guidelines, yes.
Q. And that includes testifying in a manner which is clear, straightforward, and objective in answers to all questions on direct and cross-examination; correct?
A. Yes.
Q. Now, sir, we were talking at the time we broke about ammonium nitrate; correct?
A. Yes.
Q. And we were also talking about some of these other residues that you either did or did not look for. Do you recall that?
A. Yes.
Q. And specifically at the break we were talking about the items that you would find inside the Murrah Building; correct?
A. That was part of the testimony, yes.
Q. Now, you found inside the Murrah Building a number of pieces of shattered and broken plastic; correct?
A. I personally didn't find those.
Q. Were a number of pieces of shattered and broken plastic from inside the Murrah Building presented to you for examination?
A. I'm not sure whether those items came from within, or from the exterior of the building.
Q. How about -- about how many pieces of plastic were presented to you for examination?
A. I really can't give you a number.

Q. Would it be enough to cover the top of the counsel table here that I'm pointing to?
A. Oh, I don't think so.
Q. Well, were there more than 100?
A. Again, you're asking me to put a number on it. I can't put a number on it.
Q. More than you can remember; is that correct?
A. Again, I can't put a number to the actual specimens that were submitted.
Q. And did you test each of these for explosive residue?
A. Each one that came to me, I would have tested for explosive residues.
Q. With what result?
A. My recollection right now is the pieces of plastic that I tested were negative for explosive residues.

Q. Now, did you test them all for hydrocarbons?
A. No.
Q. Now, you had a reason for not testing for hydrocarbons; correct?
A. Yes.
Q. And that was because of the background levels?
A. Yes.
Q. That is, when you are testing for something, you want to make sure that your findings will be significant -- correct -- if you can?

A. I'm not sure what you mean by "significant."
Q. Well, if there is a high background level -- for instance, if you walk into a place that repairs cars and you pick up a piece of evidence and take it back to your laboratory and find that you've got something consistent with a medium-grade fuel oil on it, that doesn't tell you very much except that it's got fuel oil on it; correct?
A. That's right.
Q. Because the background of the fuels that are in and hydrocarbons that are present in an auto repair shop is going to be pretty high. Correct?
A. It depends on the particular auto shop, of course; but I would expect them to be present -- hydrocarbons being present.
Q. Now, is it a part of your job when you look for something to make -- that might be deposited on an object to make sure that it didn't come from the surrounding environment, as distinct from having been placed on the object by some external force?
A. It's always information which is helpful in assessing the particular finding.
Q. And you knew, did you not, that the parking lot across from the Murrah Building was covered with debris of various kinds; right?
A. I saw that, yes.
Q. And you saw that there were cars that had burned; correct?

A. Yes.
Q. You saw that there were firemen. They put out the fires; correct?
A. I didn't see the firemen putting out fires.
Q. But you knew that had happened; correct?
A. Yes.
Q. Now, you testified on direct that ammonium nitrate is not used as a fire suppressant. That's right, isn't it?
A. Yes.
Q. Now, did you find background levels of nitrates, evidence of background levels of nitrates in debris that was gathered from the parking lot?
A. There were samples that were taken from the parking lot

that had nitrate ions on them.
Q. And did you find -- now, how is ammonium nitrate made? If I wanted to make some, what would I do?
A. You would react ammonia with a nitric acid solution and allow the precipitate to form.
Q. Okay. So that -- nitric acid: What's that in? Well, I guess from the nitric acid store -- I mean the pharmaceutical company. But what's it in, in other stuff?
A. I'm not aware of -- offhand, I'm not aware of commercial products right now that actually contain nitric acid.
Q. Then, where do those nitrate ions come from that you found in the parking lot?

A. The source of those nitrate ions, I'm not sure exactly.
Q. Now, nitrate ions are charged particles; correct?
A. Yes.
Q. And you use the term "cations" and "anions"; right?
A. Yes.
Q. Right? And that refers to something called "polarity"; correct?
A. Yes.
Q. Now, we could illustrate that with a pair of bar magnets, couldn't we?
A. Yes.
Q. That idea of polarity?
A. Yes.
Q. That is, if I had two bar magnets and I tried to bring them together, if I found that they were resisting coming together, I'd know that I had -- the two poles were the same; correct?
A. Yes.
Q. That I was bringing together?
A. Yes.
Q. And if they stuck, like two magnets sticking together, we'd know that I had the opposite poles; right?
A. Yes.
Q. That I'd have a plus on one side and a minus on the other side; right?
A. Yes.

Q. And the ion process is nothing more than -- that's a chemical version of what I'm seeing when I use the bar magnets in that way; correct?
A. Your reference is an -- oversimplified, but yes.
Q. I understand. Well, correct me if I get oversimplified, please. Thank you. But it's kind of like that; right?
A. Yes.
Q. Okay. Now, nitrate ions that are present in nitric acid then join up with something that's present in ammonia -- is that right -- to precipitate out ammonium nitrate?
A. The entity of ammonia takes on a charge of its own.
Q. Yes.

Q. Yes.
A. And the nitrate has a charge of its own as well. And again, those two would come together and have the magnetism that you're talking about.
Q. So if I pour household ammonia -- That is what I could use, household ammonia that I could just buy at the store?
A. You could, yes.
Q. -- and nitric acid together -- I forget from chemistry class. What am I not supposed to add to what so it doesn't splash?
A. You don't want to add water to the acid.
Q. Okay. So I start with the ammonia, then I add the nitric acid to it; correct? Is that what -- I could do that?
A. You could do that, yes.

Q. And then I would begin seeing things precipitating out; that is, some white stuff coming down to the bottom; correct?
A. You'll have a precipitate, yes.
Q. And that precipitate will be ammonium nitrate; correct?
A. Yes.
Q. Now, is there any way for ammonium nitrate crystals to form by the existence of nitrate ions and ammonium ions that may be present in nature without going through this mixing process?
A. You need to have the forms present; and again when we start talking about ammonia ions and nitrate ions being in the nitric acid and the ammonia solution, you have to have those conditions present in order for it to precipitate out.
Q. And if I took ammonium nitrate and dropped it into a beaker of water and mixed it up, it would dissolve; correct?
A. Yes.
Q. And there is a certain maximum amount that's going to dissolve based on the chemical properties of ammonium nitrate; correct?
A. Yes.
Q. And based on the temperature and pressure and those things; right?
A. Right.
Q. Now, if I dehydrate that sample that I've mixed it in, I'll get back some ammonium nitrate crystals; correct?
A. Yes.

Q. Now, a characteristic of ammonium nitrate is that it is very sensitive to water; is that right?
A. It's water soluble.
Q. And is that called hygroscopic, or hydroscopic, or neither?
A. I've also referred to it as hygroscopic.
Q. H-Y-G-R-O?
A. Yes.
Q. Hygroscopic. Now, what is that? H-Y-G-R-O-S-C-O-P-I-C; right?
A. Yes.

Q. What does that mean?
A. Will take on water and absorb it over time.
Q. And do you have an opinion if I took some crushed ammonium nitrate and placed it in a 100-percent-humidity condition in a watch glass, a small vessel, what would happen to the ammonium nitrate?
A. Based on your particular scenario with 100 percent humidity, I would expect over a certain time frame, which I'm not sure of, that it would break down.
Q. And now what do you mean "break down"?
A. It would dissolve into the air and evaporate off.
Q. Disappear; right?
A. Yes.
Q. That is, after a certain amount of time -- and a time you're not aware of -- you'd come back and look at it and

wouldn't see any more little white powder there; correct?
A. Yes.
Q. Where would it be?
A. It would be floating around in the jar that you've got the container in as a gaseous-type flotation.
Q. And if I then gradually then reduced the humidity under controlled circumstances, what would happen to this ammonium nitrate that's running around in the air?
A. I -- I could only guess. I don't know a factual basis for it.
Q. Have you ever done such an experiment?
A. No.
Q. Now, when ammonium nitrate precipitates out in a nitric acid or an ammonia solution, the crystals have a certain form; correct?
A. Yes.
Q. Can you predict the form?
A. Under certain conditions, you can predict the form.
Q. All right. And what form do you predict those crystals are in?
A. I'm sorry. Could you repeat the question?
Q. You say under certain conditions you can predict the form. How would we know? That is, now we've got some crystals. We're going to look at them under our microscopic. You say we can predict the form; that is, we can predict the shape those

crystals are going to be. Under what circumstances and what form would we expect to see when we started looking under our microscope?
A. The form on a solution that is being evaporated in a dish -- for example, a petri dish -- the form is different than those that you actually start to attempt to grow crystals. And growing the crystals is completely different.
Q. Now, you say the form if you evaporate. A petri dish:

That's just a small, flat dish with not high very sides on it; correct?
A. Yes.
Q. So if we evaporated out in the petri dish, we're going to get crystals of one form; correct?
A. Yes.
Q. Then you said there is another way. We can grow the crystals?
A. Yes. You can start to promote the formation of specific types of crystals either by seeding it or providing an avenue for crystals to develop.
Q. Now, this is a study you made because you specialized in microcrystals; correct?
A. Yes.
Q. Now, you told us on direct examination that there was something about the shape of the crystals that you saw on Government's Exhibit 664 that interested you. Correct?

A. Yes.
Q. And how did -- tell us about that. First of all, did you -- did you take any pictures of the crystals in which you could measure their size?
A. No pictures were taken other than the photos that you have seen.
Q. I've seen those photos. Based on those pictures, is there a record of the size of the crystals in microns?
A. No.
Q. What's a micron?
A. A micron is a form of measurement, a very small form of measurement that's classically used with scanning electron microscopy because it's looking at very small levels of particular materials.
Q. But I don't know how big it is. How big is it? How big is a micron?
A. Let's see. I'll have to be -- on how many -- offhand, I'm not sure as far as meters and centimeters the size is, but it's --
Q. Is it a metric-type measurement?

A. Yes.
Q. So it's some fraction of a centimeter; correct?
A. Yes.
Q. And you're just not sure what fraction it is; right?
A. Yes. The decimal place, I'm not sure of right now.

Q. Okay. But teeny-weeny; right? Small?
A. Yes.
Q. Okay. Real small. Now, did you -- do you have the capability to measure the individual crystals to get their dimension?

A. That is possible, yes.
Q. Did you do it?
A. No.
Q. Now -- well, were the crystals that you found on Government's Exhibit 664 unusual in your view in terms of their size?
A. Not in their size. It's in the overall shape.
Q. Okay. I asked you first size. The answer is no. Correct?
A. Yes.
Q. What shape were the crystals that you saw?
A. They were in irregular crystalline forms.
Q. They were in what kind?
A. Irregular.
Q. Irregular or regular?
A. Irregular.
Q. Irregular crystalline forms. Yes.
A. In a clear pattern.
Q. In a clear pattern. Now, in your lab notes, you said the pattern was a glaze. Correct?
A. When you go to a distance, it's in a glazed form. The

clear -- when I refer to "clear," that the crystal itself is opaque, it's not colored or anything like that.
Q. So the crystal does not appear to have any foreign bodies in it; correct?
A. Yes.
Q. It's pure. Is that what you'd say?
A. Well, "clear" being that there is no other foreign bodies inside the crystal.
Q. Right. Now, what would make -- is an ammonium nitrate crystal that precipitates out by mixing ammonia and nitric acid clear, or opaque?
A. It's a -- hugely foggy in its nature. It's not something that you could pick up and see opaqueness through it.
Q. All right. Were these crystals more, or less, transparent to light than ones you would make by adding ammonium nitrate and -- or ammonia and nitric acid together?
A. I'm not sure.
Q. So you don't know.
A. Right.
Q. So in terms of their color, you don't know whether they're more, or less, transparent than ones that would be the result of this chemical process; is that correct?
A. They may be foggier than the other crystals; that is, the clearness is not as much. But that slight determination I can't make, and I didn't make it.

Q. Okay. So on -- all right. You can't make and you didn't make; right?
A. Yes.
Q. So that what you say is different about them is the shape

Q. So that what you say is different about them is the shape. Correct?
A. Yes.
Q. Do you have pictures that show the shape?
A. The photos that you have seen demonstrate the crystals themselves.
Q. I understand. We saw the pictures. But we're talking about crystals that are a little -- that are 5 or 6 microns in diameter; correct?
A. Without measuring, I'm not sure of the exact size. Estimating, it's possible that they would be several microns in size.
Q. Can we see something that small on those pictures?
A. How small?
Q. 5 or 6 microns.
A. It's possible under the one magnification you could see a particle there.
Q. Particle. Now, is that particle a single crystal, or is it more than one crystal?
A. The particle could be made up of several different crystals. It's entirely possible.
Q. So you don't know. Is that correct?

A. Yes.
Q. So the answer is you don't know whether you can see individual crystal shapes on the pictures that you have; isn't that right?
A. I can see individual crystals and their irregular shapes on those photos that we see here.
Q. All right. And on those photos, then, what is the shape of those crystals?
A. Again, they're irregular crystalline forms.
Q. Are they different from crystals that would occur or could occur as a result of combining ammonia and nitric acid?
A. It depends on your preparation procedure that you're referring to.
Q. So they could be different. Correct?
A. It's possible.
Q. You don't know?
A. Yes.
Q. Well, then tell us, please, what it is that's different about these crystals from what could occur from the normal fabrication of ammonium nitrate by adding ammonia and nitric acid together?
A. The normal manufacturing process could, in fact, produce crystals that look this way. There is a possibility that under the manufacturing process, they could look different.
Q. Okay. So -- all right. And is it then the case that if I

had my bell jar with 100 percent humidity and I -- and then caused crystals to reform there -- that is, to precipitate out

of the atmosphere -- do you know what such crystals would look like?
A. In recrystallizing material that would have been residue that falls within a petri dish like that, I would expect to find them in a different shape.
Q. All right. You would expect to find them in a -- have you ever done that experiment?
A. I've taken liquids of ammonium nitrate solutions of ammonium nitrate and allowed them to dry and observed their crystalline formation.
Q. Now -- and did you -- when you did that, did you find a single type of crystal, or shape of crystal, or there were different shapes of crystals?
A. The studies that I did, the crystalline formation was more in a sheet-like formation of crystals, not individual crystals as we see on this specimen.
Q. Like a glaze?
A. No.
Q. What's the difference between a glaze and a sheet-like one?
A. A glaze is what we see here. A sheet is a continuous sheet or very much like this piece of glass on the table top.
Q. That's -- a piece of glass on a table top: That's a sheet; right?

A. Yes.
Q. And you say a glaze is what we see here. I'm not -- without regard to what we see here, in your vocabulary, what's the difference between a glaze and a sheet?
A. Well, a glaze is the particles that we see on this particular specimen. A sheet is a continuous sheet of crystalline formation.
Q. Uh-huh. Now, are you saying that a sheet is a glaze that goes over a larger area and is more consistent than a glaze?
A. I don't understand what you mean.
Q. Well, a sheet, you say, is something that has characteristics. It is flat, it is shiny, and it is uniform. Correct? Is that your definition of a sheet?
A. No.
Q. What is your definition of a sheet?
A. A sheet would be a formation of a solid formation. If you want, a piece of ice, for example, forming on a surface: That is what I would consider a sheet. If you see individual particles like salt or sugar, that's a glaze.
Q. Are you telling us that when you use the word "glaze" in your laboratory notes -- and you did use that word; correct?
A. Yes.
Q. And you didn't ever use the word "embedded" in your laboratory notes describing this phenomenon, did you?
A. No.

Q. You're telling this jury when you use the word "glaze," you meant individual particles. Is that your testimony?
A. Yes.
Q. Now, in addition to examining plastic and these items -- oh, I forgot to ask: Did you ask anyone to take soil samples or dirt samples from the parking lot to determine what chemical substances were present there -- were present there?
A. No.
Q. Did you attempt to determine what background levels of nitrates existed in the environment in the parking lot?
A. No.
Q. You found a number of nitrate ions -- you found a number of evidences of nitrate ions on items submitted from the parking lot; correct?
A. I don't know the exact number. I know some items that were submitted from that parking lot area did contain nitrate ions on them.
Q. And you're unable to say whether those were the result of background levels of nitrate ions or whether they were part of some ammonium nitrate; is that correct?
A. Yes.
Q. Now, you also conducted a test on a dynamite wrapper; correct?
A. It was reported to be consistent with a dynamite wrapper.
Q. Uh-huh. And that was recovered inside the Murrah Building;

correct?
A. I'm not sure where the actual item was recovered from.
Q. Would it refresh your recollection if I suggested it had been recovered from a body bag?
A. A body sounds familiar. A bag, I don't remember that aspect.
Q. Now, you were -- we were talking earlier about the ammonium nitrate vs. urea nitrate. Now, ammonium nitrate, if you find that at a blast scene, what have you learned? What does it tell you? What is -- suppose the ammonium nitrate on this -- suppose -- let's assume this came from -- whatever was on here came from the blast. All right? What does that tell us?
A. Well, if you're determining that it came from the blast, that that particular blast could have contained ammonium nitrate.
Q. So now we know it could have contained ammonium nitrate. Correct? So it could be ammonium nitrate and fuel oil; correct?
A. It's possible.
Q. It could be ammonium nitrate and nitromethane; correct?
A. Yes.
Q. Could be dynamite; correct?
A. Yes.
Q. Could be slurry; correct?
A. Yes.

Q. Could be a water gel emulsion; correct?
A. Yes.
Q. What else could it be?
A. Could be an emulsion.
Q. What's an emulsion?
A. It's another one of the ammonium-nitrate-containing explosives very similar in the category of the slurries and water gels.
Q. So do you know how many million pounds of ANFO are used every year in the United States?
A. No.
Q. Okay. And -- but all of these -- well, have I gone through all the different kinds of explosives that contain ammonium nitrate?
A. No.
Q. How many more are there?
A. There could be others. I'd have to pull out the reference texts to find all of the other combinations of explosives that contain it.
Q. Okay. So there are many; correct?
A. There are --
Q. Dozens?
A. Yes, I would say, more than.
Q. Dozens. And each of the dozens may be sold under more than one brand name; correct?

A. Yes.
Q. Now, ammonium nitrate explosives -- an ammonium nitrate and fuel oil combination can have a very broad range of velocity of detonation; correct?
A. Yes.
Q. And that's going to be based on a number of variables. Correct?
A. Yes.
Q. Now, it would be important, would it not, if we found ammonium nitrate on here -- be important not to leap to a conclusion as to exactly what the explosive charge was. Right?
A. You don't want to leap to any conclusion; yes.
Q. Right. And so it would be improper just because you find ammonium nitrate on here to hypothesize that any particular thing caused the blast. Correct?
A. You would need more information at that point.
Q. Right. Now, if I took this piece to the laboratory -- of course, I've been handling it. This is Government's Exhibit 664 -- would I find any ammonium nitrate on it?
A. Are you referring to now?
Q. Yes. Now.
A. It's possible.
Q. Well, let's look. You first got it in your laboratory on the 20th of April; correct?
A. I received it on the 28th, yes.

Q. And you caused a number of tests to be performed. Correct?
A. Yes.
Q. Showing you now what's in Government's Exhibit 1744 for demonstrative purposes. And we'll look at some of these when we get the focus here.
Now, you told us about the chemical spot test. Correct?
A. Yes.
Q. And that, you did yourself. Right?
A. Yes.
Q. And you said that it showed the presence of a strong oxidizer; right?
A. Yes.
Q. You said ammonium nitrate; that is, consistent with ammonium nitrate. You just know it's a strong oxidizer?
A. Yes.
Q. Do you have any idea what proportion of the ammonium nitrate that's made is used for explosive applications and what proportion is used for fertilizer applications?
A. No.
Q. So when you in your direct examination kept calling ammonium nitrate an explosive, we could just as well call it a fertilizer; right?
A. You could do that, yes.
Q. Right. And as far as proportions are concerned,

fertilizer, explosive, you don't know; right?
A. That's correct.
Q. Okay. The next thing that happened was that somebody did polarized light microscopy. Right?
A. Yes.
Q. Who did that?
A. I did.
Q. Fourier FTI -- what do we call it Fourier transform infrared -- FTIR?
A. Spectroscopy, but yes.
Q. Right. And who did that?
A. Chemist Mary Tungol.
Q. And do you know -- and then you did X-ray diffraction with the Gandolfi camera, single crystal exam. That was done at the Smithsonian?
A. Yes.
Q. Who did that?
A. I forget the actual individual, but it was Special Agent Bruce Hall who witnessed the examination.
Q. Now, with the Gandolfi camera, could you take a picture of the crystal?
A. No.
Q. You just analyze it. Correct?
A. It's kind of -- by saying "camera," it's an apparatus that

records a spectrum of diffracted X-ray beams, and that's all

it's recording and photographing.
Q. Did you have in the lab a device by which you could look at these individuals crystals to see their structure one crystal at a time?
A. The scanning electron microscope could have done that, yes.
Q. But you didn't do it?
A. No.
Q. Then you had ion chromatography anions; and now you're finding nitrate ions. Correct?
A. Yes.
Q. Now, you found nitrate ions in a large number of the samples submitted; correct?
A. Many of the items had nitrate ions in them.
Q. And you did not test the area from which they were collected to see the background level of nitrate ions; correct?
A. Yes. That's correct.
Q. Nitrate ions do occur in nature; that is to say, as background matter in a large number of applications; correct?
A. I'm not sure what you mean by "applications."
Q. Well, in -- nitrate ions are going to show up in acid rain; correct?
A. It could.
Q. Nitrate ions are going to show up if people have been fertilizing their lawns; correct?
A. It could.

Q. What other ways do nitrate ions occur naturally in our environment around us?
A. They could be found in various food articles or certain manufactured products.
Q. Food articles. You mean, what, bacon?
A. Yes.
Q. So that nitrate -- nitrate -- one test -- if you take some bacon and test it for nitrate ions, you'll find them in there usually?
A. I don't know usually. I thought that they were trying to phase out nitrates, but you could find some food products that have it.
Q. In other words, you could go to the store and look and it says canned ham -- for instance, would have nitrates in it -- correct -- often listed on the label? I don't know, but does it?
A. Like I said, I thought they were trying to phase out nitrates in food products, but it could.
Q. All right. But in some food products. Right?
A. Possible, yes.
Q. Okay. And anything else?
A. Not that I recall right at the moment.
Q. Okay. Then you did capillary zone electrophoresis. You

Q. Okay. Then you did capillary zone electrophoresis. You found some more nitrate ions; correct?
A. Yes.

Q. Then you did ion chromatography cations, and the cations are just ions that have that different polarity that we were talking about before. Who did the ion chromatography?
A. That was a chemist, Tim McLaughlin, who was working with me.
Q. How about the capillary zone thing -- electrophoresis?
A. It was either the chemist or myself who would have run that particular --
Q. Which chemist?
A. Tim McLaughlin.
Q. McLaughlin. And how about the ion chromatography cation?
A. That would have been again the chemist Tim McLaughlin.
Q. Now, there you're looking for ammonium ions. In what way do -- do they occur in nature? I mean in our environment? I don't mean in nature. But as we walk around, are we going to see things that have ammonium ions on them?
A. You could find some things, yes.
Q. And what kind of things will we find these ammonium ions on?
A. Things that are close by: a fertilizer that contains ammonium ions in it. It's very possible.
Q. And how about household ammonia?
A. Household ammonia, yes.
Q. Things we use to clean ourselves up. What other things? The fertilizer, household ammonia. What else?

A. That's all that's coming to mind right at the moment.
Q. Okay. Then we did the UV detection, the ion chromatography cations. Who did that?
A. Again, that could have either been myself or chemist Tim McLaughlin.
Q. How about the scanning electron microscope?
A. That would have been done by our scanning electron microscopist, Dennis Ward.
Q. And then you did gas chromatography and ion mobility, and you didn't detect any high explosives. Correct?
A. Yes.
Q. Now, what role, if any, did Mr. Martz play in this?
A. None.
Q. He didn't do any of these tests. Is that right?
A. That's right.
Q. Now, we were talking about this -- you examined this -- started your examinations on the 28th of April; correct? By when was all of this testing that you've described here completed?
A. The item went back May of -- May 22, 1995.
Q. Okay. So from April 28 to May 22; correct?

Q. Okay. So from April 26 to May 22, correct?
A. Yes.
Q. And when did -- did you then come to look at it later and find that there were no crystals on it?
A. Sometime later, there was a very cursory examination

performed by myself, and I did not find any crystals on it.
Q. Okay. When was that that you looked at it and didn't find any crystals on it?
A. I'm -- my recollection, I think November of '96, I believe, was the date that an examination was done by myself.
Q. Now, you testified on direct examination that in the meantime it had gone out to Mr. Buechele; correct?
A. Well, after I received it, I know that it had gone to other examiners. The exact sequence and who exactly it went to, I'm not familiar.
Q. Okay. And therefore, you -- do you have any explanation that's scientifically valid or scientific-based explanation for the disappearance of the crystals?
A. I could provide an explanation as possible sources for the crystals to have disappeared.
Q. My question is do you have any possible sources?
Okay. I objected before. I'll take it now. If we were going to look for a reason why, what would we look for?
A. Well, handling of that particular item could cause those crystals to be scraped or removed off of the surface.
Q. All right. Are you aware that anyone scraped this surface?
A. When I say scraped, if someone applies it to the table and it's moved slightly, that's a scraping of the surface.
Q. All right. So you say that could remove it; correct? Scraping.

A. Yes. Scraping, brushing --
Q. Okay.
A. -- touching.
Q. Moving. Moving just across a surface of a table, just like -- without any pressure on it. That could do it?
A. It's possible.
Q. Okay. So that could cause it to disappear. What's No. 2?
A. Just the course of time exposed to high-humidity environments could cause it to disappear.
Q. Okay. Do you have places in the FBI Laboratory for the storage and retaining of crucial evidence in bombing cases that are of such high humidity that trace evidence disappears?
A. I'm not aware of any.
Q. But you believe that that's possible based on your experience that these things disappear because of that. Is that correct?
A. Sometime if the item is exposed to a high-humidity environment over the course of a long term, it's entirely possible that could contribute to the loss of those particular

crystals.
Q. All right. Do you have a third explanation possible we should think about?
A. Not that I can recall right at the moment.
Q. Were you concerned when you looked in whenever it was, 1996, and found that your crystals weren't there?

A. I don't know what you mean by "concerned." They were gone.
Q. Did that concern you at all?
A. I would say that I was -- I don't know if I can say I was concerned about it. There was an explanation from all the traffic that the particular item had that it doesn't surprise me that they were no longer there. I was, if you will, disappointed that they weren't there.
Q. You were disappointed. And when you said you were -- it didn't surprise you, did you then conduct an investigation to verify which ones of these hypotheses might be true?
A. No.
Q. If environmental conditions inside the FBI Laboratory could cause these crystals to disappear, did you consider what the effect on the crystals might have been of having been through an Oklahoma-style gully-washer rainstorm, the trample of feet of officers across a parking lot, the resting on metal objects that were being retrieved and handling in the course of evidence collection? Did you think back to that time and wonder whether your initial conclusions might have to be revisited?
A. No.
Q. Did you conduct any tests in the FBI Laboratory to determine what it was that among your various hypotheses, your various theses, that caused the crystals to disappear?
A. Would you ask that one more time.

Q. Did you do anything to try to figure out why the crystals disappeared?
A. No.
Q. We've established that before the crystals disappeared, you hadn't -- you hadn't done any photographs that would show the shape or size of the crystals -- individual crystals; correct?
A. At the time of the examination, yes.
Q. Now, earlier, before the break, we were talking about a test. And I will ask you, sir, isn't it a fact that you questioned one agent's finding on a prior occasion, prepared a blind test, and asked the agent to test a mixture of urine, ammonium nitrate, and urea? Did that happen?
A. Yes.
Q. And this blind test: The agent concluded that the mixture was urea nitrate; correct?
A. Well, I'm not sure if it was a conclusion. It was consistent with the presence of urea nitrate.

Q. And in that case, where did the ammonium nitrate come from? Is that from the FBI purchases?
A. That's correct.
Q. And where did the urea come from?
A. The urea that was used was urea that had been seized as a result of a search during that particular case.
Q. And where did the urine come from?
MS. WILKINSON: Objection, your Honor.

THE COURT: Sustained.
BY MR. TIGAR:
Q. But it was human. A human product; correct?
A. Yes.
Q. All right. Now, you are familiar, are you not, sir, with how to build an ammonium nitrate/fuel oil bomb?
A. I'm aware of the components that would -- could go into it.
Q. And you've read the Anarchist's Cookbook, have you not?
A. Parts of it. Most of it, yes.
Q. Now, where can you buy the Anarchist's Cookbook to show you how to build one of these things?
A. You could get information off of the Internet for where to purchase texts on this. You can go to particular companies that will sell various anarchist literature.
Q. Can you get these books at gun shows?
A. I don't know. I've never been to a gun show.
Q. Do you know of a particular publisher where you can buy books on how to make these devices?
A. Yes.
Q. Which one is that, or which ones are those?
A. You could go to a company called Paladin Press.
Q. And if we wanted to go to Paladin Press and find and buy these books -- How many books on how to build these do they sell at -- do they make at Paladin Press?
A. I don't know the exact number.

Q. More than a dozen?
A. Again, I don't know a number that they sell.
Q. But you've read some of theirs; correct? And if we wanted to go buy one right from where they're made, where would we go?
A. Buy the what?
Q. Paladin Press. Where is Paladin Press?
MS. WILKINSON: Objection. Relevance, your Honor.
THE COURT: Overruled.
BY MR. TIGAR:
Q. Where is Paladin Press?
A. I believe it's in Colorado.
Q. It's in Boulder, isn't it?
A. Again, I believe. I don't know for a fact.
Q. Now, would you agree with me that in view of ammonium nitrate -- well, do you know the book Scientific Evidence in Criminal Cases by Moenssens?

criminal cases by Moenssens?
A. I don't think I've seen that.
Q. Well, would you agree with me, sir, that in view of ammonium nitrate's widespread use in farming as a fertilizer as well as in blasting agents, an analytical procedure which reveals ammonium nitrate traces has not necessarily proved its use as a blasting agent?
A. Could you read that one more time.
Q. Sure. In view of ammonium nitrate's widespread use in farming as a fertilizer as well as in blasting agents, an

analytical procedure which reveals ammonium nitrate traces has not necessarily proved its use as a blasting agent. Do you agree with that?
A. Yes, I would agree with that.
Q. Now, would you agree that the constituents of blasting agents are generally inorganic nitrates -- that is, ammonium nitrate -- and carbonaceous fuels and may also contain powdered aluminum or ferrosilicon?
A. I would go very heavily on the "may."
Q. All right. Now, you tested and found aluminum, silicon, and sulfur; correct?
A. Yes.
Q. Now, aluminum is a constituent of commercially produced blasting agents, isn't it?
A. It's not found in the pure powdered aluminum. It's in a -- it's a part of a molecule. There is more to it.
Q. Yes.
A. But it's not in the original pure-metal form of aluminum.
Q. Of course. That is, the -- so you're saying that there is an aluminum compound present in blasting agents; correct?
A. Yes.
Q. And at what temperature would we expect that compound to come apart and to get a deposition of aluminum?
A. I don't know.
Q. But it is your testimony that aluminum is a constituent of

commercial blasting agents; correct?
A. It's in very trace amounts, but it is a constituent.
Q. Now, at the crime scene, you instructed agents to wear gloves; correct?
A. I'm not sure if I actually made an outward endorsement of wearing gloves. It was my understanding that individuals would wear gloves at the crime scene.
Q. And you wear gloves in the laboratory; correct?
A. Yes, I do.
Q. And you use two pairs. Is that right?
A. Yes, I do.
Q. And are they lined, or unlined? I mean are they powdered, or unpowdered?
A. Actually, I used both in certain situations. The ones that

I usually use that I have right now are unlined -- they do not have material inside to take up moisture.
Q. The ones you use now do not?
A. Right.
Q. Now, do you know what kind of glove Mr. Kelly was using on the day in question?
A. No.
Q. Do you know what kinds of gloves were issued to the agents at the scene?
A. No.
Q. Now, sir, you also testified that you participated in a

search of Mr. Nichols' home. Do you remember that?
A. Yes.
Q. Now, what time did you arrive in Kansas? You got to Kansas on the 22d?
A. I arrived on the 22d, yes.
Q. And that was a Saturday?
A. Let's see. Wednesday being the 19th. Yes.
Q. Now, did you attend a briefing before the search?
A. Yes.
Q. Where was the briefing held?
A. It was at the Herington public service -- I'm not sure if it was the police, but it was a fire station, police/fire station combination.
Q. And you -- who conducted the briefing?
A. I'm not sure the exact individual at this point.
Q. Were a number of other agents present?
A. There were a number of people there for the briefing.
Q. Was Ms. Jasnowski, Agent Jasnowski present?
A. Yes.
Q. And so -- and the other agents that were present: They were the ones who were going to do the search; correct?
A. At that particular point, I didn't know who was exactly going to be doing what. I just remember there were a number of people at that particular briefing.
Q. You testified on direct examination that you conducted a

procedure before other agents entered the house to check for booby traps; correct?
A. Not myself, no.
Q. That was done; correct?
A. It was done.
Q. Now, were you aware that there had been a conversation between the FBI agents and Mr. Nichols about whether or not there were booby traps? Were you aware of that; that is, on the 22d of April?
A. I may have been aware that -- I'm not sure. No, I'm not sure whether I knew at that particular point in time.
Q. On direct examination, did you testify that you were aware?

A. I'd have to see the testimony to recall that. It's possible that I knew at that particular point. Right now today, I'm not sure whether I did or not.
Q. Now, did you have a diagram of where weapons might be located within the house?
A. I did not have a diagram.
Q. Did anybody have a diagram?
A. I don't know if anybody did or not.
Q. You didn't see one; is that right?
A. That's correct.
Q. Did you -- did anybody at the briefing go over the -- what Mr. Nichols had said to the FBI the night before?
A. I don't recall that.

Q. Now, in the house, you said you found nitromethane. Correct?
A. There was a container that had a label on it that suggested nitromethane.
Q. "Suggested." Now, tell us about the container. What did it look like?
A. The container stood about this tall. It was a plastic jug-like container and had a label on the front end of the label -- on the front end of the container.
MR. TIGAR: Is that exhibit in court?
MS. WILKINSON: Yes.
MR. TIGAR: This has a Government number on it, your Honor, 2119, but I'd like to offer it.
MS. WILKINSON: We have no objection.
THE COURT: All right. We'll keep it marked as a Government's exhibit. Is that all right?
MR. TIGAR: Yes, your Honor.
BY MR. TIGAR:
Q. Is this the container?
A. Yes, it looks like it.
Q. Do you want to take a look at it so you can tell?
A. Yes.
Q. Now, this -- where was the container, sir?
A. It was in the basement area of the main house.
Q. And -- now, this container says -- let's see if we can make

this machine work for us here. There we go.
"15 percent nitro," and it says "model engine fuel." Correct?
A. Yes.
Q. Okay. And then it says, "Specially formulated for today's radio-control model applications, assures top performance and peak rpm," etc. Correct?
A. I agree, because it's a little blurry for me --
Q. It is? Well, this has auto focus.
Does that help? Can you read it now?
A. It's getting better.

A. It's getting better.
Yes.
Q. Okay. Now, this is the sort of thing that you can buy in a model-airplane store; right?
A. I would assume. I've not purchased that kind of material in a model store.
Q. Did you see a cardboard box in the basement that was near the bottle of model-airplane fuel?
A. Yes.
Q. And tell the jury what was in the cardboard box.
A. My recollection is vague, but I seem to recall some sort of model-type apparatus in the box.
Q. It was a model-airplane engine -- wasn't there?
A. Like I said, my recollection is vague, but some sort of model-type material.

Q. So what you saw was a box full of components for a model airplane; correct?
A. My recollection is extremely vague, but that's -- my recollection is there is some sort of model-type stuff in the box.
Q. Okay. Now, you seized this. Right?
A. The container was taken, yes.
Q. Yes. And you tested it; correct?
A. The contents of that container was tested.
Q. Yes. And you found out that it contained model-airplane fuel; correct?
A. It contained nitromethane and methanol.
Q. Well, it contained what's labeled on the front here; correct?
A. Yes.
Q. The label says methanol 99.9 percent, nitromethane 98 percent, and so on. It contained what it said on there; right?
A. I wasn't comparing the label with the chemical findings, but the chemical findings were nitromethane and methanol.
Q. Now, what's methanol? Alcohol?
A. Yes.
Q. Okay. Now, do you consider methanol a hydrocarbon?
A. Yes.
Q. And this says 15 percent nitro. Correct?

A. Yes.
Q. So this is not the 100 percent nitromethane that I would get if I went to a racetrack and bought nitromethane as a fuel in a barrel; correct? Or do you know?
A. I don't know the exact percentages, but I believe it's higher than that.
Q. And did you take the model airplane?
A. No.
Q. When you reported out your results, did you report that you

had found model-airplane fuel and a model airplane?
A. No.
Q. You just reported you had found nitromethane; right?
A. The result was nitromethane and methanol.
Q. Yes. Okay. You reported that result. Right?
A. Yes.
Q. And were you aware that your result was then incorporated in a report concerning the presence of nitromethane in Mr. Nichols' house?
A. I'm not sure the exact report that went out with this item.
Q. But did you take steps to make sure that people were going to understand that this was found right next to some model-airplane parts? Did you do that?
A. No.
Q. Are you aware of what your principal examiner -- how your principal examiner reported the nitromethane finding?

A. No.
Q. You've never -- is your testimony, sir, that you have never read a report of your principal examiner, Special Agent Williams, containing his discussion of the nitromethane finding? Is that your testimony?
A. I do not recall what he put down, or nitromethane.
Q. I didn't ask you that, sir. Is it your testimony that you never read the report of your principal examiner, Senior Special Agent Williams, about -- that contained a reference to nitromethane? Do you remember reading his report, or not?
A. I don't recall reading a report where it discusses nitromethane.
Q. Now, you mentioned, also, that when you went into the Nichols house, the Nichols home there, you used an ion mobility spectrometer; correct?
A. Yes.
Q. And you detected the presence of nitroglycerine in the atmosphere; correct?
A. Not in the atmosphere. On some items.
Q. On some items. Now, you know what Mr. Nichols' business is; correct?
A. No.
Q. Well, you looked around the house and saw a lot of weapons; correct?
A. There was a room that had numerous weapons in it.

Q. And you saw some ammunition; correct?
A. Yes.
Q. Did you see double-base smokeless powder?
A. I don't recall seeing any particles of double-base smokeless powder in any container or anything like that.
Q. Now, double-base -- do you know if double-base smokeless powder was found?

A. I'm not aware of double-base smokeless powder being found in the residence.
Q. Okay. Now, what is double-base smokeless powder?
A. Double-base smokeless powder is a propellant. It comes -- propellants come in basically three different types: single-, double-, and triple-base smokeless powder. Double-base smokeless powder is traditionally the propellant that's used in the cartridges that are then attached to bullets that we use in firearms.
Q. Okay. So -- now, is nitroglycerin an ingredient of double-base smokeless powder?
A. Yes.
Q. So that if you walk into somebody's house and they've got a lot of guns and ammunition, are you surprised to find traces of nitroglycerin?
A. No.
Q. Would you be surprised not to?
A. I think I would be surprised not to find it.

Q. Okay. Now, you testified on direct examination that this object, the GX -- Government's Exhibit 664, appears to have been sheared. Correct?
A. Yes.
Q. And what do you mean "sheared"?
A. That's in comparison to the known exemplar from a normal truck panel that is much thicker, and obviously layers have been sheared or removed off of that particular item.
Q. Now, did you see when you first examined it any sign of scorching?
A. I don't recall seeing any kinds of scorching on that item.
Q. Now, did you reach any conclusions based on the absence of scorching?
A. No.
Q. Now, if we look at it in its present form, sir, it's clear it's been handled a lot; right?
A. Yes.
Q. Okay. Now, do you see the light-color part here that I'm pointing to?
A. Yes.
Q. Does that appear as though a shard of the material has been taken off? A piece of the material?
A. I don't know.
Q. Would you like me to bring it up to you so you can look? That's not a very good way to look, is it, on that machine?

A. No.
MR. TIGAR: May I approach, your Honor?
THE COURT: Yes.
BY MR. TIGAR:
Q. If you just -- I'm pointing to this right here. Does that

look like a piece got broken off there?
A. Yes. It's entirely possible.
Q. And do you have any view or theory about how -- why this part here -- see, these parts are this brownish color, whereas the fresh part underneath the shard is the white -- more clear, almost white color?
A. I don't know.
Q. Did you attempt to see what would happen if you immersed this thing in water to see if that would discolor the wood?
A. No.
Q. Now, in addition to conducting your ion mobility spectrometer tests in the Nichols house, did you do other -- you also took some soil samples. Correct? Did you take samples of dirt scrapings?
A. No, I did not take any soil samples that I recall.
Q. You took no dirt scrapings or anything like that that you can remember?
A. From the residence?
Q. Yes, from the residence.
A. Not that I recall.

Q. Okay. And did you participate in any searches out at Geary Lake?
A. No.
Q. Now, you told us that among the high explosives you tested for were PETN and HMX. Correct?
A. Not all items were tested for HMX.
Q. All right. And what was the purpose of testing for those items? Because they're high-explosive residues?
A. They're high explosives, yes.
Q. And if a person handles blasting caps and uses them, is it your experience that -- that that person would get those residues on them?
A. Handling a blasting cap?
Q. Yeah. Handling blasting caps.
A. There are some blasting caps that are contained within themselves, and I wouldn't expect someone to actually get the residues on their hands.
Q. That kind of blasting cap. How about if a person assembles something with det cord and blasting caps? Would you expect them to have high-explosive residues on their person from that?
A. It's possible.
Q. And in fact, you conduct those kind of tests. Correct?
A. Yes.
Q. In fact, you found such residues on Mr. McVeigh's clothing; correct?

A. Yes.
Q. Sir, I'm going to ask you -- I'm going to show you this log. This is from -- no, I'm not.
Almost done, sir.

Almost done, Sir.

Now, you testified -- Did you, in the course of your duties, have occasion to brief Ms. Linda Edwina Jones concerning an opinion that she is to render in the case?
A. I didn't brief her on any particular opinion that she was going to render.
Q. Have you met with her to discuss these matters? Nothing wrong with it. I mean as an expert, you're entitled to rely on the views of others; correct?
A. Yes.
Q. And that is, you differ from an ordinary fact witness because you're permitted to do that; right?
A. Yes.
Q. And you're permitted to rely on things that other people told you; correct?
A. Yes.
Q. And you may share your opinions with other experts who are also going to come and testify; right?
A. Yes.
Q. And there is nothing wrong with that, is there, sir?
A. It's my understanding there is no problem with it.
Q. That's the way the rules are. That's the way it's supposed

to be.

Okay. Now, did you meet with Ms. Jones?
A. I met with her regarding a particular specimen.
Q. Okay. What specimen did you meet with her about?
A. I relayed the findings on the particular specimen Q507.
Q. Did you share with her your laboratory notes?
A. Yes.
Q. Did you send those? Did you tell her that the crystals had been embedded?
A. I may have -- may have discussed that with her. I don't know the exact conversation I had with her.
Q. You don't remember whether you told her they were embedded, or not. Is that right?
A. I don't recall the exact conversation that I had with her regarding that.
Q. Okay. How many times did you meet with her?
A. I recall one meeting that I had with her regarding specimen Q507.
Q. When was that?
A. It would have been earlier this year, prior to a previous trial.

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

THE COURT: Yes.

MR. TIGAR: One more area.

BY MR. TIGAR:

Q. When you first arrived at the Nichols home, you said that you found pieces of things you later identified as ammonium

nitrate; correct?
A. Yes.
Q. Those were in those little vials? Is that right?
A. That was on the exterior of the house. There were additional samples on the interior.
Q. I understand. In the interior you found some in a little -- in plastic containers; correct?
A. That was one location. There was another location.
Q. Where was the other location? In the bucket?
A. No. There was a -- as you entered into the side of the house, there was a piece of paper up on a shelf. It was a rolled-up piece of newspaper, and there were powder residues on the interior of the newspaper.
Q. Consistent with that having been used as a paper funnel to grind the ammonium nitrate. Correct?
A. That's possible.
Q. Consistent. I'm not saying "identified as," but consistent with that; right?
A. Right.
Q. So those are the areas. You found some in a white bucket, you found some prills, and you found it on the paper?
A. And outside.
Q. And outside. That's the prills I'm referring to. The

prills were in that little vial. Right? Now, did you see any on the lawn?
A. I don't recall seeing any on the lawn.
Q. Where did you find those prills?
A. They were on the steps of the porch and on the porch area of the front exterior of the house.
Q. Okay. And you tested those and found they were ammonium nitrate; correct?
A. Yes.
Q. Now, had you, before you went there, discussed with the FBI what Mr. Nichols had said about him spreading ammonium nitrate on his front yard?
A. No.
Q. So the finding of the prills was not something that you had anticipated based on your briefing; is that correct?
A. Yes.
Q. Now, when you -- by the way, when you tested -- did these tests -- you said there came a time when you used -- you compared ammonium nitrate against a known sample; correct? That is, you compared what you thought -- what you got off Q507 with a known sample; right?
A. That would have been part of the examination process.
Q. Which part of the examination process was that?
A. It would have started back up when I was doing the ion chromatography. There would have been solutions prepared using

known ammonium nitrate.
Q. And at what -- let's put this back up here, Government's 1744, for demonstrative purposes, if I may, and zoom out. You said that you started using it when you started doing ion chromatography. Correct? Down here?
A. Yes.
Q. That test. Let's see if I can make it focus.
I can't. We'll go in a ways.
There. Ion chromatography. Need a little more.
So you had in your laboratory at that time, then, some ammonium nitrate you had acquired from elsewhere. Is that right?
A. Yes.
Q. And how did you know it was ammonium nitrate? From the package?
A. It had been labeled as such and previous testing on that particular item.
Q. And that's what you used to establish your baseline for your tests; correct?
A. It's not so much a baseline. It's used as a standard.
Q. Now, when you -- you said you removed some crystals to look at. Correct? How many crystals do you think there were on the surface of this 664?
A. Crystals of ammonium nitrate?
Q. Yes.

A. I'm not sure.
Q. Well, do you have an estimate? I mean, are we talking hundreds, dozens, what?
A. I really can't give -- there were quite a few crystals on there. Giving an exact number -- I couldn't give you an exact number.
Q. Can you tell me about how much weight of crystals there would be? Did you attempt to estimate that?
A. No.
Q. Now, is it your conclusion, sir, that the crystals were blasted onto this surface of Government's Exhibit 664?
A. There was -- it's my opinion that some sort of force applied the crystals -- some of the crystals that are on that surface.
Q. Okay. Now, is there any other piece of witness material from inside the Murrah Building, outside the Murrah Building, in the parking lot, anywhere within a radius of that blast site in which crystals of ammonium nitrate were found?
A. No.
Q. Is there any other thing from that area in which any ammonium nitrate in any form was found?
A. No.
MR. TIGAR: Your Honor, if we could take the luncheon recess now, I could look at my notes and be done very quickly. I just want to make sure I didn't miss anything, but --
THE COURT: All right.
MR. TIGAR: If I may, your Honor. Thank you.

MR. TIGAR: If I may, your Honor. Thank you.
THE COURT: Yes.
MR. TIGAR: I'm almost done, Agent Burmeister and your
Honor.
THE COURT: You may step down, Agent Burmeister.
We will take our noon recess at this time, members of the jury, for the usual 90-minute period with the usual cautions and instructions to avoid discussion of any of the witnesses or any of the evidence or any of the conduct of the Judge during this time, staying away from the contents of the case till the case is given to you for decision. And keep open minds and stay away from anything outside the evidence.
You're excused now, 1:30.
(Jury out at 11:59 a.m.)
THE COURT: All right. 1:30.
(Recess at 12:00 p.m.)

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PLAINTIFF'S EXHIBITS

Exhibit	Offered	Received	Refused	Reserved	Withdrawn
1744	11461	11462			
2119	11569	11569			

DEFENDANT'S EXHIBITS

Exhibit	Offered	Received	Refused	Reserved	Withdrawn
E132, page 1	11503				
E132, pp. 1-4	11505				
E132					

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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 1st day of December, 1997.

_____

Paul Zuckerman

_____

Kara Spitler