(In open court in the presence of the jury.)

CROSS-EXAMINATION

BY MR. GRIMES:

Q Dr. Beyler, I wanted to -- is this thing on? I wanted to confirm a few things that you'd said earlier. You knew as early as 1999 that gas cans could blow up; is that what you said?

A Yes.

Q Or the industry?

A You could get flammable hits, yeah, flammable cans, yes.

Q That could cause a rupture?

A Yes.

Q And I know there's some disagreement about what explosion is but can we agree that an event that causes a can to rupture is an explosion?

A Right. We're talking about burning inside the container causing rupture.

Q And the knowledge of the industry in 1999 was that a can could rupture if three things were present, cold temperatures?

A Correct.

Q A small amount of gas?

A Teaspoons, yes.

Q A couple teaspoons?

A Yes, that's what I was saying.

Q And was that just based off one test?

A Certainly not.
Q And gas that had been aged or evaporated?
A Right. That was phenomenal logically, no.
THE COURT: Can you all hear Dr. Beyler?
MR. GRIMES: I can't hear him very well.
THE COURT: If you can just scoot up and then pull your mike toward you.
THE WITNESS: I will scoot.
THE COURT: Okay. Can you hear him now?
THE WITNESS: S1, 2, 3.
MR. GRIMES: Q. You also discussed the NFPA 921, the scientific method and you talked about data collection and how that's important, right?
A Yes.
Q You mentioned the fire scene, you're talking the first responders talking to eyewitnesses, all those are important?
A They are sources of data, yes.
Q To form your hypotheses, did you visit the scene?
A Did not.
Q And did you talk to any of the first responders?
A I did not talk to them.
Q Did you review any of their testimony?
A Yes.
Q You've been in this -- you've watched most of this trial, haven't you?

A Most of it, yes.
Q Did you see Corporal Dustin Chesire testify that he was told that there was an explosion that had taken place?
MR. BECK: Object to the State's testimony, Your Honor.
THE COURT: Overruled. Your memory controls you.
THE WITNESS: That he reported that Mr. Calder said that.
MR. GRIMES: Q. Did you take that into account in forming your hypothesis?
A Certainly.
Q And the eyewitnesses, which were David Calder, and the two boys; is that right?
A That's correct.
Q Now, Mr. Beck -- or what you told him, you talked about how you -- you gather the information, you collect the data, form an hypothesis, and you evaluate the data. And that is largely a cognitive process for you, isn't it?
A It -- it was test the hypotheses, not test the data.
Q Okay.
A But the scientific method is the method employed absent your one misstatement.
Q Okay. So then I don't want to put words in your mouth. So you were testing the hypotheses.
A That's part of the process, that's what the matrix is

about.
Q And that's largely a cognitive process.
A It is largely that, 921 allows for experimentation, but it is largely a cognitive process.
Q So 921 does allow you to run your own test, right?
A It does.
Q Like you saw in Miss Hasselbring's test, the Michigan Test 10?
A Dr. Hasselbring's test, yes.
Q And Dr. Stevick testified that he'd done, I think, up to 120 tests?
A Something like that.
Q But you didn't do any tests?
A That's correct. I did no tests in the context of this litigation.
Q And what you mean by the cognitive process as far as evaluating these hypotheses, does that mean you just worked this stuff out in your head?
A I guess -- evaluated the -- the hypothesis against what we know about the incident, the case facts, and what I know about fire science and what's possible and what's not.
Q And, again, not trying to put words in your mouth, but you took your experience and knowledge of the industry and just you saw this hypothesis and applied the facts and decided, yes or no this would or wouldn't work in this case, all the mental

process, correct?
A I think I described that process to the jury and you've summarized it.
Q Has that -- you also mentioned something about when you are forming a hypothesis you always have to be factually sufficient; did I say that right?
A I'm not -- I mean, the hypotheses arise out of case facts. I did say that, and there's no sufficiency as in you need X many pieces of data to get it in, it's the -- if a piece of data suggests the hypothesis, then it's a hypothesis.
Q And you should have some sort of sufficient factual basis to reach conclusions about the four hypotheses you tested, right?
A Well, the case facts are things that we know from the investigation and -- and that's right.
Q Would you describe your methods as pretty sound?
A I think the 921 process is quite sound, yes.
Q Has the court ever found your methods to be unsound?
A A court has found that an analysis that I did had not shown causation.
Q Are we talking about Wal-Mart versus Merrill?
A We are.
Q Issued by the Texas Supreme Court? And tell me if I'm correct, they found you qualified in fire research but said your testimony lacked objective evidence; is that right?

A They did say that.
Q And they also said that your testimony was legally insufficient to support causation?
A That was their conclusion.
Q In the Wal-Mart versus Merrill case, did you take the same scientific approach, and I'm talking about your evidence collection in forming the hypothesis and testing, did you use the same approach that you did in this case?
A Yes. It was a 921 fire-cause investigation methodology. I wrote a report, was never deposed, there was never a hearing. I found out three years after I'd written the report that the Texas Supreme Court had found it insufficient to show causation. Quite a surprise to me.
Q Can you pull up -- I think you have it for test one, can you do that? The testimony of the first day.

Dr. Beyler, I want to ask you about candling, and we're going to pull up this first test here. Now, to be clear, you said that as -- as far as for purposes in your category B, that was candling, and also subsequent movement after there was a candle flame on the tip of the spout, right?
A Right. To dispense the droplets that would be ignited by the candle.
Q So if you just have a candle flame that stabilizes on the spout, there's not going to be stuff shooting out of it until you start waving it around; is that right?

A That's right. It's a very passive -- looks like a candle and it's as passive as a candle.
Q And it's different than jet, as you heard Dr. Stevick describe, right, where vapor is actually expelled from the can?
A Yes, no one would call candling jetting, right.
Q And it's a stable flame on the spout?
A Yes.
Q Okay. And candling. And can we go ahead and --
MR. GRIMES: If you'll run this test again, please. Well, the clip, not the test.
(Played video.)
MR. GRIMES: Q. Now, as he's pouring, you'd agree with me he's making quite an effort to throw gas all over the ground, isn't he?
A He is splashing, right.
Q He lights his candle, agitates the container a little bit. Do you know why he's letting it sit for a minute?
A I don't know.
Q Is that just to let it stabilize on the spout?
A It would do that.
Q Or perhaps to demonstrate that there's not going to be any kind of incident in the container once it's lit?
A It does demonstrate that.
Q So he's shaking it up again, and spends quite some time doing that. Now, you'd agree here that he's also going to

great effort to make sure every bit of gasoline is out of that container. Somewhat violent motion pouring that out; is that right?

A There's a vigorous motion.

Q He's really --

A Can't say to what extent he was successful in getting gasoline out. We don't know the quantity left at the end but he's now been successful.

Q Hold it right there, please.

(Stop video.)

MR. GRIMES: Q. Okay. So he's lit the candle or the candle flame on the tip of the spout -- and let's back up. First he poured out, he's got the floor covered with gas, right? Isn't that the first thing he did?

A The first thing he had some droplets onto the ground, yes.

Q And then he goes back and lights the spout or gets the flame stabilized on the spout, shakes it up a little bit and then starts trying to splash the gas all over the floor.

A That's what I've seen, yes.

Q And you'd agree that's candling plus movement?

A It is one way of doing that, yes.

Q And that was one of your hypotheses about how this fire could have happened in the trailer.

A Yes. That the flame propagated back to the nozzle, formulated the candle flame, and then due to a movement of that

can, the droplets were released which were flaming because of the candle.

Q Now, I know we paused this at a low point here, but that's not a menacing fire, is it?

MR. BECK: Object to the form.

THE COURT: All right. Well, ask your question again.

MR. ANDERSON: Q. I just asked: That's not a real menacing fire, is it? Well, I can ask a different question.

Is this a big inferno? We can argue about semantics, is this a large inferno?

A No.

Q No. Some kind of a little passive fire?

A Well, we're looking at, you know, a line fire with heights of four or six inches maybe.

Q But nothing with -- first of all, getting the floor all primed with gasoline, lighting the candle, doing our best to shake gas all over it, that's not terribly dramatic, is it?

A It is what we see, right.

Q All right. Well, what's your impression what we see? Is that a big dramatic fire?

A It's a fire sufficient to ignite the pants leg of an individual nearby.

Q Okay. I want to talk, also, about the candling -- or, actually, let's talk about the gas spill. You talked about

spilling gas on the floor. I don't suppose you saw anything in your scene investigation that's going to corroborate that theory, or, I'm sorry, be consistent with your hypothesis?
A Would you repeat the question?
Q There was nothing from the scene investigation that would either confirm or not confirm the hypothesis of splashing gas on the floor, is there?
A No. Given the high level of damage at this fire scene, there was very little to be learned from the scene examination. It was done by the investigators.
Q So we move on to the first responders at the scene. Did any of those have any clues for you as far as confirming a gas spill as the cause of the fire?
A No, I think that would come from the direct eyewitnesses.
Q Okay. So who told you that gas was spilled on the floor? David Calder didn't.
A No, I don't think anyone actually said that floor -- excuse me, gasoline was spilled on the floor. It was observed by Bradon and by Jeremiah was the first place they saw fire was on the floor in front of the stove consistent with spillage.
Q So you went ahead and leapt to the conclusion that because the first place they noticed fire on the floor, then gas must have spilled on the floor; is that how you arrived at that conclusion?
A Yes. The -- the conclusion was that if there was fire on

the floor in front of the stove, immediately after ignition of the gasoline, that was indicative of gasoline burning on the floor.

Q And you heard Mardirosian testify that we have to have A to B, B to A. We want to see gasoline get onto the floor somehow but we also want to see it go from the floor to the origin. So how -- who talked to you that satisfied you that gas was spilled on the floor, when David didn't see it, Bradon didn't see it and Jeremiah didn't see it?

A I think I've already answered the question. The reason that I deduced that there was burning gasoline on the floor, was the observation of burning on the floor that you can't get simply based on carpet or linoleum or anything like that. That it is consistent with gasoline and not consistent with other ordinary fuels that are present at the time.

Q Dr. Beyler, I have to ask, is that the sort of conclusion that the Texas court commented on in the Wal-Mart case?

A It is not.

Q Where you skipped some steps and went straight to a conclusion when there was no eyewitness testimony, no scene investigation, and no first responder testimony that supported your claim?

A The answer's no.

Q It's not?

A No.

Q All right. Let's discuss, also -- we're still on candling.

MR. GRIMES: If you would queue up, Chris, the YouTube video, just the start of it, and go -- if you can go frame by frame to the pour.

Q Now, in forming your opinions --

MR. GRIMES: Okay. Just hold it right there before doing anything.

Q In forming your opinions for this case, you relied on the tests of Lori Hasselbring and Glenn Stevick; is that right?

A I thought they were illustrative of the phenomenon.

Q As far as -- and I just mean -- I'm not trying to have you agree with the conclusion but just you relied on their tests.

A Yes. I think they show what could be expected and they were useful in that regard.

Q And I have to ask, Mr. Beck asked you earlier if you were paid for your testimony. He asked you, didn't he?

A Yes.

Q That's not a trap.

A I didn't recognize it as a question for a moment.

Q You wrote a report, right?

A If that was a question, yes.

Q And you wrote a subsequent report, didn't you?

A I wrote a supplemental report in this matter.

Q You gave a deposition.

A I did.
Q And you've been here for two weeks watching the trial.
A True.
Q And now you're testifying.
A True.
Q Okay. Do you have any idea what Blitz has paid you or what you've billed Blitz to this point?
A I don't know.
Q Do you have a ballpark estimate?
A Tens of thousands of dollars, certainly.
Q Okay. And the only thing you provided is a YouTube video as far as an experimental -- any kind of demonstration or demonstratives; is that right?
A I didn't know my job was to provide demonstratives. I thought it was to do fire analysis.
Q Well, okay. Let's do some fire analysis. This is the video that you provided to illustrate some point, right?
A Yes. I thought this illustrated candling, yes.
Q And this is -- I'll represent to you -- how do you find this? Do you search on YouTube?
A That's how it was found, yes.
Q Okay. And this is titled, "Idiot Plus Gas Plus Fire Equals Very Interesting" and then that little smiley face emoticon.
A I have no idea.

Q Okay. And it's from user 19 neck 88. Does that part sound familiar?
A I have no idea.
Q Okay. So if you will go -- we're not sure what kind of fuel is in this can, are we?
A That's correct.
Q And this picture's kind of hard to see but there's a little fuel down here, isn't there?
A Excuse me?
Q There's a little bit of fuel down here, isn't there?
A I couldn't say.
Q Okay. Just looking at the small picture, I don't know if we even have it, it looks like Old Weller. Do you have the --
THE COURT: It looked like what, Mr. Grimes?
MR. GRIMES: What's that?
THE COURT: It looked like what?
MR. GRIMES: It looked like Old Weller, it's a whiskey. I've heard of it. But it looks like -- it looks like a liter of Old Weller burn.
A You have that expertise, I don't.
Q It looks like -- thank you. That part's almost gone and there's some Coke which is mostly there. And I do have expertise because the video for Mr. Neck starts with some Old Weller, and seems to be just an attempt to see what happens when you throw gas all over the fire.

MR. GRIMES: So if you'll start going. Start the video, Chris, to -- go frame by frame when it starts to pour.

I apologize. It's difficult to see in the light.

THE COURT: Do you want -- would dimming the lights help, Counsel?

MR. GRIMES: I think so, Your Honor. Now, from here, if you'll pause and go frame by frame.

Q Do we know how much gasoline or whatever kind of accelerant is in this container?

A We don't.

Q And can we agree we know it's gasoline. It could be alcohol, methanol, nitromethane, kerosene, all of those would have that effect, wouldn't they?

A I'm not sure if all of those would.

Q Okay. Well, hold up a second. Pause it.

You're not sure if alcohol would have that effect or methanol?

A I'm sorry, you said methanol or alcohol?

Q Alcohol, methanol, nitromethane.

A So when you say "alcohol" you mean ethanol?

Q I mean any of those.

A Oh, any alcohol. Some alcohols would act like gasoline, some would not.

Q Okay. Kerosene?

A Kerosene would be capable of -- would not be capable of

candling.
Q Okay. Did you ever come to an opinion about how much liquid was in this container?
A Other than -- no.
Q Okay. If you'll move forward. And stop right there.
Now, we seem to get a little bit of activity when -- when not even turned all the way up. Would you agree that it's roughly half full, the container, just based on the -- as you call it, the attitude of the nozzle?
A I'm not sure it would be half full but partially full.
Q It had a lot more liquid in it, the container than Mr. Calder had, didn't it?
A I'm not sure I could say that.
Q Okay. That's enough of the video. You can get the lights.
What I wanted to ask you, I objected earlier, you said Bradon had mentioned he was in the trailer for three to five minutes. I just wanted to see if you -- well, you listened to the testimony because you were here.
A Yes.
Q And he said he hid behind the futon for three to five minutes.
A Yes.
Q And then I asked him how long from the time the fire started to the time he hid behind the futon and he said that

was another three minutes.
A You could come to that understanding, yes.
Q Well, that's just what Bradon said.
A No, it could, indeed, be more than three to five minutes is what I'm agreeing with.
Q Okay. So -- and this is just his testimony. He spent three minutes while the fire was going, three minutes before he hid behind the futon, and then he hid for another three to five minutes?
A I'm sorry, did you have three threes.
Q No, two threes.
A Okay. Two threes. Okay.
Q This is the futon, three minutes, then he went to hide another three to five minutes, then he exited the trailer. So six to eight minutes before he left the trailer.
A If you understood the testimony in that fashion, it could be as long as that, yes.
Q Math is not my thing but I was just adding three and three, and that is my understanding of it. So my question to you, you've probably dealt with child witnesses before, haven't you?
A Yes.
Q Is six to eight minutes really a reasonable amount of time to be able to evaluate your hypothesis?
A You should reask the question.

Q Okay. Do you think that when a six year old estimates that something took six to eight minutes to happen, that that really means six to eight minutes if we're timing it with a watch?

MR. BECK: Object to the question, Your Honor. He's not an expert in --

THE COURT: Overruled.

THE WITNESS: When I read that testimony and you asked the questions, I came to the conclusion that it was three to five minutes. I didn't understand his -- I don't think he understood your final question but be that as it may, my estimate, as I indicated previously, was three to five minutes.

Now, other people can reasonably say that it was longer than that. Is that a reasonable thing for me to use as a basis for evaluating hypothesis? Yes.

MR. GRIMES: Q. Okay. And what I'm asking is -- do you have any children yourself?

A Two.

Q Okay. And are they younger or older?

A They're college students now.

Q Okay. So when they were six, and one of them said something took six to eight minutes, by God was that six to eight minutes or do they not get a good concept of time when they're that young in trying to remember a traumatic event?

A We all have some difficulty with time under these

circumstances.
Q And all I'm asking you is when you issued these opinions and you testify in court to a reasonable degree of scientific certainty, are you taking a six year old's opinion that he was in a trailer that was on fire for six to eight minutes, you give that the same weight as you give the only adult eyewitness that's in the room?
A I did give Bradon's observations definite weight. What I was juxtaposing Bradon's observations or reporting of time is that for the three hypotheses that I found possible, that was a plausible time, it's consistent with the kinds of fire growth you'd expect from streaming droplets alone, as juxtaposed with the gas can rupture that we saw which would make the trailer untenable, you couldn't be in it after a minute, he doesn't have to be precise to be useful in that instance.
Q Okay. But you'd agree that there's a big difference in a minute or two and six to eight minutes, isn't there?
A I think that is my point, yes.
Q Okay.
A It isn't that far apart so he doesn't have to be that accurate.
Q Thank you. You also testified that you based your opinion that there wasn't a rupture because the coat wasn't that damaged; is that right?
A That was one of many items.

Q Actually, let's start with you said his pants weren't that damaged or he didn't suffer extensive-enough burn damages.
A What I said was that the burn -- the damage to the pants, that's what we were talking about at the time, is on the leg alone. And that that was not enough burn damage to the pants if he had been involved with the gas-can-rupture scenario but that it is consistent with a small-flame ignition on his pants subsequently spreading up his leg to the point where he noticed it and then running out of the trailer and stop, drop, and roll and as he described to you, took some time for that to be effective but ultimately was effective.
Q I guess what I'm asking -- so when you said the damage wasn't extensive, you were talking about his pants, not his legs?
A Well, I mean, the leg injuries are broadly consistent with the consumption of the pants. Could be indicative of, you know, the burning of pants being an important part of that burn injury.
Q You were in court when he showed the jurors what his legs looked like, weren't you?
A They were injured over the full length of his legs.
Q And that's not extensive?
A It's not -- it's very extensive. Don't get -- this is not a commentary at all --
Q I'm asking.

A -- on anybody's injuries in terms of the importance of those injuries. They're important injuries --
Q Right.
A -- the question is is whether they're consistent with a particular way of getting those injuries and -- and they are not consistent with the can-rupture scenario.
Q I'm walking up to you with the --
A The magic black bag.
Q Yes. Exhibit 205, I can't show them yet.
A It appears to be the red coat that we talked about earlier.
Q Okay. And you have seen this coat?
A I have.
Q And photographed this coat.
A I have.
Q And an hour ago testified that this coat did not show significant damage.
A As would be expected in a can-rupture scenario.
Q Okay. And that was looking at the back of the coat, right?
A The view we had was the back of the coat.
Q Okay. You took the pictures, didn't you?
A Yeah. That's how I know it's the coat.
Q Okay. And you said this coat didn't show extensive damage.

A That this -- in this particular -- it was describing the photograph and you can see some damage on the left, some damage on the base. And that's what was shown in the photographs that we -- that's what we talked about.
Q What about the front?
A It has a -- you got to do a better job of holding it than that. It has a line.
Q I'm not a professional coat rack but I'll do my best.
A I thought lawyers needed to know that. So I can't really see it myself. You could see that there's a line of damage on his right, my left. And -- and, again, you can see more damage that's associated with the base of the coat.
MR. ANDERSON: Mr. Grimes, people over there couldn't see it.
THE WITNESS: Yeah. Do better for them.
MR. GRIMES: Q. Is that significant damage?
A Significant with regard to the scenarios, is what you would expect to see if --
THE COURT: Mr. Grimes, is this in evidence?
MR. GRIMES: It is 205. We'd like to put it in evidence, Your Honor.
THE COURT: Objection?
MR. BECK: Hang on. I apologize, Your Honor. Let me look at the exhibit number.
MR. GRIMES: 205.

THE COURT: 205 what?
MR. GRIMES: I said 205L.
THE COURT: Is there objection to 205L?
MR. BECK: Listed on my list as a protective seal gas can.
THE CLERK: I have it as 205D.
THE COURT: 205D. Look at 205D. Is there any objection to the admission of this coat?
MR. BECK: No, Your Honor.
THE COURT: 205D, the coat, is received.
(Plaintiff's Exhibit No. 205D was received into evidence.)
THE WITNESS: So the question we were answering was whether this was significant damage. And the question is significant damage with regard to which ignition mechanism. It is the kind of damage you would expect from flames spreading up the legs as would have occurred with individual droplets or small-flame ignition at the floor.
It is not the kind of damage that you would expect from the gas can rupture and spewing gasoline out as would have occurred and as was shown in Dr. Hasselbring's video, for instance.
MR. GRIMES: Q. Thank you.
I want to grab the easel, Your Honor. I'm going to use this.
I'm going to talk about your chart. Now, as you

testified earlier you made this chart as an aid to show the four different hypotheses you tested concerning the cause and origin of the fire, right?

A Actually, it's the cause of the spread of the fire from the stove to the remainder of the trailer.

Q Even better.

A Glad to hear that.

Q Do you know this well enough where I can have it face the jury?

A I have a -- well, I did have a copy. I have a copy.

Q I wanted to talk about some of the points on here because you stated that -- it's kind of tipped over, I'm sorry. But you stated that you have a red square on that's going to exclude the hypothesis, right?

A Well, yeah, that means it isn't consistent with all the case facts.

Q I wanted to talk about some of the different -- you didn't like the rupture very, very much, did you?

A It's not whether I liked it, it's whether it was comported with the case facts.

Q You gave it a few red squares. So let's talk about the first -- about No. 1 and No. 1 here, it was neutral for everybody and you reported the item on there as that the temperature was between 29 and 35 degrees, right?

A That's what No. 1 is, yes.

Q And you didn't test to see -- well, this is important because the temperature of gas can be a factor in rupturing in a container, can't it?
A That's why it's a piece of data.
Q As you said earlier. You didn't do any test on this one, on temperature between 29 and 35 degrees, did you?
A No. We knew that gasoline can't be ignited at 29 to 35 degrees in a container.
Q Did you watch any of Stevick's tests?
A Yes.
Q And did you hear him testify that he had about 120 tests and the range of temperature in his test was between 22 and 70 degrees?
A I don't recall the numbers but --
Q You don't -- and that's in the record. And that he was --
A You tell me.
Q And that he was able -- well, you were here, weren't you?
A Yeah. We didn't talk about all of his tests, of course.
Q But he was able to rupture containers all along that range.
A With aged gasoline, yes.
Q So if you saw a test where a can was ruptured and its temperature was between 29 and 35 degrees --
THE REPORTER: Could you repeat your question? I'm sorry.

MR. GRIMES: I don't even know so I'll ask a new one.
Q You'd agree that if Stevick ruptured -- Dr. Stevick ruptured a can where the temperature of the gas was between 29 and 35 degrees, that would be consistent with B, plaintiff's theory, that the container ruptured.
A We don't know that it's consistent with that because in his instances he had aging and in our instance we don't know the extent of aging. We could have gasoline at those temperatures that could not support a flammable headspace and we could have containers that don't. And since it doesn't cut one way or the other, it's white.
Q But what we're doing here is just isolating these independent facts, just on temperature. We're not talking about aging, we're not talking about volume. You selected the data point to test or to evaluate, just based on the temperature.
A That isn't how I used the methodology. While there are individual pieces of data to be acknowledged and evaluated, to do that in ignorance of everything else that's going on is not going to give you the answers that are correct.
Q Well, we will certainly talk about that, too, but you're saying you don't remember Stevick talking about a test where he ignited a container where the temperature was between 29 and 35 degrees?
A I think I testified that I do know that there are

conditions at those temperatures that may or may not allow it so it's white.

Q So if that's true --

A Then it's white.

Q -- then it's green --

A You note that I did not agree with that green.

Q I -- probably get it on the record that you'll disagree with everything that I say but can we proceed?

A Sure.

Q Number 2, you mentioned that -- this is what you used to support your vapor-explosion theory, and that's where -- is that right?

A I used this method to evaluate the vapor-cloud-explosion theory like all the others.

Q This is one of the data points that you pointed out to Mr. Beck and to the jury that it was an important data point, wasn't it?

A I'm sorry. What's the important data point?

Q Excuse me?

A What is the important data that you're referring to?

Q That you gave a green --

A Oh, No. 2.

Q Number 2. We're on No. 2. You used this for the proposition that it was consistent with your hypothesis that a vapor-cloud explosion occurred.

A Yes. That can flame into something that favors that condition.
Q And the confinement to have a vapor-cloud explosion has to be this, like you said, a closed-in area.
A Well, it's not the only way but it favors it.
Q Are there other ways to have a vapor-cloud explosion?
A Yeah. You can have vapor-cloud explosions with no confinement.
Q But you said there's confinement in this case.
A Yes. And I found that be generally consistent with the conditions required to have a vapor-cloud explosion.
Q And you noted that there was confinement because the left door of the stove was partially closed.
A Yes. And the stove has a floor and a ceiling and a back and a left and a right, yes.
Q Yes, it has all of those things.
A It does.
Q But that left door that was partially closed so to you that demonstrated some confinement.
A It does. I mean, in terms of explosions in enclosures, you know, this is clearly an enclosure and would have confinement effects if both doors were open. The fact that one was open, the other was partially open, all the more so.
Q Those are large doors, aren't they?
A They are in excess of a square foot.

Q But in relation to the rest of the stove, if both of those doors are closed, they're going to close off the whole -- they take up the whole front area, don't they?
A Well, most of it. I mean, obviously, there's the frame area around it but the two doors are most of the front face.
Q And you see looking at the left door that it looks like it's a couple of inches away from the stove, isn't it?
A As you could see even on the right-hand side, the hinge is not directly at the opening, it stands back a couple inches.
Q So even if it's partially closed, there's still air on the other side going out of the hinge, isn't there?
A Yeah, there's a little slit at that hinge.
Q I'm sorry. It was just closed 45 degrees?
A That's what Mr. Calder told us the other day.
Q And that's what you took because you consider eyewitness testimony so you consider that it was closed at 45 degrees or open at 45 degrees, however you look at it, in establishing this hypothesis, didn't you?
A No. The hypothesis was developed before we had the 45-degree number. That only arose in court. He did say that it was partially open or partially closed, I can't remember which, and that the right-hand one was fully open.
Q But the right-hand door was, as you said, fully open.
A It is.
Q There was no confinement there, was there?

A Confinement is a term of art that relates to the total enclosure. It's not like this part of the enclosure has confinement and this part doesn't. It's a term of art that's used to characterize an enclosure.
Q You saw -- we saw Mr. Calder demonstrate splashed a little gas on there, [indicating], and that little bit of gas in that large area with the left door partially open with air getting out on the side of the hinge and the right door completely open, that wasn't a confined space, was it, Dr. Beyler?
A It is confined.
Q It is?
A Yes.
Q Okay. Moving on. Number 3 -- and I'm sorry we have to spend some time on this, but there's a lot of red squares we have to discuss. You said the gas can was filled in the last month or two, would you agree with that?
A That's what Mr. Calder reported, yes.
Q And Dr. -- well, that's an important fact because the more evaporated gasoline is, the more apt it is to enter that explosive range inside of the container, right?
A That's what aging is, is evaporation of the gasoline.
Q And you heard Dr. Stevick testify that he had done some tests and within six to eight weeks the gasoline was sufficiently aged due to pumping; is that right?
A I couldn't say.

Q Excuse me?
A I couldn't say.
Q I didn't -- you couldn't say?
A Yeah. I -- and he asserted that, I don't know what test he was talking about, what conditions the tests were, I really don't know what he was talking about but that's what he asserted.
Q But you didn't test this, did you?
A No. The data that you need to evaluate aging is not present in this case. We only learned --
Q Go ahead.
A -- late in the game that the can might not have been closed and at the same time we still don't really know when it was put in, how much was put in, how it was used. You know, what weather conditions it was in, these are all things that are necessary to understand the extent of aging, which, in this case, we, unfortunately, aren't able to understand the extent of the aging because the facts are not sufficient to support the determination.
Q You have access to weather data for that area, don't you?
A Yes. Was it there the whole time?
Q So you could have determined that.
A Could not have determined it.
Q This is under your category for Mr. Calder's testimony. So what you've told us is you're going off Mr. Calder's

testimony but you're making all these other assumptions about it. And I'm just asking if that's what's gotten you in trouble before when you're offering, like the Texas court said, an insufficient basis to testify about this stuff.

A I haven't made the any further assumptions. I used the information that was provided.

Q Well, you'd agree that if that gas was aged for a month or two, I think you've seen enough ruptures that was shown this week that you'd agree with me that that's consistent with the rupture theory, isn't it?

A I don't know that it is one way or the other so it's white.

Q You don't know if aged gas is consistent with the rupture theory? The first thing I asked you was that you've known this stuff since 1999. So is it no longer relevant?

A No. It simply -- we understand that aging occurs. We have no basis to determine the extent of aging under the case facts as we know them so because that analysis can't reasonably be done, we can't get a reliable answer. When you can't get a reliable answer, you can't use it as a means for -- in evaluating a hypothesis.

So if you can't make a good fire science calculation of the amount of aging that went on, then you shouldn't say it's inconsistent or consistent with what we know about fire science. It should simply be white.

Q So using your example, the fact that David and Bradon and Jeremiah didn't say any gas spilled, it was appropriate in that time for you to jump to the conclusion that gas must have spilled?
A We know that gasoline got onto the ground. If you have some other term of art for that other than spillage --
Q How do you know gasoline got onto the ground?
A It was seen burning -- it was burning on the floor. Based on our knowledge of fire science there is no other material proximate to this stove that is capable of the behavior that was seen based on my knowledge of fire science.
Q My question to you is when do you decide that testimony is good and when do you decide when you're going to ignore testimony?
A I don't make that judgment. I deal with it both ways. If I'm not sure, I will evaluate it both ways and, ultimately, it's the jury's job to decide what they believe and what they don't believe.
Q Okay. Number 4, you talked about he applied gasoline to wood with splashes and with his right hand and arm swinging. Did -- was he swinging the gas can in the courtroom?
A No. This is a case where we have disputed facts because he's given different information at different times.
Q Excuse me, Doctor, but what other times were you present where you've seen some kind of different information he's

given?
A I read that in his deposition.
Q You read he was swinging?
A I read where it was described as this motion and he agreed to that.
Q Did you read where he described that he was swinging his arm?
A I couldn't say out of whose mouth that came as I sit here.
Q Would you agree with me that as Her Honor instructed the jury what I say and what the attorneys say is not testimony or evidence but only what the witnesses say, you'd agree with that, wouldn't you?
A Yes.
Q And you didn't hear him say that he was swinging his arm?
A I didn't hear anything in his deposition, I read it.
Q So here you picked out another fact --
A Number 4.
Q -- with your hypothesis a little bit better.

I want to move on to No. 5. The gas can was said to have very little contents at the time it was used, and that is not consistent with the rupture?
A It wasn't determined if whether it would or would not have happened.
Q Is a small volume of gas consistent with a rupture --

Well, let's go ahead and queue one up. It's about,

ignition.

You want me to do something on this? Number 1?

MR. ANDERSON: It should be there.

MR. GRIMES: A small amount of gas in there.

THE COURT: Should I dim the lights again, Counsel?

MR. GRIMES: Please do, Your Honor. Go ahead.

MR. BROWN: Frame by frame?

MR. GRIMES: Q. This is the slow motion. Can we at least agree that this can has exploded?

A Yes.

Q Okay. And there's just a little bit of gas in there. So all I'm asking you to do --

A How much gas is in there?

MR. GRIMES: How much? How much?

MR. BROWN: 500 milliliters.

MR. GRIMES: Q. 500 milliliters.

A Two cups.

Q More than two cups. And after seeing the video, would you agree that that's consistent with the rupture?

A Doesn't tell me one way or the other -- the amount doesn't tell me one way or the other whether it happens, that's why it's white.

Q Did you just see a clip where 500 milliliters of gasoline is in a can that blows up and takes up the whole frame? That's all I'm asking, just to make sure we're seeing the same thing.

A I don't know if we're seeing the same thing because I don't know how much aging is done in this test. You have made representations on that front. Obviously, it was a flammable headspace so it's either way way cold, colder than you could do in California, or aged and if it's aged sufficiently, which Dr. Stevick is entirely capable of doing, then he can create conditions with that amount of liquid that would. I can also say that there are other conditions where you wouldn't. And so it's not determinative one way or the other.

Q So, really, the bottom line is you put a criteria up and you isolate a data point and you say, We're just going to evaluate this and see if it's consistent with the hypothesis or not, but when it doesn't go your way, you want to look into it a little bit more and say, Well, we don't know all this other stuff, like aging and all these other characteristics; is that what you're doing here?

A No.

Q Okay. Number 6, Mr. Calder saw the gasoline ignite at the ember and flame developed at the spout of the gasoline container. You said that's candling, right?

A Yes, if he was able to see a flame establish on the tip, then that had to have been a candling flame.

Q He said he saw the ember and the gas just connect. I don't believe he took this out and waved it around like a lantern in the other videos.

But go ahead and bring up spout ignition.

Did his testimony, when he was talking -- you saw that didn't you? Mr. Calder, you saw his testimony, didn't you?

A I was here for his testimony.

Q That's all I'm asking.

THE COURT: Don't fight with the witness, Mr. Grimes.

MR. GRIMES: Yes, Your Honor.

Q Did his description of saying that the gas connected with the ember, did that strike you as the kind of flame that we saw in the test one where it's just this stable flame on top of the spout?

A Could you repeat the question?

MR. GRIMES: Can you read it back to him?

THE COURT: No, why don't you ask it.

MR. GRIMES: Okay.

Q I'm asking about when Mr. Calder was testifying, and candling was one of your hypotheses, right?

A Yes. One of my hypotheses involves candling, yes.

Q And he said when he reached out that he saw the ember connect with the gas and just became one deal, right? What I'm asking, is that consistent with the video that you showed earlier demonstrating candling?

A In the demonstration of candling, which one?

Q The only one that you showed us.

A Well --
Q That your attorney showed us.
A No. We looked at two.
Q Well --
A One was by Dr. Hasselbring that showed candling and the second one was the --
Q The 19 Neck 88 on YouTube. I'm talking about --
A As you call it, yes. Which one are you talking about?
Q I'm talking about the first one where you just had this gentle flame stabilized on the spout.
A Sure. In that test the person brought the container over to the flame and without pouring, touched the edge of the -- of the nozzle to the flame to ignite the candle. It was not done in a splashing fashion, that is, you know, propelling gasoline out of the container to the flame. It was a different way of creating the candling but it was candling.

MR. GRIMES: I want to look at the pour test again.

MR. ANDERSON: Your Honor, would you mind turning the lights down, please? Thank you.

(Played video.)

MR. GRIMES: Q. And I apologize this is so dark. It's not as dark on the regular speed, is it? Let's play the regular speed so we can see it a little better.

(Played video.)

THE CLERK: They're replaying it.

THE COURT: They're replaying it.
MR. GRIMES: Q. Okay. We're going to start. Go ahead.
(Played video with sound.)
MR. GRIMES: Okay. Now, go back a few frames. Okay. Stop.
Q Is this a candling flame right here?
A I -- I don't think so.
Q Well, let's watch the next couple of frames. Does this look like candling?
A No.
Q Okay. But we saw on that one a tip on the end of the spout.
A In freeze frame you did; in reality you wouldn't. We're talking about eyewitness testimony. We're not talking about stop-frame experimentation.
Q So his actual testimony that he saw the gas connect from the ember and go into the can, that is consistent with the rupture, isn't it?
A No, his observation of the flame or the tip is consistent with candling as one would observe it in realtime and this is not candling and it's not consistent with that.
Q But his observation was that the fire -- the gas connected with the ember just to make one line of fire and then everything blew up.
A It is correct that he saw the flame go from the ember to

the nozzle tip.
Q That is correct. And you said a minute ago that you can't really see that this flame's going to be on the tip before it blows up.
A In realtime.
Q But you had talked earlier about, Well, he can't say it's a rupture because he didn't see the can rupture.
A He did report that he didn't see the can rupture.
Q Is anybody -- is anybody going to be able -- that you know of, can any human concede when that's happening, see the can actually split apart and rupture in realtime?
A Under the circumstances -- I didn't say that because he didn't see it, it didn't happen. I openly acknowledge that under the circumstances, it's unlikely that you would see it if it happened. We simply don't know one way or the other based on his observations because of the conditions.
Q I want to talk about on No. 11. You say there are -- your report spots the flame on Halie, her pants and her back and then patted them out. And you said that that's consistent with his -- with the candling plus moving around. Where did you get the him moving around?
A From his reaction to the event.
Q Which was what?
A To turn toward Halie and drop the can.
Q What were his exact words?

A I can't give you his exact words, sorry.
Q Does he not describe some kind of incident where it went up and he dropped the can similar to the jetting that Dr. Stevick described a few days ago?
A That's what he showed us in court.
Q What's what he showed us?
A The raising motion.
Q Okay. So what he showed us in court --
A He didn't turn towards Halie either but that's okay.
Q It's not what he showed us in court which is what's in the record is not consistent with your theory that candling and subsequent movement is what caught Halie on fire, is it?
A I'm sorry. You think that candling can't?
Q No. I'm saying what he showed and demonstrated in court is not consistent with turning towards Halie and dropping the can, is it?
A He indicated in his deposition that he did turn toward Halie and that it was an obvious reaction to the fire ball that was in front of him.
Q Number 12, you offered the opinion that after patting out flames on his daughter that he noticed his legs hurt and his pants were on fire.
A That was his testimony.
Q And as a parent, if your child is in danger are you concerned about yourself first?

MR. BECK: Objection, Your Honor.
THE COURT: Sustained.
MR. GRIMES: Q. A better question is: Are you even able to offer testimony about this or does this better come from a medical expert who's used to treating people that have been in trauma and shock or some kind of catastrophic event like this or are you qualified to offer the opinion that, well, because he was more concerned about his daughter and he didn't notice his legs on fire immediately that we have to rule out a rupture?
A I didn't rule out this on the basis of any form of concern or lack thereof. It's simply a matter of if you're experiencing this kind of heating, no matter how concerned you are with others, you will feel it, it will cause pain and injury and that is an engineering fact.
Q Is it a medical fact?
A It is a biomedical fact.
Q Oh, a medical fact. You hear of testimony where people have an adrenaline rush and they don't feel this stuff, the truth is nobody in your position can offer testimony --
THE COURT: Just a minute. Just a minute.
MR. BECK: Counsel is testifying.
THE COURT: Yes, sustained.
MR. GRIMES: Q. The question is: You don't know what the biological reactions are to this because you're here as a fire

science expert and not a medical expert; is that right?
A I understand how burns are created and what's involved in that. That is a part of fire protection engineering.
Q Number 14, Mr. Calder returned to the trailer, flames were coming out the door of the trailer, he felt the heat and saw the flames, recognizing he couldn't reenter to save Halie. Now, you said that was neutral as far as the rupture.
A That's right. Any of these -- and it doesn't speak whether a rupture hurt her or not, it was a sufficiently long period of time that any means of involving this trailer, any of these hypotheses would lead to that observation at that late time so it doesn't speak to yes or no on any of them.
Q Number 15, burns primarily to Mr. Calder's leg region, his pants were burned in the leg region. How does that rule out a rupture?
A And as I indicated previously, if you have a can rupture where you're dispensing a lot of gasoline, cups of gasoline, on and around the can or around the can, and that would necessarily ignite not a small part of his pants but -- but a large part of him generally, then it would continue to spread and grow from that point until he was able to stop, drop, and role.

The damage we see is consistent with local low, low elevation near the ground, the ignition of his pants, spreading up to the -- over the legs, over the time period before he was

able to stop, drop, and roll.
Q Does a can rupture in the same place every time?
A Well, one can ruptures once but if you look at a bunch of them, they're different.
Q If you look at a hundred cans are they going to rupture in the same place every time?
A I think I said they wouldn't.
Q And it's true that it's going to rupture, typically, along the weakest point, like a seem or some other area; is that right?
A That's almost a truism.
Q Isn't that just -- that's common sense, isn't it?
A I would call it that. It fails at the weakest point.
Q So if this -- if we have ten different cans that rupture, some might blow out in front of me, some might blow out to the side, some might blow directly back in my face, and some might blow down to the floor; is that right?
A The rupture could be at any number of places, tends to be places where there is curvature or seams.
Q So that doesn't rule out -- or not only does it not rule out, that's consistent with the can rupture that -- a can rupture that would have blown straight down.
A I disagree with you.
Q Number 15.
A We just did 15.

Q We did just do 15.

Just have to get full credit for that.

Sixteen. Moving on to Jeremiah's testimony.

Saw his father use a gas can at the stove and observed the fire on the ground from gasoline from the container. And you said that the flames observed were inconsistent with the volume of fuel in the can; isn't that right?

A Yes. As we saw the way it would be distributed would be vastly differently described than small, you know, flame in front of the stove.

Q But we just talked about it in the last question that it could rupture at different angles and if it's a small volume of gas, that's not going to be inconsistent with the rupture, is it?

A It is inconsistent with the rupture.

Q Let's talk about 17. You said that Jeremiah was driven from the trailer by smoke and not by fire. That's not consistent with the volume in a can rupture. You heard him right before you testified, didn't you?

A Yes. We heard that videotaped deposition this morning.

Q And when he was asked about that, about going to the back of trailer -- well, first of all, have you seen this before?

A Yes.

Q What is it?

A The floor plan of the trailer.
Q Do you know who created this floor plan?
A It's Jeremiah.
Q Did you see the part in the deposition where --
THE COURT: Are you offering this?
MR. GRIMES: Yes, we are, Your Honor.
THE COURT: And its number is what, Mr. Grimes?
MR. GRIMES: 712.
THE COURT: Objection, Counsel?
MR. BECK: No objection, Your Honor.
THE COURT: 712 received.
(Plaintiff's Exhibit No. 712 was received into evidence.)
MR. GRIMES: Q. Jeremiah drew that picture to describe the situation that night, didn't he?
A It describes, excuse me, the layout of the -- of the trailer and where people were.
Q And when Jeremiah described where he was, this is not helpful to you at all, but you can tell me, Dr. Beyler, this one says, Me.
Then we lost our element. But --
A Whoop.
Q This little guy right here, it says, Me. Is that Jeremiah standing outside the trailer?
A It looks to him being at the steps, yeah.
Q And did he testify later that he couldn't get his whole

body in, he put his head in and just his hands in to rummage around?
A This was at the backdoor. That wasn't at the front door. That's not where he was at this time.
Q But when you say that he was not -- that he was driven from the trailer by the smoke, that's not quite accurate, is it?
A I'm sorry? That's --
Q You said that Jeremiah was driven from the trailer by the smoke, that's not quite accurate, is it?
A It is. It is exactly what he said. It related to the backdoor and notably he did not have that -- any commentary that flames and threatening flames as would have occurred from a can rupture had threatened him such that he needed to leave the trailer for that reason.
Q Number 21, Jeremiah reported seeing small fires on the line moving away from the stove in front of the futon. Dr. Beyler, you agree with me --
A I'm sorry. Which number are we doing?
Q We're on 21.
A Twenty-one, thank you.
Q That if there was a can rupture, it is conceivable that gasoline droplets can shoot out and create a line fire similar to the one the boys were talking about.
A Well, I don't believe that to be the case.

Q Do you have any test to show us that that's not the case?
A We don't have any tests that do say that. All the tests that have been done spread it more widely than would be consistent with a simple line. And, you know, common sense tells you that. It's not going to be on a simple little line, it's under a lot of pressure, you're not going to get a simple little line. It's also not going to be a small amount.
Q We don't know because there's no testing. I'm just asking you if you provided us anything besides saying you evaluated these on a cognitive basis to confirm your hypothesis here?
A The --
Q The question: Is there any testing or is it just your cognitive processes that you discussed earlier?
A It comes -- it includes some testing that we've looked at and it includes my knowledge of fire science and how these things can happen to know that that is not going to happen.
Q Twenty-two, Jeremiah did not report having heard a loud noise. And you said that that was consistent with the fact that no can ruptured; is that --
A It was inconsistent with a can rupture is what I said.
Q Is everybody going to remember every event that happens?
A No, everybody doesn't remember every event that happens.
Q So just because somebody didn't hear something, you decided that that's going to rule out a can rupture?
A No. It was my judgment that this was loud enough that

anyone would remember it and the jury may make their own decisions.

Q Number 23, Bradon recalled his father put gasoline in the stove and it caught fire and resulted in fire on the floor in the trailer. Again, there is nothing that gets the fire from the stove to the floor other than your conclusion that, well, it must have spilled onto the floor, is there?

A If you're asking whether the hypothesis of fire on the floor in the front is because it's spillage, it is. It could also be consistent with individual droplets being placed there by a vapor-cloud explosion. It could also be droplets placed there by the candling and movement of the can.

Q And it could also be placed on the floor by a can rupturing out of the bottom and expelling burning vapors and liquid onto the floor, couldn't it?

A I don't find that to be consistent with what Bradon told us. The jury can make their own decision.

Q Thank you, Dr. Beyler. We are down to 23 -- nope, 25. Actually, first, I wanted to talk about 24 a minute. That Bradon saw his father patting out fire on Halie. And you said that those are consistent, again, with droplets being thrown and spilling. But that's not going to be consistent with the rupture?

A That's right.

Q A rupture's not going to expel drops of hot gasoline?

A It will produce lots of droplets of gasoline.
Q So it's also consistent with a rupture that if Halie's on fire via small gasoline droplets, that a rupture could have occurred, couldn't it?
A I excluded that based on geometry, that is, the can is on Mr. Calder's right side and Halie is on his left side. So that he is shielding her from the can, itself, so that was the reason that I felt that a gas can rupture, one would not give rise to only a few droplets of burning, but would give rise to lots but also the geometry of where people were placed or standing.
Q Hopefully the last time, Your Honor. If you could just dim the lights, please.

Are we queued up to where it starts pouring? Okay.

You see the gas can and Halie would have been standing about -- I know we are not in 3D but maybe right here? Somewhere to the left of the gas can and a little bit behind; is that fair?
A Yeah. With Mr. Calder between her and the can.
Q Okay. So let's just watch this and tell the jury what sort of shield you think Mr. Calder would be in a situation like this.

MR. GRIMES: Go on.

(Played video.)

MR. GRIMES: Q. So if Mr. Calder were right here, none of this

would be on fire?
A No, the -- the floor would, indeed, be on fire all around the two of them, which is part of my point. The only thing in this event that Mr. Calder would be effective in preventing is the individual droplets. This flame wrapped around -- would wrap around him and envelop Halie as well. The droplets, however, don't make those turns. The flames do but the droplets don't. So I -- you know, this video speaks to the untenability of the gas-can-rupture scenario in multiple regards.

THE COURT: All right. Let's take about a ten-minute afternoon break.

(Recess taken by the Court.)