IN THE CIRCUIT COURT OF THE TWELFTH JUDICIAL CIRCUIT
IN AND FOR MANATEE COUNTY, FLORIDA

STATE OF FLORIDA,

Plaintiff,

vs. No. 2010-CF-004313

CARLOS A. RIVERA,

Defendant.

DEPOSITION OF JANINE S. ARVIZU
June 15, 2012
1:15 p.m.
at the Offices of
KATHY TOWNSEND COURT REPORTERS
110 Twelfth Street, NW
Albuquerque, New Mexico 87102

PURSUANT TO THE FLORIDA RULES OF CRIMINAL PROCEDURE, this deposition was:

TAKEN BY: MR. JOHN WILKING
ATTORNEY FOR THE PLAINTIFF

REPORTED BY: DENISE KOPAN, CCR #124
KATHY TOWNSEND COURT REPORTERS
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I N D E X

E X H I B I T S

(None)

JANINE S. ARVIZU

after having been first duly sworn under oath, was questioned and testified as follows:

EXAMINATION

BY MR. WILKING:

Q. We are present here in the State of Florida versus Carlos A. Rivera, Criminal Case Number 2010-CF-004313. Present for the State Attorney's Office in the Twelfth Judicial Circuit in Manatee, Florida, is John Wilking, Assistant State Attorney, and Suzanne O'Donnell, Assistant State Attorney. Present for the defense via telephone is Mr. Kirkconnell and present is the witness.

And if I could ask the witness to please state your name and spell it for the record.

A. Janine Arvizu. J-a-n-i-n-e, A-r-v-i-z-u.

Q. All right. Ms. Arvizu, where are you currently employed?

A. I work as an independent contractor providing consulting services.

Q. Okay. And do you work from home and then kind of go out to places, or how does that work?

A. Yes.

Q. Okay. Great. Must be nice. All right. Tell me how you, I guess, became involved in this

case.

A. I was contacted by the office of Kirkconnell & Snure in Florida and I actually -- I didn't bring the date with me. I don't remember when that original contact happened.

Q. Okay. And, for the record, you are located where?

A. I am in Tijeras, New Mexico.

Q. All right. How is the weather out there?

A. It's lovely.

Q. Oh, nice. Okay.

A. It's not humid.

Q. Well, I can't say the same for us. All right. So you got, I guess, contacted by Mr. Kirkconnell or Mr. Snure from their office via telephone or something like that?

A. I just don't remember. It may have been telephone, it may have been e-mail.

Q. Okay. And as a result of this conversation, you decided to cooperate and investigate in this case that we have before us?

A. I don't know exactly what "cooperate and investigate" means. I was asked to conduct a data quality assessment of the forensic results in this case.

Q. Much better than I said it. Okay. All right. And as a result of that, are you being paid?

Is there a contract that you entered into with Mr. Kirkconnell's firm?

A. I am being paid at a rate of $150 an hour for my services.

Q. Okay. All right. So tell me, I guess, what you intend on testifying to in regard to this case overall, kind of, in general, a statement, and then, I guess, we can talk about that in a little more detail afterwards.

A. Okay. Whenever I am asked to do a data quality assessment of a laboratory report, there are three general areas that I look at the records to see and make an assessment of the work, and that is the integrity of the samples that were subject to analysis.

Q. Okay.

A. The scientific validity of the analytical methods that were used, were they appropriate methods to draw the reported conclusions for their intended use, and, finally, was the measurement process, and that's the entire process, reliably performed. Are there contemporaneous records that would indicate that all the measurement systems and so forth were in control at the time the measurement was done.

So I look at those three areas and provide feedback based on what I am given as discovery, but what this really represents sort of the foundational scientific record as to the practices that were performed in the laboratory and the observations that were made and the results that were obtained.

Q. Okay. And did you make any notes or reports regarding this analysis?

A. I have not been asked to prepare a report at this point. Sometimes I am and sometimes I am not. I have not been asked to prepare a report at this point. I have a lot of -- the discovery material is pretty -- it fills a large binder and I have notes written on that and I have notes written, like I edited the Motion to Compel, all the back and forth about discovery, about whether we had received complete discovery or that kind of thing, but I have not been asked to and have not prepared a formal written report.

Q. Okay. So you don't have any notes or anything regarding your findings, then, just kind of --

A. Well, my own notes, yes.

Q. Okay.

A. Not anything resembling complete sentences. Sometimes pretty terse little comments in the margin.

Q. Okay. So, like, field notes to yourself kind

of thing, right?

A. Yes.

Q. Okay. All right. So I guess we will take -- you have three different breakdowns of areas of analysis. So let's just go in order. We will go with the first one regarding integrity of samples.

What's your knowledge as far as the -- before we get into that, what type of sample was taken in this particular case?

A. What type of sample?

Q. Yes.

A. A blood sample.

Q. Okay. There you go. All right. So in regard to the blood sample, did you make any analysis or findings regarding this specific blood sample, or just did you analyze the way in which the laboratory that was used on Mr. Rivera's blood conducted its, you know, its business and its studies and so forth?

A. I am not sure I understand your question. Are you asking me --

Q. I will make it a little clearer.

Did you study this specific sample, or did you study how the lab studied the sample?

A. I did not test this specific sample. I didn't perform any testing on this specific sample.

What I reviewed were the contemporaneous records that describe the sample and its collection that were provided to me during discovery, and that includes both prior to its receipt by the laboratory, as well as after it was received by the laboratory.

Does that make sense?

Q. Yes. That makes perfect sense.

A. Okay.

Q. Did you use anything other than those notes that were provided in discovery?

A. Did I use -- I am not sure I understand that one, either.

Q. Well, you just said you used notes regarding the lab before the sample was taken and after?

A. Yes.

Q. Did you use anything else outside of those materials to form your opinions regarding this matter?

A. Like other reference materials, that type of thing, is that what you are asking?

Q. Documents, anything like that, yes. I mean, besides your general knowledge and training and education, obviously.

A. Yes. There are materials that are provided by the manufacturers of blood tubes that describe the conditions under which they are appropriate for use,

and those were requested, typically, in discovery, but I didn't actually get copies of them in this case. So I just relied on the generic ones that I have seen that describe appropriate conditions.

Q. Okay. And is there a way you could maybe e-mail those to us later?

A. Certainly. It's provided by Becton-Dickinson.

Q. Okay. What's the spelling of that?

A. B-e-c-t-o-n-D-ic-k-i-n-s-o-n, I think. I am better if I can see it.

Q. Okay. That's all right. That's close enough.

And they provide the generic --

A. Sorry. I was interrupting.

Q. No. Go ahead.

A. They publish and make available instructions for the appropriate conditions for use of their materials, of their tubes.

Q. And you said, "their." Who are you referring to?

A. I'm sorry Becton-Dickinson. They are the biggest manufacturer of blood tubes for blood alcohol testing.

Q. Oh, okay. And do you know if those are the

type of tubes that were used in this case?

A. I do not, because the -- I couldn't tell from the materials that were provided to me. For example, I had an expiration date, but not a lot number to look up.

Q. Okay. So regarding the integrity of the sample, tell me how you, I guess, start to determine whether the integrity was met or not.

A. The basic issues for blood tubes are that they need to be stored in appropriate conditions between the time that you purchase them and the time that you use them. They have a shelf life that is written on the label on the tube and that expiration date is essentially conditioned on it being stored properly.

So there are storage conditions that are established for these tubes and it typically specifies, I believe it's 39 to 77 degrees Fahrenheit, as the appropriate storage conditions; that is, the manufacturer certifies that the tube is appropriate for its use and the seal will maintain its integrity if it's stored within those conditions.

Q. And you are referring to before the tubes are used to store the blood or while they are storing blood?

A. That is correct, it's before the tubes are used to store the blood, before they are used to collect the blood.

Q. Right.

A. That's to make sure that the seal integrity is not compromised.

Q. Okay. And then to be clear, you did not study these particular tubes that were used in this case?

A. That is correct.

Q. Okay. So go ahead and explain that.

A. Yes. What I am looking at in the documentation, for example, is do they have a systematic means of ensuring that all the things that can influence data quality have been identified and are being controlled.

Q. By "they," and I didn't mean to interrupt, who do you mean by "they"?

A. In this case, it's the people responsible for collecting the blood and ultimately the laboratory.

Q. Okay. Perfect. Sorry to interrupt. Go ahead.

A. That's okay. And so what I am looking at on the documentation is whether or not they specify and instruct the user in the appropriate use of the tubes

so that the data collection people, if they are following their own instructions or their own procedures, will they comply with all the requirements.

Q. Okay. And this is based on your review of the documents provided to you?

A. That's correct.

Q. Okay. So, I guess, what were your findings in regard to --

A. The requirements for the color of the additives in the tube are not addressed in the procedures that were used in this case.

Q. Back up and explain.

A. Okay. These blood tubes have material added to serve as an anticoagulant and as a preservative. They are provided that way from the manufacturer. The manufacturers' instructions state that the material should be white or to a pale pink in color if it's acceptable for use, and if it's not white or very pale pink, then it should not be used. So I look at the instructions that the data -- that the sample collection people are using to see whether they check the color of the tube additives, and, in this case, they did not.

Q. Now, does that mean they did not have those specific instructions in the documentation that you

read?

A. That's correct.

Q. Okay. So you don't know one way or the other whether they actually did this procedure in checking the colors of the additives?

A. That is correct.

Q. Okay. So anything other than the colors of the additives regarding the instructions and the lack thereof from the instructions that you found during your analysis regarding the integrity of samples?

A. Yes. In addition, the instructions specify a specific number of inversions, like eight to ten inversions, and describe what an inversion is immediately after collection so that, essentially, the additives can do their work properly.

The notation in this particular case, I believe, was -- I think the term was "several times." I'd have to check, but I believe the term was "several times" rather than explicit compliance with the instructions.

Q. Okay. You're going to have to kind of break that down for me a little bit regarding the inversion.

What is an inversion exactly?

A. It would be so much easier if I could show

you, but if you will grab a pen in your hand, in your fist, and hold it out --

Q. Okay.

A. -- at arm's length with the pen vertical and then you tilt your hand so the tip that was up is now down.

Q. Okay.

A. And you tilt it back so the tip is back up.

Q. Uh-huh.

A. That constitutes one inversion.

Q. Okay. So are you saying that this is given by the manufacturer and the instructions are to maintain the integrity of the tubes for the sample that there has to be a certain number of inversions or a lack of a certain number of inversions?

A. Yes. Depending on the type of tube and the type of additive, they specify different numbers of inversions.

Q. And that's the manufacturer, when you say, "they," correct?

A. Yes. Sorry.

Q. Okay. And that's on their specific, I guess, tube, right, their brand of tube?

A. Yes. It's not on the tube, itself. It's in the supporting materials.

Q. Right. I got you. And, again, you didn't inspect the tubes in this case?

A. No.

Q. You are just going based on the documentation provided to you according to the lab and the usage of their tubes?

A. That is correct.

Q. Okay. I am just making sure I am following. All right. So now I know you said something about the only indication was that this said "several times" and it didn't have a number; is that correct?

A. Yes.

Q. Okay. And if I follow, and I am just trying to put it a little clearer in my head here, the instructions by the manufacturer are supposed to have a designated number, you know, a numeric value to which you're not supposed to invert the tubes; is that correct?

A. To which you're not supposed to?

Q. Right. Like there is a maximum number of inversions you're supposed to have, or is there a minimum?

A. I think their biggest concern is the minimum rather than the maximum.

Q. Okay. In other words, like a ceiling, you

can't do it more than this many times or else you lose the integrity, or am I misunderstanding?

A. Their concern is that the additive be homogeneously distributed throughout the blood sample.

Q. They want it to be mixed?

A. Yes.

Q. Okay.

A. Yes.

Q. So there is a you need to do it this many times until it's homogeneously together until, you know -- so you can get an accurate sample, in other words, right?

A. That is correct.

Q. And so you are saying that the instructions only say, "do it several times" rather than a specific number?

A. That's correct.

Q. Okay. Now, what about that in regard to the manufacturer is not sufficient? I can rephrase if you are kind of confused.

A. I am.

Q. If there is something that the manufacturer would say that is the minimum amount of times that it needs to be inverted that the lab in this case did not, I guess, match up to?

A. The manufacturer says eight is the minimum. And it's not the lab. It was at the point of sample collection that that has to be done. That's days before it ever gets to the lab.

Q. Right. Okay. I was just making sure.

All right. So, in other words, the instructions for the person who collects it in the field would be, you know, it would say "several times" here versus the manufacturer needing it to say "at least eight"?

A. Yes.

Q. Okay. Now, do you know specifically what the implications of inversions being, I guess, below the minimum amount are?

A. Yes. The potential is that the additives will not function as they are intended; that is, that the preservative and/or the anticoagulant won't serve their intended purpose. And, in both cases, they are designed, to the extent possible, to ensure that the sample that's collected is the same as the sample that's ultimately analyzed in the laboratory.

Q. And, again, you don't know one way or the other whether -- let's just use the number eight because that's what the manufacturer indicated -- you don't know one way or the other whether the tubes in

this particular case were inverted eight times or not?

A. I do not.

Q. Now, what are the implications if the color is wrong? I know we kind of skipped over that a little bit.

A. Color changes in chemicals are an indication that some sort of a chemical process has taken place. It may mean degradation of that material. So it can no longer be efficacious in its intended purpose. And so it's kind of like pouring out a glass of milk and it's not white. That's sort of an indication that something has changed and you probably shouldn't use it for its original purpose.

Q. Makes sense. I understand. Don't want to drink discolored milk. Okay.

And again, you don't know one way or the other whether the colors were not white or light pink in this case?

A. I do not.

Q. And does that conclude your findings regarding the integrity of the samples?

A. Does that include?

Q. Does that conclude your findings regarding your first, I guess, area of testimony regarding the integrity of samples?

A. The samples were collected on May 2nd of 2010, placed in evidence in Bradenton that same morning, received at the FDLE lab on May 6th, and then ultimately analyzed on May 22nd.

One of the key factors in protecting the integrity of samples is temperature. And so we requested and I reviewed the records to see whether there was documentary evidence that the samples' temperature was controlled from the point of collection to the point of testing. And it wasn't possible to demonstrate that through the records that were provided.

Q. So you have no knowledge one way or the other whether the temperature was kept where it's supposed to be or not?

A. That is correct. I do know that the lab did, I believe, an internal audit, I'd have to check to be sure, in August of 2010, at which time, they recognized that the thermometers that they had in their refrigerators that were used to store evidence and standards were out of calibration. And so that would seem to imply that at the time this work, this sample, was in the refrigerator, even if they had been doing temperature measurements, they were not necessarily reliable.

Q. And what was that date you said?
A. August of 2010.
Q. Okay. That's what I thought. And did you get that information from the materials that we provided or some other materials?
A. Yes, all of this is from materials that were provided.
Q. Okay. Perfect. Okay. Do you have any other opinions regarding the integrity of samples?
A. Upon receipt, the analyst makes a notation as to the sample volume that's present in the tube. In this case, it's called -- I don't know how to refer you to this page because this one doesn't have a Bates stamp on it, but --
Q. Is there a heading on the page or something like that for the record?
A. Yes. It's called "FDLE Toxicology Evidence Inventory Form."
Q. Okay. That's fair.
A. And it essentially documents the conditions of the tube upon receipt by the analyst in the laboratory.
Q. Is that the specific tube used in this case, or you just mean tubes, in general?
A. No, I mean this specific tube. The tube that

is labeled with Carlos Rivera's name.

Q. Okay. And what about that now?

A. That form documents the fact that it was opened by somebody named "CEP," and I can't really tell if that was the tube or if that was the box that the evidence was in, but this is typically -- excuse me?

Q. What was the date and the time of that?

A. I can't tell when it was opened. It says, "Analysis Start Date: May 20th, 2010."

Q. Okay. So earlier you had said that it was analyzed on May 22nd, however?

A. That's correct.

Q. Okay. So go ahead and continue. Sorry. I just wanted to --

A. Well, yes, that begs the question of what was the temperature during the intervening time, but the reason I was discussing this form was because there were two gray-stoppered vials, ten-milliliter vials, it's circled that sodium fluoride and oxalate was present in those tubes and then the volume in both tubes, they are labeled A and B, is described as greater than three-fourths, which I would understand in a ten-milliliter tube to be more than seven milliliters.

Q. Right. Now, there are a few things in that

statement that I kind of want to touch on.

First, regarding the temperature, what effect would the temperature being outside of that 39- to 77-degree range have on the sample?

A. There are a couple of bad things that happen at elevated temperature when you are talking about either blood samples or samples for the determination of ethanol. First is that blood is incompatible with room temperature storage if you want its condition not to change. It tends to be subject to biological activity. So lowering the temperature and storing a blood sample at refrigeration, under refrigeration, helps preserve that sample in its original condition.

The second problem that can occur when blood is at elevated temperature is that ethanol is a volatile organic. That means that it's -- it has a tendency to move from the liquid phase to the gas phase or to move into the vapor phase. It changes that equilibrium. So by keeping the temperature low, we minimize that effect.

The other thing is that elevated temperature means the microbes can be more active, and those are the ones that can cause fermentation and actually generate ethanol. So we really want, for a lot of reasons, to store blood alcohol samples at low

temperatures so that it helps preserve it in its original state.

Q. Now, would you see a difference in the sample if it was fermenting?

A. Would you see a difference, no.

Q. No?

A. Not necessarily, no.

Q. Okay. Now, I think a couple other things you were talking about regarding this prior statement that you made, that this particular sample contained, I think, and correct me if I am wrong, more than three-fourths -- what was it that you said, sodium?

A. No. The more than three-fourths reference is the volume. It's essentially how completely was the tube filled.

Q. Okay.

A. Because these tubes, when they are supplied by the manufacturer, are designed for a nominal fill of ten milliliters. That's ten milliliters plus or minus about .7 mils. So with the original vacuum, they are designed to fill ten milliliters.

Q. Now, do you know why it was less than ten?

A. I do not know why. There can be a number of reasons why.

Q. What could be the reasons?

A. One of the reasons is if the seal integrity had been compromised and some of the vacuum had been lost, some air had been allowed into that tube. And one of the reasons that could be is that the tube was stored at high temperature or at low temperature, outside its specs, then if that lets air in and there is less vacuum, it's less able to suck in blood. And so you get an underfill.

Another reason can be just the medical condition of the person that you are drawing blood from. So the fact that it's not full doesn't tell you anything conclusively as to why that is, but it suggests that there might have been one of these kinds of issues earlier on in the process. It can actually be that the person who is doing the draw simply removes the needle before it's full.

Q. Okay. So you can't conclusively say what the reason is; you are just saying that there are all kinds of reasons that you just described?

A. That's correct. If the reason was compromise of the seal integrity, then I can't have confidence that the contents of that sample are truly representative of the subject's blood at the time it was originally collected.

Q. Right. Okay. All right. So did we finish

up on the integrity of the samples?

A. Yes.

Q. And the issues with that?

A. Yes.

Q. All right. So moving on to the scientific validity of the methods used for your conclusions -- or for their conclusions.

A. Okay. Do you have the materials that were Bates stamped?

Q. I believe so, yes.

A. Then I would refer you to the pages starting with 2164.

Q. 2164. Okay. I am going to have to go get those. So hold on one second.

All right?

A. Okay.

Q. All right. We have some materials that we sent, but I don't see a Bates stamp on them. It may have been after the fact.

A. Oh. Well, that's a bummer.

Q. Yes. I agree. Do you know kind of, like, the heading, or what it says?

A. Yes. If you are reviewing a bunch of data and you see anything that looks like instrument data dated March of 2004, March 12th, 11th or 12th of 2004,

that's the right area. The header of the written document is called, "Alcohol Analysis - PE Autosystem XL with PE Turbomatrix HS110."

Q. All right. What about that?

A. Okay. In the discovery, what was requested was a copy of the lab's documentation of their validation of the method that they used.

Q. Okay.

A. Now, validation means something very specific to an analytical chemist. It's the process that you go through where you plan out an empirical test protocol to determine how well a method works, essentially, under what conditions it works, under what conditions it doesn't work, and what its performance is so that you can evaluate its performance and determine whether or not that is an appropriate method for whatever intended use you're going to put it to.

Now, in the case of a blood alcohol measurement for forensic purposes, the laboratory is doing a couple of different things: First, it needs to identify ethanol; that is, not simply assume that it's ethanol, but actually identify ethanol.

That's called "qualitative identification." They need to quantify how much ethanol is present. That's called the "quantitation." And they need to

report or understand or determine the uncertainty of the measurement so that they know how well they can do it. And validation is the process that you go through running known samples under specific conditions to determine those things. So we ask for their complete validation file.

Q. Okay.

A. And this is what I got, and I'm sorry you don't have it with you, but it looks like, on the materials I have got, it is from page 164 to page 226. So I have got about 60-some, 70 pages worth of material that were provided.

Q. That's in regard to the validation?

A. That's correct.

Q. Okay.

A. And it's titled "Revalidation Summary Report," this document.

Q. Revalidation Summary Report.

A. Uh-huh.

Q. I was just repeating you.

A. Oh, okay.

Q. All right. So what about that particular file was of interest to you?

A. Okay. A couple of things. One, its scope, and the second, its actual performance.

Q. Let's start with scope.

A. Okay. This is described as a revalidation, and it seems to rely on the previous validation that we were not provided copies of. So really all I could review was what we got.

Q. All right.

A. And it describes the procedural modifications that were used and it says that these studies were completed on March 10th and 11th in 2004. That's the right time frame for the procedure that we got in this case.

It uses a 2004 procedure to run the samples in 2010. That's okay. I have to operate on the assumption that that actually -- this procedure that was used in this case is the same one that was used back in 2004 for this revalidation.

When you do a validation study, accuracy and precision are probably two of the ones that people think of first. They are not the same thing. Accuracy is how close a result is to its true value, and precision is how closely grouped multiple results are.

Q. Right.

A. So it determines both of those. And, importantly, it determines how selective the method is; that is, how effectively the method distinguishes

ethanol from all the other things that might be present in a sample and interfere with or be misinterpreted as ethanol.

And this revalidation study doesn't even address that selectivity. It only addresses accuracy and precision. And it gives a -- let's see, it draws conclusions about sensitivity and linearity based on the results it obtained for accuracy and precision.

On two different days, they ran samples, known samples, three samples, three replicate samples, on each day, although they really can't count them as three because one of them was actually the calibrators.

So they are drawing conclusions about accuracy and precision based only on two duplicate samples run on two different days. The reason that's important is because the statistics around this kind of a measurement are not very meaningful when you only run two samples, and, even more importantly, on only two days, two different days.

The day-to-day variability is typically much larger than the variability on a single day. So this is what I would call an extraordinarily weak validation study, but, again, they may be relying on some previous revalidation that I don't have any records for.

The problem with selectivity back in 2004 when they were running this is that when they ran these samples, they ran a sample -- and I'm going to describe it for you so you'll be able to find it in your records. It's a chromatogram. It looks like kind of a graph put out by the instrument.

Q. All right.

A. There is header information at the top and then there is this picture of a bunch of peaks. And this particular one has a data acquisition time of 3/11/04 at 6:29:34 p.m. So that's the time that it went through the auto sampler and was injected into the instrument.

Q. Okay.

A. The sample name is described as "Volatiles Mixture," and there are five peaks that show up in this spectrum: Acetone, methanol, isopropanol, ethyl alcohol, and n-propanol. N-propanol is added to each of the samples and standards as an internal standard. The other four are all compounds that they are looking for.

The purpose of running a volatiles mix is to get actual empirical evidence of whether or not your method is working to separate ethanol from all the other compounds that might possibly be out there. And,

in this case, this chromatogram very clearly shows that ethanol and isopropanol are what's called, "they are not resolved"; that is, they overlap.

And that's really objective evidence that this gas chromatograph method is not serving its intended purpose, to separate ethanol to make sure that when you measure a peak, if you think it's ethanol that it's only ethanol.

Q. Okay.

A. So that's a heads-up that the method has not been successfully validated for its intended use.

Q. Okay. Now, was there anything else about the validity of the methods regarding the scope of the validation that you found significant?

A. Yes. The purpose of validation is to really understand the uncertainty of the measurement. I have already referred to the weakness of only running a couple of samples on a couple of days.

Q. Right.

A. In addition, there is no traceability for the standards that they used. So I don't know how -- there was nothing to document how reliable it was, the standard that they were comparing it to for purposes of accuracy.

Q. Now, is this in regard to the same thing as

you spoke about in the very beginning when you said there were three major aspects and the third being measurement process reliably performed?

A. Well, this is still validation, because part of validation is determining your uncertainty. And so it actually is sort of how reliably was the validation performed, if you will.

Q. Okay. But it's not exactly -- you are still in your second major point regarding the scientific validity, but you're not quite to that last one?

A. Yes.

Q. So that was regarding the reliability of the validation.

A. Okay. The validation is further a problem because the laboratory did not run a blank sample, or what's sometimes called a "negative control sample," in the batch that they used to run -- to collect their validation data.

As a result, if there was contamination present, then the whole premise of their validation study falls apart. They would not know it and they would be drawing improper scientific conclusions about the performance of their method.

Q. Okay. And just to be clear, you are still referring to the revalidation report from 2004?

A. That's correct.

Q. Okay. All right. So what other significance did you find of importance?

A. That's pretty much it for the revalidation -- for the validation study.

Q. All right. I did find the report just now. So let me just review it one second.

A. Okay.

MR. WILKING: Can we go off the record for one moment?

(Discussion off the record.)

Q. (By Mr. Wilking) We can go back on.

All right. Ms. Arvizu, go ahead and continue with -- I believe that concluded the validity issues that you tested in this matter, correct?

A. Correct.

Q. Okay. So I believe the last aspect that you are going to discuss is the measurement process?

A. Yes.

Q. Whether it was reliably performed?

A. Yes.

Q. And just real quick, do you mean the measurement process in regard to this specific sample and whether it was reliably performed?

A. That's correct.

Q. Okay. So why don't you go ahead and tell me a little bit about that?

A. Okay. The process that I use is to review the laboratory's what they call "standard operating procedure," SOP, and see whether it essentially complies with national and international standards for doing this kind of work and then see whether they followed their own procedure in practice or whether there were gaps and omissions. So it's kind of a tiered approach.

Q. Okay.

A. Let's see, where to start? I think I will just go through in order of the documents so you can keep the document numbers straight, how about that?

Q. Sure.

A. Okay. Let's see, in the laboratory's standard operating procedure on page Bates 2023, there is a section called, "Reagents, Calibrators, and Controls." This is where the laboratory describes these materials that are used during testing to tell the instrument what the right answer is and then to check how well the instrument is performing.

So it has the instructions, or the recipe, if you will, for preparing the materials or where they buy them. It does not specify or mandate any expiration

dates for these materials, nor does it address explicitly how those materials are verified as being appropriate before they are being used.

These are the kind of things that are established in standards to make sure that everything is in control at the time that you do your testing. It does not, in fact, in this section even specify a requirement that a blank be included as one of the necessary controls in each and every batch.

Q. So, in other words, the review of that document on the Bates stamp page number 2023 regarding the laboratory's standard operating procedure, I guess, lacks some of the specific things that are located or that are known within the national standards?

A. Yes.

Q. Such as the blank that you are referring to?

A. Yes. Actually, a blank is even required by the FDLE Alcohol Program rules. The Title -- oh, gosh, I have forgotten -- 17, or something like that -- or no, 11(D). I have a copy of it.

But the Alcohol Testing Program rules that FDLE has promulgated actually requires a blank. It does not, however, specify any requirements for that blank. It just says you have to run one. It doesn't say what is necessary for it to pass or fail.

Q. Now, to your knowledge, regarding the standards that are, I guess, written and determined by the FDLE rules and the national standards, you don't know in this case whether they were or were not followed, you are just relying upon the reports in the standard operating procedure?

A. No. Actually, in this case, I actually have the data.

Q. Okay.

A. So that's what we will be talking about.

Q. Okay. So why don't we go ahead and proceed with what you were referring to?

A. Okay. The case file that was provided was short, on the order of a dozen pages or so. That's the one that had the inventory form we have talked about earlier. It included the chromatograms for the client's samples, there were four of them, because this laboratory used what's called a "dual column technique," where a single sample comes into the instrument, it's split in half, and half of the sample goes through one column and half of the sample goes through a different column.

So if I run a sample in duplicate, I have four chromatograms that result from that analysis. And in the subsequent discovery, I actually received the

chromatograms for all of the controls from the batch that it was run in. So that's what we are going to talk about. Let's see.

Q. Go ahead and discuss the significance or the importance of that.

A. Okay. I have to dig through my pages a minute here. Okay. The chromatogram for the volatiles mixture that was run in the same batch with the client's samples --

Q. And do you have a Bates stamp on that one?

A. I do. I am getting to it here. Just a minute. Okay. That's -- that one is hard to read. 2528.

Q. Okay.

A. That shows that in that volatiles mixture, ethanol and isopropanol are not resolved. That's the same problem that was observed during the volatiles sample on the validation study. So this is essentially verifying that at the time these samples were run under these specific operating conditions on May 22nd, ethanol was not separated from isopropanol.

Q. Do you have the time of that sample on that page?

A. Yes. That sample was run, let's see, the Bates I gave you is 2528 and the acquisition time was

May 22nd, 2010, at 11:42:17.

Q. P.m. or a.m.?

A. A.m.

Q. Okay.

A. Okay.

Q. Continue on with the -- now, out of my own curiosity, was there more than one of these samples taken where you had the chromatograph documented, or is there just one done, or how does that work?

A. They only run the volatiles mix once with each batch. So each time they fire up the instrument and calibrate it, they run this one sample of this volatiles mix.

Q. Now, is this done just in kind of the testing of the instrument to see if it's working accurately, or is this done before they measure or determine specific samples, or both?

A. If I understood you correctly, it's essentially both, because it's part of what we typically refer to as "opening quality control."

Q. Okay.

A. That happens before you ever inject an unknown sample.

Q. Okay. Like, for instance, I know that with the breath testing instrument, you know, when they

perform the monthly and annual maintenance, they have to do specific samples. They turn on the instrument and then it performs a self-check and then it performs the air blank and then they put in the sample. And if it's a maintenance, they have a known sample and then they have another air blank and a known sample and then another air blank. And they do this when they are doing maintenance, and then when they have a specific subject sample, they have to do the self-checks at the beginning before they enter their -- you know, the specific individual's sample and then it goes to the air blank.

Is that something that, you know, when you are doing the instrument to test the blood or the substance similar in that it does the test during maintenance and during the actual suspect's sample?

A. Yes. And I would refer you to Bates number 2515. That's what's called a "Load List," and it describes the sequence that this laboratory used in practice for those kinds of known samples: The initial calibration, followed by a known reference sample, followed by unknowns, and then intermittently, there are knowns in between the unknowns.

Q. Okay. And what you are referring to on the Bates page 2528 was that, you know, they were doing a

diagnostic check or testing or maintenance of the instrument at the time to revalidate it?

A. No. This is what's done each and every time you're going to run a batch of unknown samples, whether you are running one or 100.

Q. Okay. I guess my question is, does the chromatograph that you are describing that was not properly distinguishing the ethanol from, I think you said, isopropanol, what was that chromatograph depicting, just one time in which the test was run on May 22nd?

A. It is part of the laboratory's protocol to run a volatiles mix sample, which that was each and every time they run the instrument. So each day that they set up to run unknowns, they run a volatiles mix sample first. It's actually the very first injection even before they run their calibrators, because all they are trying to evaluate is are we separating ethanol.

Q. Okay. So, in other words, my question, I guess, would be better phrased this way, is there a chromatograph produced every time that they put in the unknowns?

A. Yes.

Q. Okay. And is it just one of the

chromatographs that you noticed that did not adequately separate the ethanol?

A. Oh, good question. No. The reason is this is the only known chromatogram that is known to have both ethanol and something else in it. Every other sample that's run through this instrument is either an unknown sample or it's a known sample that only has ethanol in it and it's provided as a pure, clean ethanol sample by the reference material provider. So this is the only sample that would tell you if there was a lack of resolution for ethanol.

Q. Okay. And so what is the significance of that, then?

What is the importance?

A. It's objective evidence that the lab's method is not appropriate or adequate for qualitatively identifying ethanol with confidence and being able to distinguish it from and selectively identify ethanol.

Q. And you are basing this off of just one chromatograph?

A. Yes, yes.

Q. So earlier you were talking about how there were only two samples on two days taken and that was not enough to make a determination if it was, you know, revalidated, you know, and procedural modifications,

you know, that the volatiles mix was accurate or precise and selective, but you are saying that just reviewing this one document on May 22nd is enough to determine that their methods were not proper?

A. That's the way it's set up, yes.

Q. Okay. All right. So what else did you analyze and then determine --

A. Okay.

Q. -- in reviewing the operating procedures?

A. At the top of that same page, the Load List, which was Bates 2515, there is a table that's called, "Reagents, Standards, and Controls."

Q. Right.

A. And that is a description of each of the known control samples that were included in this batch. And it describes either its lot number, if it was purchased from an external provider, or its date of preparation if it was prepared internally by the laboratory.

This table also includes an expiration date. In this case, the expiration dates that are provided are the expiration dates for the unopened ampules that are provided by the reference material suppliers. When you buy either an aqueous standard or a whole blood control standard, they ship them to you with an

expiration date, and that expiration date applies to that in the condition that they ship it to you as long as you store it appropriately.

These have to be refrigerated, or in the case of whole blood controls, they have to be stored in a freezer. And so as long as -- I'm sorry, you were about to ask something?

Q. Yes. Did you determine, based on that, what the expiration dates were for the unopened ampules used in this case?

A. Yes.

Q. All right.

A. The laboratory provided discovery as requested copies of what's called the Certificate of Analysis from the standards suppliers. They demonstrate that those lot numbers had these specific expiration dates.

The problem occurs because the laboratory is not documenting when they open those vials and how long they use the opened vial. It's kind of like soy milk that has an expiration date of several months, but it must be used within a matter of days of opening because once you open it to the environment, the environment is a very dynamic, dirty place, and so it deteriorates.

The same thing happens with standards. In

those nice, sterile glass ampules, they last under refrigeration for a very long time, but the moment you crack the seal and open it to the environment, it has a much shorter expiration date. And they are not monitoring when they open those vials. They only are referring to these expiration dates that are a couple years out.

Q. Okay. So my question is, do you know the expiration dates for our specific vials?

A. I know the expiration dates for the unopened vials. I don't know when the opened vials would have expired because I don't know when they opened them.

Q. Okay. For general purposes, do you know what the logs would have said suggesting that they were never -- you know, had they remained unopened, what the expiration dates would have been?

A. Oh, sure. I may not have made myself clear. Those are what's written on this form and what's also on the Certificate of Analysis provided by the manufacturer for that specific lot number.

Q. Okay. Do you know what the specific date was?

A. There are a bunch of them.

Q. Oh, okay.

A. There is one for each different material.

There is a different date.

Q. Okay. And you can just go ahead and give me the Bates stamp page number on that one.

A. It's that same page, 2515.

Q. Okay. Perfect. Okay. So if I am understanding you clearly, there is a specific manufacturer expiration date for the unopened ampules; however, once those ampules are then opened, the expiration date becomes closer in time?

A. Absolutely. That's correct.

Q. You also need to factor in separate conditions, such as if they were stored in the proper temperature and if the environment affected it in any way, correct?

A. That is correct.

Q. Okay. And you are telling me, then, you have no idea or no way of telling whether the expiration date would have lasted prior to Mr. Rivera's samples being taken because the lab did not accurately log the time that the vials were opened or the ampules were opened?

A. I don't know -- they didn't do it inaccurately. They just didn't document it.

Q. Okay. So, in other words, the answer is you don't know because of that?

A. That's correct. And because their procedure is silent on the subject.

Q. Interesting way of saying that. Okay. I am understanding. So then the next, I guess, area that you were discussing were gaps and omissions.

Is that what you are referring to there, or are there others?

A. Yes, that's one of the examples, yes.

Q. Okay. Do you have other examples?

A. Yes. You just mentioned, for example, the issue of temperature and being able to show that the standards were appropriately stored at the specified temperature. The laboratory only checks the temperature of the refrigerators once a month. The Bates stamp for that one is 2491. This is a refrigerator log for the laboratory's refrigerators and it describes what's in them. And there are not any -- there are only once-a-month entries to this.

Q. What's the standard for the temperatures being logged and checked?

A. There is not, like, a legal body or anything that specifies how frequently you need to check temperatures.

Q. But didn't you say that was an omission or a gap in their --

A. Well, it is, in the sense that it's tied to how you are using it. If it's something that you pull out each day to use, for example, then you should check its temperature each day.

Q. And where are you getting this information from?

A. Where am I getting this information from?

Q. Where are you -- you are saying, "you should."

A. Oh, okay.

Q. Where do you find that?

A. Here is an example. If you are only monitoring your temperature of your refrigerator once a month and you are storing materials in that refrigerator for more than a month, or even less than a month, even if you are storing materials in that refrigerator for only a period of a couple of days, then you don't have any contemporaneous measurement of the temperature of that material unless it happened to be in there on that one day that you measured the temperature.

There have been cases --

Q. That's okay.

A. Okay.

Q. No, go ahead. There have been what?

A. When a refrigerator goes out of spec and falls out of control, if you don't have more routine monitoring of that temperature, it may come back in control and you may be blissfully unaware of the fact that it was out of spec for two weeks in the middle of the month.

Q. This is just conjecture; you don't know one way or the other on this?

A. Well, yes, but, like I said, it's exacerbated by the fact that their own internal audit found that their thermometers and their temperatures were out of calibration at this period -- during this period.

Q. Okay. And you are referring to the August time?

A. That's correct.

Q. Okay. Now, I follow you. Okay.

Anything else that you found in your analysis?

A. The problem with the refrigerators, this is equipment that, in the analytical chemistry world, is referred to as "reference standards." The reference standards that you use for balances for pipettes used to measure volume, these devices, the only way that we, as scientists, can rely on them is to have them calibrated periodically by an accredited provider and

then intermittently to check them ourselves to make sure that they are still in control.

And the laboratory's practices for pipettes, which are used to actually measure out the amount of blood and the amount of internal standard and for balances which they use to check the pipettes, was to certify them annually and there is no requirement whatsoever for checking it in the intervening 12 months.

And that, frankly, was pretty stunning to me, because I had never seen anybody who would truly believe that a balance would stay calibrated for a year without ever checking it in the intervening period. More typically, if you are using a balance for good, scientifically reliable measurements, you check it daily prior to use.

So a year seems like a really extraordinarily long time. It's also exacerbated by the fact that when the laboratory -- let's see, I have got to get my right dates here. I should have put the numbers on here. When they sent it out for external calibration, there are different kinds of calibration that you can request.

So after this work was done, a year after this work was done, when they sent it out for

calibration, they asked for what's called --

Q. Do you have a page number?

A. That's what I am looking for. I will get it for you in just a second. They asked for an "as left calibration." They never asked for or procured an as received check. So they never actually even checked that at the time it was done by the certified provider, it even came back in control.

So it was essentially not -- it didn't have its control verified for a very, very long time. That is Bates number 2567. This is for their Hamilton dilutor that they use to measure out the volume of blood and the volume of internal standard.

They sent it outside to an accredited laboratory to calibrate it, which is a good thing to do, but they didn't do that until April of 2011. Before that, their last check was internally and it was in August of 2009, a year before the work in this case.

Q. Now, was that something that was against the standards or the authority on the subject, or is it just in your opinion?

A. Yes, I am sure that they decided they had to do it when the -- under their accreditation. In order to be accredited, you have to send it to an outside accredited supplier at least once a year.

Q. So then you are saying --
A. In addition to internal checks, uh-huh.
Q. Did you have any other opinions on the procedures followed in the lab at that time?
A. Let's see, the procedures that -- and versions of the quality manual that we were provided were the versions that went into effect the year after the work was performed in this case. It might be believed to be just an oversight or a matter of convenience, but the discovery I requested specifically asked for the copies that were in effect at the time that the work was performed.

Obviously, that's important, because you want to know what the rules were at that point in time. And it might be a reflection on whether or not their document control system works, whether those old procedures were even available, but it's kind of a bush league mistake.

Q. Okay. And in regard to the lab procedures or anything else, do you have any other opinion on the matter?
A. Let's see.
Q. While you're looking at that, do you have a conclusionary opinion as to whether the samples analyzed of Mr. Rivera's blood were accurate or

inaccurate?

A. My conclusionary opinion, I suppose, is that the results reported by the lab are not supported by a scientifically valid method reliably performed based on the records that I reviewed.

Q. And this is based on what we just discussed the last hour?

A. Yes.

Q. Any other opinion on the matter whatsoever?

A. The only other comments that I see in here are things related to their procedure, but that don't relate to this particular -- weaknesses in their procedure that don't relate to this particular case, though.

Q. Okay. And I guess my last few questions are, have you testified in court in Florida before?

A. Yes, I have.

Q. And how many times?

A. I just don't know. Maybe on the order of a dozen or less. I am not really sure. I'd have to go count.

Q. Do you remember where, like location-wise?

A. I have testified a couple of times in Orlando, I have testified in -- oh, I can't remember the name of the town, but it's north of Orlando. Lake

County. Does that sound right?

Q. I am not sure. It could be.

A. I have testified in -- there is a city on the Atlantic Coast where Florida Tech is. I know I drove to the water on the East Coast. It's Florida Tech. You can help me here.

Q. No. That's all right.

A. I think it starts with an "M."

Q. Melbourne?

A. Melbourne. That's it. Thank you.

Q. Okay. And have these --

A. And in Tampa.

Q. Okay. Have they been criminal or civil cases or both?

A. They have all been criminal. I have also testified for C.C.R.C.P. in post conviction capital cases.

Q. Okay. And have they been for the defense or for the State?

A. Always for the defense.

MR. WILKING: All right. I have no further questions. Mr. Kirkconnell, anything?

MR. KIRKCONNELL: No questions. All right.

MR. WILKING: Thank you. We will put her down for a read and sign.

THE WITNESS: Who do I invoice for this?

MR. WILKING: You can invoice our office. The same e-mail I gave you.

THE WITNESS: Okay.

(Deposition concluded at 2:35 p.m.)

IN THE CIRCUIT COURT OF THE TWELFTH JUDICIAL CIRCUIT
IN AND FOR MANATEE COUNTY, FLORIDA

STATE OF FLORIDA,

Plaintiff,

vs. No. 2010-CF-004313

CARLOS A. RIVERA,

Defendant.

CERTIFICATE OF COMPLETION

I, Denise Kopan, CCR #124, DO HEREBY CERTIFY that on June 15, 2012, the deposition of JANINE S. ARVIZU was taken before me at the request of, and sealed original thereof retained by:

For the Plaintiff
MR. JOHN WILKING
STATE ATTORNEY
P.O. Box 1000
Bradenton, Florida 34206

I FURTHER CERTIFY that copies of this certificate have been mailed or delivered to all counsel, and parties to the proceedings not represented by counsel, appearing at the taking of the deposition.

I FURTHER CERTIFY that examination of this transcript and signature of the witness was not waived by the witness and all parties present.

On _____, a letter was mailed or delivered to Ms. Janine S. Arvizu regarding obtaining signature of the witness, and corrections, if any, were appended to the original and each copy of the deposition.

I FURTHER CERTIFY that the recoverable cost of the original and one copy of the deposition, including exhibits, to Mr. John Wilking is $_____.

I FURTHER CERTIFY that I did administer the oath to the witness herein prior to the taking of this deposition; that I did thereafter report in stenographic shorthand the questions and answers set forth herein, and the foregoing is a true and correct transcript of the proceeding had upon the taking of this deposition to the best of my ability.

I FURTHER CERTIFY that I am neither employed by nor related to nor contracted with (unless excepted by the rules) any of the parties or attorneys in this case, and that I have no interest whatsoever in the final disposition of this case in any court.

_____

DENISE KOPAN, CCR

New Mexico CCR #124

License Expires: 12/31/12

STATE OF FLORIDA v. CARLOS A. RIVERA

DEPONENT SIGNATURE/CORRECTION PAGE

If there are any typographical errors to your deposition, indicate them below.

PAGE LINE

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Any other changes to your deposition are to be listed below with a statement as to the reason for such change.

PAGE	LINE	CORRECTION	REASON FOR CHANGE

I, JANINE S. ARVIZU, do hereby certify that I have read the foregoing pages of my testimony as transcribed, and that the same is a true and correct transcript of the testimony given by me in this deposition, taken on June 15, 2012, except for the changes made.

_____

JANINE S. ARVIZU

_____

DATE

DATE DELIVERED/MAILED_____RETURN BY_____

MS. JANINE S. ARVIZU
161 Kuhn Drive
Tijeras, New Mexico 87059
RE: STATE OF FLORIDA v. CARLOS A. RIVERA
Deposition of: JANINE S. ARVIZU
Date Taken: June 15, 2012
DEAR MS. ARVIZU:
At the time of the above deposition/sworn statement, it was requested that the deponent read and sign the transcript.

____ Enclosed is your copy of the transcript with the original signature page. Please ask the witness to read the transcript and make any corrections on the original signature page and return the original signature page to our office.

_____DUE TO TRIAL IN THIS MATTER BEING SET FOR _____, SIGNATURE MUST BE COMPLETED BY _____.

_____Enclosed is a courtesy copy of the transcript with the original signature page. Please read the transcript and make any and all corrections to your testimony that you feel are necessary and indicate such corrections on the attached page. Please only return the attached original signature page to our office, not the transcript.

_____The deposition transcript is now ready to review in our offices. Please call 505-243-5018 to make arrangements for reading and signing.

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In most instances, witnesses are provided 30 days from the receipt of this letter to read and sign the transcript. Failure to read and sign within this time will result in the original transcript being filed without the signature page.

Your immediate attention to this matter will be appreciated. If you have any questions, please call us at 505-243-5018.

_____

KATHY TOWNSEND COURT REPORTERS