(IN THE ABSENCE OF THE JURY.)

THE COURT: Come around, sir.

PAUL L. GLOVER

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MARTIN:

Q Sir, will you state your name for the record?

A My name is Paul L. Glover.

Q Mr. Glover, what is your current position, sir?

A I am the Research Scientist and the Assistant Branch Head for the Forensic Tests for Alcohol, which is part of the Department of Health and Human Services, State of North Carolina.

Q Sir, what is your education that you have achieved?

A I have a B.S. in Biology that I got from Florida State University in 1974, and a Master's in Biology that I got from Florida State University in 1978.

Q And what current positions have you held, sir?

A I was a Research Scientist at Oak Ridge National Laboratory for seven years. I was a Research

Scientist at the National Institute of Environmental Health Sciences for five years, a Research Scientist at the Burroughs Wellcome Pharmaceutical Company for seven years.

Q Describe briefly to the Judge what the subject matter of your specialty is.

A I deal with scientific issues related to breath and blood testing and issues related to the Intoxilyzer 5000.

Q And, if you will, will you tell the Judge what specialized degrees and training you have received?

A I'm certified as a chemical analyst in the State of North Carolina. I'm also certified to do preventive maintenance on the Intoxilyzer 5000. I'm certified to do preventive maintenance on the Alkasensor. I have attended the University of Indiana School for Supervisors in Highway Alcohol Programs.

Q Sir, what are the duties and functions of your current position?

A I have two duties. I'm the Research Scientist for the branch. I've been that for two-and-a-half years. I'm responsible for reviewing scientific literature that relates to blood and breath testing. We have a staff of 25 people, 14 of those are field staff. I'm responsible for educating them to any

changes or issues that come up relating to breath testing. I'm responsible for evaluating breath testing equipment.

I am responsible for doing the quality assurance checks on the simulator stock that's used for the simulators on the Intoxilyzers. Also, as Assistant Branch Head, I'm responsible for supervising the 14 staff people, evaluating them, updating and writing portions of the operators' manual for the Intoxilyzer 5000.

I serve as a resource for prosecutors, legislative bodies. I think that's all.

Q What is the length of the -- What is the length of time at that current position?

A I started in September of 1997, so it's two-and-a-half years now.

Q What, if any, publications do you have in those fields, and what are those titles?

A Well, I'm a member of the International Association for Chemical Testing, and at their annual meeting last year I did a poster session and a seminar on -- one dealing with controlled drinking exercises. The other one was dealing with interfering substances in breath testing. And a session on using -- or managing reference materials that relate to the scientific

publications that we use.

I'm also a member of the International Counsel on Alcohol, Drugs and Traffic Safety. And I have a presentation that I will be giving in Sweeden in four weeks for research that I have done in the lab since I've been there.

Q Do you have any other membership in any other professional societies besides the International Association for Chemical Testing?

A That and the International Counsel on Alcohol, Drugs and Traffic Safety.

Q How many times have you testified in your field?

A I have testified and qualified as an expert about 28 times in North Carolina.

Q In the past have you ever assisted in prosecutions not being an expert, or not qualified as an expert?

A Yes, in total I have helped with about 60 cases since I've been in the branch.

MR. MARTIN: Pursuant to the Rules of Evidence I would be tendering Mr. Glover as a qualified expert in the field of alcohol breath testing, the Intoxilyzer 5000, the Alkasensor, blood alcohol physiology, pharmacology and related research.

MR. MORGAN: May I examine?

THE COURT: Well, certainly, Mr. Morgan, you may ask him anything you want to. This is Voir Dire.

MR. MORGAN: Thank you, Your Honor.

QUESTIONS BY MR. MORGAN:

Q Do you have your vitae handy?

THE COURT: His what?

MR. MORGAN: Curriculum vitae.

Q Your résumé?

A I have a copy that I have for qualifying as an expert witness.

Q Is that what the State was using to qualify you?

A Yes.

Q Isn't it true that among the positions that you neglected to mention when you were being qualified, that you were a reserve police officer with the Durham Police Department in Durham, North Carolina from February of 1986 until January of 1997, resuming that position again in September of '97 until the present? So you are currently a reserve police officer with the Durham Police Department in Durham, North Carolina, is that correct?

A Yes. I am also a reserve officer at the

University of North Carolina in Chapel Hill, and I've been one there since 1992.

Q And you were a full-time police officer with the Durham Police Department from January of '97 through September of '97?

A Correct.

Q Now, when you presented this seminar in connection with the controlled drinking session and the interfering substances, did you witness or use any particular interfering substances?

A In that particular presentation, yes.

Q Are you familiar with the literature that someone who consumes several pieces of Wonder bread can register as high as a .02 on the Intoxilyzer 5000, having consumed no previous alcohol?

A I am not familiar with that particular publication. I don't know who wrote it. As far as the significance of that, people are not allowed to eat, drink, smoke during the fifteen minutes prior to their being tested. Whenever that's followed, that doesn't occur.

There are some even prepackaged like Honey Buns, if you eat one and blow into it right then, because of the yeasts that are in it, you can get a result, but that's the reason for the fifteen minute

deprivation period.

Q Did you use any diabetics in your study about the effect of interfering substances?

A No, I didn't.

Q Did you use any dieters who were suffering from a process known as ketosis?

A No, I didn't.

Q Did you use anybody that ingested chemicals commonly found in paint?

A I used one of the most widely used organic compounds in the world, which is taurine, which is the most popular defense issue to raise. That was the interfering substance that I used in that particular study, and it's also the subject of the presentation that I'm going to do in Sweeden.

Q While you are mentioning that, isn't it true that your basic job when you are called as a potential expert by the State is an attempt to debunk a defense expert in this field? That's what you do, isn't it?

A My job is to testify about our procedures, the fact -- whether the person was certified as an analyst. I review the documentation that came with that particular case to see if there are any problems with it. I do listen to defense experts to evaluate, I will say, the quality of their testimony.

Q You actually work for the State of North Carolina, don't you?

A Yes, I do.

Q And you've been paid by the State of North Carolina for the last two days to be here, haven't you?

A Yes, I have.

Q Have you figured up how much that is?

THE COURT: Well, you're getting far afield --

MR. MORGAN I'm --

THE COURT: Hold it. You're getting far afield from the Voir Dire concerning his expertise. Objection sustained.

MR. MORGAN: I'm sorry. Let me wrap this up, then.

Q You have participated in the preparation or trial of approximately 60 cases, did I understand you to say?

THE COURT: Objection sustained. See, that's just attacking his credibility.

MR. MORGAN: Well, for the purpose of determining whether he's an expert, I think I'm entitled to find out why, for the Court's benefit, he wasn't declared an expert in those other cases.

THE COURT: On that we disagree.

MR. MORGAN: All right. Thank you, Judge. I'm done.

THE COURT: I find him to be an expert in the field of alcoholic testing, alcoholic breath testing; that he has B.S. in Biology from Florida State and a Master's Degree from Florida State. As of 1978 he has published and conducted seminars and done research in these fields. He's presently a certified chemical analyst. I'm not persuaded on the pharmacology, sir, from what little I know about pharmacology. Biology by itself and these other ideas do not support a finding that he is an expert pharmacologist. Ask your next question.

MR. MARTIN:

Q Mr. Glover, what, if any, problems do you find with the extrapolation of Mr. Stafford concerning the Defendant's maximum alcohol level on April 26th, 1999?

A In our class that we put potential chemical analysts through, it's a week-long class, we teach the pharmacology of alcohol, and we using the Widmark Formula, as Dr. Stafford used. However, his calculations ignored the fact that as soon as a person starts to drink alcohol, they start eliminating alcohol.

An analogy we frequently use is that of a

bathtub with the drain open. As soon as you start pouring some water in, water is going to be running out. If you pour it in faster, it will start to fill up, but it's still draining. With alcohol, as soon as you start to drink, as soon as it circulating in your body, you are eliminating it.

His calculations did not take into consideration the elimination of alcohol that was going on in the Defendant during the time that he was drinking. He was drinking for about three hours, and even using his elimination rate, which he used .01, which is at the extreme conservative end, in that three hours the Defendant would have eliminated .03, even using that value. The highest that he could of gone, according to Mr. Stafford, or Dr. Stafford, was I believe an .04 and .05. Well, he could never have reached that, because he's been eliminating it at the same time he's drinking it. He could not have gone even that high in that time.

Q What, if any, persons have an elimination rate of .01?

A That's typically found in chronic abusers who have liver damage. 99 percent, just about, of the alcohol elimination or metabolism occurs in the liver, so the blood flows through the liver. Alcohol

dehydrogenates, is present in the liver. It's going to break the alcohol down. People with cirrotic livers have reduced blood flow through the liver. They have reduced liver functional liver area, and so for that reason they cannot eliminate alcohol at a rate that's closer to normal.

Q What if any other problems do you see with the extrapolation made by Dr. Stafford?

A I believe that that's one of the main ones right there.

Q Now, in this particular case concerning Mr. Redmon, have you examined the preventive maintenance logs in this matter?

A Yes, I have.

Q When did you do that?

A We have a duplicate set of the preventive maintenance logs in our office in Raleigh, so I made a copy there. That's when I inspected them.

Q Based upon your examination of those preventive maintenance logs and this particular Intoxilyzer, that being No. 66003579, had the preventive maintenance on it been properly done?

A It was in compliance, yes. I also checked the period prior to that and the period after that, and it was in compliance with respect to preventive

maintenance for at least a six or eight month period. I don't look beyond that.

Q What, if any, investigation did you do, sir, on determining whether Asheville Police Department officer Joe Johnson was certified to operate this particular instrument?

A I'm able to pull up every chem analyst's history on my computer at work, and I do that routinely before a trial to see if, in fact, an analyst was certified before they ran a test, and he was certified at that time.

MR. MORGAN: Just for the record, we have never objected to that.

THE COURT: Right.

MR. MARTIN: If I may approach the bench.

THE COURT: Yes, sir.

Q If I can show you, sir, what has previously been entered as State's Exhibit No. 1, which is the State's test ticket in this particular case, upon examination of that test ticket can you determine whether this test was properly administered and the result was proper?

A Yes, I can.

Q And how are you able to determine that, sir?

A Well, part of it is based on the Officer

Johnson's testimony that he read the rights, and he's indicated the time that he read the rights to the Defendant, and this has the time that the breath test was done, so that end of the procedure was done properly.

The fact that we were able to generate a complete test record ticket shows that the instrument was working properly. There are a number of safeguards that the instrument has built in, and if any of those safeguards had been basically violated, we would not have gotten a completed test record ticket out.

Q What are those safeguards, sir?

A I've got a poster that I typically use to go through the safeguards.

MR. MARTIN: Your Honor, would you allow him to do that in front of the jury?

THE COURT: Well, I don't know about in front of the jury. This is Voir Dire in the absence of the jury. You can offer whatever you want to.

MR. MARTIN: I'm showing Defense Counsel a copy of what that particular --

MR. MORGAN: Before we go too far, it is my belief that at least part of the last testimony of this witness doesn't conform to Your Honor's findings in that he strayed into the field of pathology and away

from the field of alcohol breath testing.

MR. MARTIN:

Q Sir, I'm showing you for the purpose of this Voir Dire hearing what I've marked as State's Exhibit No. 4. Is this a poster that was prepared by you?

A Yes, it is.

Q Would it assist you in illustrating to the Court the different safeguards that the Intoxilyzer 5000 has in order to prevent an erroneous test?

A Yes, it would.

MR. MARTIN: Your Honor, I would ask to have that admitted for this particular reason.

Q If you will, going through using your exhibit, and I'll hold it for you, tell the Judge about the particular safeguards that would prevent an erroneous test.

A When the operator comes in, the instrument is turned off. They turn it on. It will display on the screen that it's not ready. It has a certain length of time that it will stay in a condition of not ready. During that time the different -- the chamber is heating up, the breath tube is heating up.

Once it's been in a not ready status for a prescribed length of time, it will do a program check, memory check, temperature check, filter check and a

printer check. When it does that diagnostic, if it finds a problem, it will not come out of not ready. If it checks out all right, it comes out of not ready.

At the time of the breath test, it will first pull a sample of air in from the room to determine if there's any alcohol in the room. If there is alcohol in the room, it will indicate ambient fail. It will reject the test record ticket. The chem analyst will have to ventilate the room and start all over.

When it is time for the person to blow, if they blow too soon, it will print on there, "Invalid Test." It will reject the ticket, and they will have to start all over again.

If the subject has mouth alcohol when they blow, it will indicate that there's mouth alcohol on the ticket. It rejects the ticket. The chem analyst has to start all over.

If the person exceeds .65, it will indicate that it's exceeded the range of the instrument, and that is also to alert the chem analyst that if this is a real result, there is a problem with this Defendant because they are in a life threatening concentration.

When it's going through its sequence once it checks ambient air, it does a calibration verification. In that it takes a known sample from a

simulator and analyzes it. That process does not calibrate the instrument. It merely verifies that the instrument is properly calibrated. If it is not an .07 or .08, it will indicate that it is out of tolerance. The instrument is shut down. No test can be run. It has an antenna built into the heated breath tube that's there to detect radio frequencies. If there is sufficient radio frequency being transmitted, like from an officer's portable radio in proximity to the unit, it will reject the test ticket, print, "RFI Detected," and the chem analyst will have to start all over.

Finally, if it detects acetone on the subject's breath in sufficient quantities, it will complete a ticket, but it will indicate at the bottom of the ticket that it has subtracted out acetone, and by that it prints, "Interference Subtract." That should alert the chem analyst that this person may be diabetic and going into keto acidosis. It's a medical situation that the chem analyst needs to be aware of.

Finally, it requires that the person blow twice and that the results be within .02 to print out a completed ticket.

By virtue of the fact that we have a completed ticket with the reported alcohol concentration, it shows that none of these situations existed during that test;

and since everything was working, the completed ticket showed -- the completed ticket shows that everything was working.

Q If I may approach you again, Mr. Glover, I'll show you what I've marked as State Exhibit No. 5. Can you identify that for the Court?

A It's a picture of the Intoxilyzer 5000 and a simulator. This happens to be the unit that's in my laboratory. However, except for the serial number, it is identical to all 252 units that are in use in North Carolina.

Q And all of these safeguards that are in this instrument, where would they appear so that an officer would know --

A All of that information is displayed on the screen on the Intoxilyzer. The officer turns it on with the red button. When he's ready to do a test, he pushes, "Start Test." He's prompted through the screen to enter in the identifying information about the Defendant, the charging officer, the chemical analyst. Once he's entered that information, it indicates he's ready to start a test. He will push, "Yes," a "Y" on the keyboard, and it's an automatic process. The officer can't influence anything that happens from that point forward.

Q Is there anywhere in this instrument that the officer puts in the weight of the Defendant, the amount of alcohol that the Defendant drank, or the height of the Defendant?

A None of that. There is no place to enter that. The instrument is going to measure the breath alcohol of the subject that's being tested, and their weight, their gender, how much they had to drink, while those would influence the result, those are not factors that the Intoxilyzer needs to know.

MR. MARTIN: Your Honor, if I could just have one second.

THE COURT: Sure.

Q Just for clarification, Mr. Glover, we've already been over what the interferences are to the Intoxilyzer that are possible and how it deals with those?

A Well, the most likely one to encounter is acetone, and that would be produced by a diabetic going into keto acidosis and people on extreme diets.

The other interferences that have been suggested are not chemicals that are found on the breath of conscious adults who are driving cars. In order for something to be significant, it has to be in a concentration that would be significant on the

instrument. The concentrations that are found on the breath like taurine are in the range of -- in the range of one to two parts per million, so it's not even one percent at that point, and the instrument won't detect it, so they aren't true problems.

MR. MARTIN: Your Honor, that would be the showing for the State.

THE COURT: Do you want to ask anything, Mr. Morgan?

MR. MORGAN: We are still on his qualifications, is that right, or what he's allowed to testify about?

THE COURT: No, I have already found him to be an expert in the field of alcoholic breath testing. You are to point out now why his testimony should not be admissible.

MR. MORGAN: Yes, thank you.

THE COURT: Yes, sir.

MR. MORGAN:

Q Mr. Glover, basically what you're saying is, you think the machine was working properly because the machine told you it was working properly, is that right?

A The instrument generated a completed test record ticket.

Q From what you have assumed, that the machine

was working properly?

A I have never been able to get a completed test record ticket out of an instrument when it's had any of the failures that are listed there.

Q Did you review the data that this particular Intoxilyzer 5000 machine is capable of downloading concerning the problems it could have during that period of time that's in question?

A The data was not being downloaded at that time.

Q But the data was being stored?

A Well, it has a memory, but it also has a limited memory, and it gets to the point that it pushes the oldest tests out. You are talking about a test that was done a year ago. On this test site, I don't know what the number of tests that are done, but I know that there were something like 80 or 90 in the p.m. period prior to the Defendant's test, around 80 during that p.m. period that covered him, and 87 for the second one. So since that time, there's no telling, three or four hundred tests, very easily, could have been done on it, so that data would have been pushed out a long time ago.

Q But you're just guessing that; you don't know that?

A Do I know that it will only hold a certain

number of tests? That's not a guess. That's something that I know for a fact.

Q No, sir, listen to my question very carefully, if you would, Mr. Glover. You don't know whether the data concerning this particular test and the ones right before it and right after it are contained in that Intoxilyzer 5000 software stored and not purged, do you?

A On my experience --

Q Do you know?

A -- and my training, there's no way it could be in there.

Q So you know that, then?

A I know that it has a limited memory. I know that it pushes out old data.

Q Yes, sir, but you don't know how many tests were done in the intervening time; therefore, you don't know whether the test results are still in that data or not, do you? You have a strong belief, but you don't know, do you?

A I know that it's not there now. I can assure you of that.

Q So you printed that out and confirmed that?

A No, I told you, we don't download that.

Q But you're capable of downloading it, aren't

you?

A We are capable of downloading it. We started a connectivity program, if you will, in the State back in late January, where we are connecting all of the Intoxilyzers so that we can download certain data in Raleigh from them. The chips were changed in the units here. I can't tell you the exact date. I have it written in my notebook at work. I do know that they were changed. I believe that it was in February. And I do know that anything that was in them prior to that time is gone.

Q Gone because it was intentionally deleted, or just by attrition it was deleted?

A I know that anything that was in there at the time the chips were gone have intentionally been deleted, because the formatting was not compatible with the new programming.

Q So the evidence that you could have reviewed before it was deleted to confirm or dispel what you learned in the preventive maintenance records is no longer available, is that right?

A I'm not sure of your question. Let me -- I have reviewed the simulator log. That has tests that were done prior to the Defendant's test and after the Defendant's test. The instrument was not shut down for

any reason during that time.

Now, a number of these safeguards are simply that, they are safeguards. They are not failures on the instrument's part. If an officer comes in there, keys his radio, generates radio frequency that the instrument detects, that is not a failure on the instrument.

If you have a low fuel light in your car that comes on when you get low on fuel, that is not a failure on your vehicle's part. You don't take it to the garage and get it fixed. It is a warning.

Q I don't mean to argue with you --

THE COURT: Just a minute, Mr. Morgan. This is in the area of Cross-Examination, weight and credibility to be given. That's not my problem.

MR. MORGAN: I understand that.

THE COURT: Okay. My problem is in the area of whether or not the man should be allowed to testify an opinion as to whether or not this officer followed the statutory requirements and rules promulgated by the Department of Health and Human Resources.

MR. MORGAN: Oh, we would be glad to stipulate that the officer did that, if that's the only issue.

THE COURT: Well, I don't know -- I

don't know what you gentlemen are doing, but the stipulations are not my job.

MR. MORGAN: Yes, sir, I'll be happy to do that. We do not contest that it was done according to procedures.

THE COURT: Well, with respect to the poster, I don't believe that would be competent evidence, Mr. Martin. You can use that in your arguments to the jury, provided that you cover it for this witness.

MR. MARTIN: So I can't use it with him?

THE COURT: You can use it with him, but just don't show it to the jury. If he needs to prompt himself as to what to testify, well, you can use it. I don't want it displayed to the jury at this stage. You can argue it, if you support everything that's on that poster with his testimony.

MR. MARTIN: Yes, sir.

THE COURT: Okay. Beyond having this witness, Mr. Martin, testify that in his expert opinion Officer Johnson followed the rules promulgated by the Department of Health and Human Resources and the statutory provisions of G.S. 16.2, I believe it is, what other expert testimony do you want him to give, what opinion?

MR. MARTIN: Just that upon examination of the test ticket, that this particular test was done, that he could look at that test ticket and tell that this particular test was done properly, and that the results of it are, in fact, what they are; and how he is able to determine that so the jury can understand that.

THE COURT: I won't let him testify that the results are proper. That's a matter of the credibility of the machine and the testimony, and for the jury to determine. I will let him testify about what the officer did and whether or not it's in compliance with the rules; and that from the test record, what that indicates to him, with the condition of the machine at the time of the test. With respect to telling the jury that in his opinion, the results were proper, that would not be a proper question.

Yes, sir.

THE WITNESS: So I can testify that in my opinion, it was working properly. You're just saying I can't testify to the results.

THE COURT: The results, right.

MR. MARTIN: Other than that, just his evaluation of the extrapolation made by Dr. Stafford.

MR. MORGAN: That was in an area of pathology that Your Honor didn't qualify him as an

expert in.

THE COURT: Well, I don't know that it takes a rocket scientist to tell us that if a man has a damaged liver, he won't be able to take care of alcohol as well as anybody else. That's all he's testifying about.

MR. MORGAN: Yes, sir. I'm simply talking about the extrapolation itself. As an alcohol breath testing expert, he knows about the machine, but not the pathology behind it.

THE COURT: I believe that comes within the wing span of what I've said he's an expert in. Overruled.

MR. MORGAN: Can I ask a quick question?

THE COURT: Yes, sir.

BY MR. MORGAN:

Q How long was the warranty on this particular machine?

A This machine comes with a one-year warranty against defects and workmanship, or the hardware itself.

Q What model processor does it use?

A I don't know what the processor is.

MR. MORGAN: Thank you, Judge. Those are my questions.

(IN THE PRESENCE OF THE JURY.)

THE COURT: Stand please, Mr. Witness, put your left hand on the Bible, raise your right and face the jury.

PAUL L. GLOVER

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MARTIN:

Q Sir, would you state your name for the jury, please?

A My name is Paul L. Glover.

Q What is your occupation, sir?

A I'm the Research Scientist and the Assistant Branch Head for the Forensic Test for Alcohol Branch, which is a part of the Department of Health and Human Services, State of North Carolina.

Q Is that your place of employment?

A Yes, it is.

Q And describe briefly to the jury, sir, what -- what the specialty of your subject matter is.

A I have been the branch -- not the branch head. I've been the Research Scientist for the branch for two-and-a-half years, and I am responsible for reviewing scientific literature that's related to alcohol testing, blood and breath alcohol testing.

Q And if you will, sir, what -- tell the jury what academic degrees you hold and where they are from and when you got them.

A I have a B.S. in Biology from Florida State University that I got in 1974, and a Master's Degree in Biology that I got from Florida State University in 1978.

Q Tell the jury what specialized degrees and training that you have.

A I'm certified is a chemical analyst to run the Intoxilyzer in the State of North Carolina. I'm also certified to do preventive maintenance on the Intoxilyzer. I'm certified to do maintenance on Alkasensors, and I have attended a course in -- at Indiana University that's a course for highway supervisors, or supervisors in highway safety programs related to alcohol testing.

Q Tell the jury what, if any, positions you've held since the completion of your formal education and the length of each time in each of those position.

A I was a Research Scientist at Oak Ridge National Laboratory, Oak Ridge, Tennessee for seven years; a Research Scientist at the National Institutes of Environmental Health Sciences for five years; a Research Scientist at Burroughs Wellcome Pharmaceutical

for seven years.

Q Would you tell the jury what the duties and functions are of your current position?

A As the Research Scientist for the branch, I have to review scientific literature that's published on a regular basis, evaluating papers for their -- how they may impact on our program, if there are studies that are done that impact on what we need to train the chemical analysts when they are getting certified to be chemical analysts.

I do in service training for our 14 field personnel to keep them apprised of the science of breath testing. I evaluate breath test equipment. I maintain a laboratory in Raleigh.

As the Assistant Branch Head, I'm responsible for supervising 14 field staff and updating, reviewing, adding to the manual that we produce for the chemical analysts when they are going through their school to become chemical analysts.

Q And I believe you testified as to the length of time in that current position?

A I've been with the branch for two-and-a-half years now.

Q What, if any, publications do you have and what -- in this field, and what are the titles of those

publications?

A I did some presentations at the annual meeting of the International Association for Chemical Testing last year. One of them dealt with managing references. Those would be the scientific publications. You can generate quite a large pile of them, and one of the problems people have is keeping track of the papers.

Another presentation dealt with controlled drinking exercises, where we take volunteers and dose them with a certain amount of alcohol and then record what they end up blowing and monitor the alcohol concentration.

And the other one dealt with interfering substances, and those are substances that have been suggested could interfere with a breath test.

MR. MORGAN: Objection to that characterization.

THE COURT: Overruled.

Q Are you finished, sir?

A Yes.

Q How many times did you testify, sir?

A I have testified about 28 times in the last two-and-a-half years.

Q In the last two years how many prosecutions have you assisted in, sir?

A About 60.

Q And when looking at your positions held since your formal education, have you also been a reserve police officer?

A Yes, I've been a reserve police officer in Durham since 1986. For a period time in 1997 I was a full-time officer. And I've been a reserve police officer at the University of North Carolina at Chapel Hill since 1992, and I still am.

Q Are you, sir, being specifically paid to be here today?

A I get my regular salary.

Q So when you testify in the field, it's covered under your regular salary?

A Yes, that's part of my duties.

MR. MARTIN: If I may approach the witness, Your Honor?

THE COURT: Yes, sir.

Q Looking at what has previously been admitted as State's Exhibit No. 1, the test ticket, or a copy of the test ticket for this particular Defendant, Mr. Redmon, upon your looking at that test ticket, can you -- are you able to determine whether this particular test -- or whether this particular instrument was operating properly when this test was done?

A Yes.

Q And if so, will you tell the jury how you are able to determine that?

A Well, this test ticket is complete. It starts out with the location that the test was done, all of the identifying information that was entered by the officer, and the results of cal checks, subject test, and has a reported alcohol concentration on it.

In order to get a test ticket that is completed like this, you have to have an instrument that was working properly and that encountered no problems during the testing procedures.

The instrument has a number of safeguards that are built into it. Initially the instrument is turned off. The officer or chem analyst will come in and turn the instrument on. It has a length of time it has to stay in a condition of not ready.

It has a little display screen with the different words up, and it will say that it's not ready.

Once that time is passed, it then goes through a diagnostic check where it checks the temperature of the different components. It checks the filter wheel. It has three filters mounted in it that filter the various red wave lengths out. It checks the printer to see if the printer is working properly. It checks the

memory to see if the memory is all right. Once it's completed the diagnostic, if everything is okay, it will come out of not ready.

If it detects a problem with any of those, it will not come out of not ready. The officer can't use that. This completed ticket tells me that it came out of not ready and it detected no problems with the instrument itself.

When it is time to do the test, the officer would then push the, "Start Test" button that's on the instrument. He's then prompted through the screen to enter information, citation number, a defendant's name, birth date, the charging officer, chemical analyst. He enters that information in through a keyboard. Once he says that he's ready to do the breath test, the instrument will take a sample of the room air, and it pulls it in through the same tube that the Defendant blows through. If it detects alcohol in the room air, it will stop the test. It will reject the test ticket, and it will print on it, "Ambient Failed," and it will not have any of the identifying information as far as the Defendant, the chemical analyst or the charging officer.

The chem analyst would have to ventilate the room, set it up again as far as entering the

information. So this one did the first air blank. It detected no alcohol on that air blank.

It then will go through a calibration check. This is a calibration verification.

The instruments do not calibrate themselves. They are calibrated initially at the factory. We have factory authorized service technicians who set the calibration electronically in a lab. There is a device attached to the Intoxilyzer called a simulator. It provides a known vapor sample of alcohol to be analyzed.

The instrument analyzes that sample. The sample does not tell the instrument what it is going to be. The instrument just analyzes it just like it would analyze a person's breath.

By regulation that has to be a .07 or a .08. If it is either a .07 or .08 by regulation the instrument is deemed properly calibrated.

The reason that it can be an .07 or .08 is that the simulator stock solution target value is .080, and with time, because this gets circulated through the simulator, the alcohol concentration will go down over a period of time, over a number of tests, and so it will fall below the .080 and get down into the .079, .078, .077.

This had a cal check that was in the range

that's -- that the regulations say it's okay. It had a cal check of .07. It then pulls up another air blank through to show that it pulled all the alcohol out. If it can't get all of the alcohol out, the instrument will not go any further with the test.

When it is time for the subject to blow, if they blow too soon, there's a prompt that comes up on the machine, and it says, "Please Blow." Sometimes people blow before it says, "Please Blow." If they do that, it will reject the ticket and have printed on it, "Invalid Test. Subject Blew Too Soon." It will not have any identifying information on it. The chem analyst has to set it all up. It has to go through all of the checks, the same ones again.

If the subject, when it's time to blow, has mouth alcohol, and that would be the alcohol that would be the residual alcohol, say if one had just taken a sip of an alcoholic beverage and then blew into the instrument. It can detect that. If they have mouth alcohol, it will reject the ticket and will have printed on it, "Invalid Sample," and the chem analyst has to have another observation period.

They are required to have a fifteen minute observation period before they can even have the person blow. The reason for that is to allow any mouth alcohol

that might be present to dissipate. Studies have shown that fifteen minutes is more than sufficient time for any mouth alcohol to dissipate.

Q If I can interrupt you. Tell the jury what you mean by mouth alcohol.

A Well, it's just alcohol. When we are doing a breath test on the subjects, we are taking deep lung air and measuring the alcohol in that air. We don't want alcohol that's just in their mouth, and so if -- Most of the time they are in custody so they don't have access to anything.

During that fifteen minute period, the chem analyst is to observe them to insure that they do not eat, drink, smoke or place anything in their mouth. If they violate that observation period, then they have to start the observation period again.

Now, when the subject blows, if it's in a range, say, around .65, that's a concentration that is lethal in most people. It's actually beyond the lethal range for most people. The instrument will indicate range exceeded and reject the ticket. The chem analyst has to evaluate the subject here. He may go to another instrument. He may not be certain why he got an instrument range exceeded, but it's a warning to him. Also, this subject may need to be going to the hospital.

When they blow, it also looks for interfering substances. The most common one found on human breath is acetone. That's found in diabetics who are going into keto acidosis. It's found in some people who have been on extreme diets that would blow some acetone off.

The instrument will always subtract out the acetone value that it finds. If it finds it above a certain level, it will complete the test, and at the bottom of the ticket it will indicate the interference is subtracted. That is to alert the chem analyst you may have a person that you're going to have to call EMS for.

It has a radio antenna in the breath tube. It's a black tube about that long that comes up on the side of the instrument. That antenna is to detect any radio frequency that may be being emitted in close proximity to the instrument. You don't want it happening while they are -- You can't take a radio and cause a particular result to show up. In order to guard against any malfunction, this antenna is in place so if someone keys their radio in the room, this instrument detects it, rejects the ticket, prints, "RFI Detected." The chem analyst has to enter a new ticket and start everything all over.

Finally, you have to take two tests by

Statute, and the two tests have to be within .02 of each other. And the instrument, when a subject blows, it then ventilates the instrument. It shows another air blank. It has to go until it sees no alcohol at all. The subject blows a second time. If the two subject tests are within .02, then it will print out a completed ticket at that time. If they are not within .02, then it will prompt them to have the subject blow another time.

So because we got a completed test record ticket, it indicates that none of those things occurred at that time; or if they did, the officer started over and was able to get a completed ticket once he took care of whatever the problem was.

Q Now, Mr. Glover, what, if any, investigation did you do concerning whether the officer who was the chemical analyst in this case, Joe Johnson, from the Asheville Police Department was certified to operate the Intoxilyzer 5000?

A We have a database at work of all of the individuals in the State that are certified as chemical analysts, and so when I found out who the chemical analyst was, I reviewed his history to insure that he was certified at that time. And his record shows that he was certified at that time to run the test.

Q And what, if any, review of the maintenance logs for this particular instrument did you do, sir, in order to determine whether it had been properly maintained?

A Well, the regulations, rules and regulations are separate from the statutes in this state that govern breath testing, and they direct that preventive maintenance will be conducted on an instrument every four months. And so when one of our field representatives comes into a test site, he will do the preventive maintenance on the instrument.

He fills out a certification that preventive maintenance was done on that date. He prints out a diagnostic test done on that instrument. That stays at the test site. These are done on carbon paper, so the duplicate set is sent into Raleigh. We maintain a separate file from Raleigh. I pull the preventive maintenance file on this instrument, and it was in compliance during the time that the defendant was tested. It was in compliance in the preventive maintenance period prior to that and after that.

Q How do you know you were looking at the preventive maintenance for this particular instrument?

A Well, on the top part of the ticket, the part that the chemical analyst doesn't have to enter even,

would be the location, Buncombe County Jail, North Carolina, Model 5000, and it has the serial number. Each unit in North Carolina has a unique serial number. This serial number prints out on all the testing that's done on subjects, testings that are done for preventive maintenance. You go to that file with that serial number.

Q Sir, I'll show you what I've marked as State Exhibit No. 4. Do you recognize that exhibit?

A Yes, I do.

Q What is it?

A It's a picture that I made of the Intoxilyzer in my lab with the simulator attached to it.

Q What, if any, difference does this Intoxilyzer instrument have compared to the one that was used in this case?

A All units in North Carolina are identical except for the serial number.

Q And will this picture help you illustrate your testimony to the Court?

A Yes, it will.

MR. MARTIN: Your Honor, I would move to enter this for illustrative purposes.

THE COURT: All right.

MR. MARTIN: I would ask the witness to

be allowed to step down from the witness stand.

THE COURT: Well, all right. Speak up, sir. She's got to take everything you say, and talk slowly.

Q Show the jury where the substance that is used for the cal check comes from.

A This is the alcoholic breath similarity. It looks like a peanut butter jar with a top on it. It has a heating unit in it and a thermostat in it. It's maintained at 34 degrees Celsius, plus or minus two-tents of a degree.

It's a closed container. It has a heated recirculation hose that comes into the side of the instrument and a return hose back here. When calibration is done the instrument will pump air through here. It bubbles through the alcohol water mixture, and it goes into the instrument, and it's analyzed.

Q Is this substance also maintained when the preventive maintenance is done?

A We have a alcoholic breath simulator log that's in place. When the field tech comes in, this fluid has to be changed after 125 tests. When it circulates, the chamber that's in here, the chamber is about that long, about that big around, it has to be vented, because between -- after a cal check, you have

to show that there's no alcohol left in the instrument, so it vents it out the back of the instrument. Every time you cycle that, you lose just a little bit of alcohol.

The regulation in place says that every four months, or every 125 tests, whichever comes first, this fluid has to be changed, and there's a log that stays with the instrument, so when an analyst comes in and does the test, he enters in that log the fact that he ran a test on it. There are 125 numbered spaces, so that limits the number of times they can put entries in it.

Q Did you review the maintenance log for the Intoxilyzer that was used, the instrument that was used in Mr. Redmon's matter?

A For the simulator, yes.

Q What did you find?

A That it had not reached the 125 test. I think it was around test 87 or 78, in that range, and a number of tests, maybe about 20 more tests were done on it before the instrument closed.

Now, one of the things that can happen when it does a calibration check, since this is heated, has a heater, if the thermostat fails and it starts to overheat, then it will drive more alcohol into the vapor

face.

When the cal check is done, it would give a high value, .09, .10. It can go way on up. If the instrument sees that, it shuts down on the cal check, and the officer cannot run a check on that instrument. He has to call us and tell us that he's had an out of tolerance, and we have to have the field guys come and find out what's wrong.

The other thing that can happen is if there's a leak, let's say the lid isn't screwed on tight, there's a leak in the hose, and you lose alcohol faster than you normally would, you can get an out of tolerance low. So when it does the calibration check and you get a .06, when that happens the instrument sees that it's out of tolerance. They will come in, turn the instrument on, make up a new batch of alcohol for the simulator to find out if it's the simulator or if it's the instrument.

Q Now, where does the officer put the test ticket at?

A Well, this slot right here is where the test ticket is fed into the instrument. This is the on and off button. This is the start test button. This is the window that displays all of the instructions, and the officer enters the identifying information of the

subject and the arresting officer through the keyboard.

Q What information does he enter through that keyboard?

A Citation number, birth date, Driver's License Number, gender, name of the Defendant, charging officer's name, type of agency he works for, the name of the agency, and then the chemical analyst's name and his permit number.

Q Does any of that information influence the result of the test?

A It doesn't have anything to do with the test. Once he's entered all of that and reviewed the data, it will ask him, "Breath Test," and has a "Y," slash and "N," yes or no. If he hits "No," he reviews the data again. When he reviews his entries, he pushes "Y" for yes.

The breath tube, by the way, is connected on this corner. It's laying kind of on the side of this instrument and is brought forward. A clean mouthpiece is put on it every time that a subject is tested.

Q If one of the safeguards were initiated, where does that appear at?

A It typically will alarm and prints on the ticket and rejects the ticket, and you could see what had happened at that time.

Out of tolerance will disable the unit, and it will say, "Unit Disabled, Call FTA."

Q Does the officer at any time enter the Defendant's height, weight, when he or she -- the Defendant actually takes the Intoxilyzer 5000?

A There's nowhere to enter any of that data in the Intoxilyzer, because it doesn't care, basically. It's measuring a deep lung air sample.

Q And it doesn't care why? Why does it not care about the height or weight?

A Because it's measuring the alcohol in the individual, so there's nowhere to enter in any of that data. While that information will affect a person's alcohol concentration, it doesn't affect the analysis that the Intoxilyzer does.

Q So that the jury doesn't get confused, explain to them what you mean. Why doesn't the height or weight of the individual affect their alcohol concentration?

A Alcohol goes into the water portion of your body. If you gave a dose of alcohol to a hundred pound male and to a 200 pound male, gave them the same dose, their alcohol concentrations would be different. The hundred pound male would have about twice the alcohol concentration of the 200 pound male.

Q What, if any, problems did you see with the Defendant's expert, Dr. Stafford's, calculation of what his maximum alcohol content would be on April 26th of 1999.

A I believe he used three beers as the amount of alcohol that was consumed, and the window of consumption was from, I believe, roughly nine to midnight, about a three hour period. And he didn't -- He used an elimination rate, but he didn't have the subject eliminating any alcohol during that time. You eliminate alcohol by it being metabolized in your liver.

As soon as you start drinking an alcoholic beverage, you start metabolizing it. That did not appear to be in the calculation, because in that three hour period, even using an elimination rate Dr. Stafford referred to, .01, that means that the subject would be using .01 on his alcohol concentration per hour.

Well, if the maximum they could get to would be an .04 or an .05, if you could instantly put that alcohol in a person, the three beers, that would tell you the maximum the person could be, if you could instantly put it in, but it wasn't put in instantly. It's consumed over a period of time. As it's being poured in, it's being eliminated. That has to be taken into consideration.

Q What, if any, persons have an elimination rate of .01?

A Well, there's a range of accepted elimination rates that have been reported in people. The range is from .01 to .02.

There are some people who have been higher that are severely chronic abusers, but the .01 is typically found in people with liver damage. Since metabolism occurs in the liver, blood has to flow through the liver in order for the enzymes to break the alcohol down.

If you have a damaged liver, you don't have the same blood flow through the liver. You are not able to eliminate that alcohol at the rate that a normal person would.

Q Based upon the calculation Dr. Stafford made, what would have been Mr. Redmon's blood -- breath alcohol concentration at 4:03 when his test was taken?

A Well, using the elimination rate that he had, the level should probably, at about 1:00 o'clock, have been a zero, zero, and it would have been that for the rest of the evening.

MR. MARTIN: That would be the questions I have, Your Honor.

THE COURT: Cross-Examination.

MR. MORGAN: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. MORGAN:

Q In addition to working for the State, you work for the City of Durham and the University of North Carolina, Chapel Hill as a law enforcement or police officer, is that right?

A I work for the City of Durham as volunteer work. I don't get compensated for that. My work at the University of North Carolina, Chapel Hill, I work directing traffic primarily at football and basketball games, and for that I am compensated.

Q You are a police officer in both capacities?

A Yes, sir, I am.

Q You are a police officer now, in addition to being a Research Scientist?

A Yes, I am.

Q Now, when you worked for Oak Ridge, you didn't do anything with breath alcohol testing in connection with your duties, did you?

A No, I did not.

Q Likewise, when you worked for the National Institute of Environmental Health Services or Sciences, whichever the case may be, you didn't do anything with reference to breath alcohol testing in connection with

your duties, did you?

A No, I did not.

Q When you worked with Burroughs Wellcome you didn't do anything in connection with your duties with breath alcohol testing, did you?

A No, I did not.

Q Now, you are paid by the State of North Carolina?

A I have a salary.

Q And you were paid for working yesterday and today, which was composed of being here in the courtroom listening and testifying today, is that right?

A My normal pay I get eight hours a day. Anything over eight becomes comp time, so I got my normal. I didn't get anything extra for yesterday. I won't get anything extra for today.

Q But that doesn't influence your testimony, just because you are testifying for the State and you are paid by the State, does it?

A It does not influence my testimony.

Q However, you are a State's witness, and you have never testified as a defense witness in this area, have you?

A That's not true.

Q Okay. How many times, then, out of the times

you have testified as a witness, have you testified as a defense witness?

A I have been called by the defense on two occasions.

Q So were those two occasions included in the 28 that you mentioned to the jury earlier?

A Yes, they were.

Q All right, so two out of 28 were for the defense, and 26 out of 28 were for the State?

A Correct.

Q In addition, you had another 32 or so that you helped the State out in but did not testify, is that right?

A Cases that I have been involved in. There are a number of reasons why I didn't testify.

Q But it is true that you did participate in the prosecution preparation or in a consulting fashion in a number of other cases for the State?

A And for the defense also. I take phone calls from the defense on a regular basis.

Q The machine that was used that you got a chance to look at while you were up here to test Mr. Redmon is at least six years old, isn't it?

A Yes, it is.

Q Yet the warranty for that machine that the

State of North Carolina was given when it was purchased is only one year, isn't that right?

A That's correct.

Q It's been out of warranty in excess of five years, isn't that right?

A It has been out of warranty for at least five years.

Q Now, the Intoxilyzer 5000 machine was purchased by the State for use in this county, or by the County, whichever the case may be, because it had several improvements over the previous machine, isn't that right?

A We went to a statewide breath testing program in --

THE COURT: Well, Just a minute. The objection is sustained.

Q Well, do you know what model number Intoxilyzer 5000 was used on this particular test?

A The Intoxilyzer 5000.

Q But there are several series within that. Which series was used?

A All of the units in North Carolina are Series 66. That's indicated in the serial number 66003579 in this case.

Q Is that the most current generation of Model

66 that's available?

A I don't know if they are still producing the 66.

Q What do you think they are producing now?

A There's a series called -- the Intoxilyzer 5000, they have the 68 series.

Q They produced that because of perceived problems with the 66 Series, didn't they?

A They produced that because of requirements from some of the European countries, to be exact.

Q I'm sorry. Because the Model 66 was not as accurate and reliable as the 6800 Series, is that right?

A No, that is not.

Q Well, you testified that this particular machine only had three filters, didn't you?

A That's correct.

Q And the newer model has five filters, don't they?

A It has two additional filters, but these are all for identifying ethyl alcohol, so if you can think about a chemical compound as having a unique fingerprint when you are considering the absorption of infrared light by that molecule, all this is over a spectrum of infrared light you get changing absorption. This just has a few more points on the line, so it checks a few

other -- the absorption at a couple of other wave lengths.

Q And what the newer models do that this older model doesn't do is exclude some other interference, isn't that right?

A There has been no evidence that any of those interference -- that an interfering substance --

MR. MORGAN: Your Honor, could I ask the Court to direct the witness to answer my question? And then he can explain it all afternoon.

THE COURT: It's pretty technical, sir. If you will address his question, and then you may explain your answer, sir.

THE WITNESS: Your question again?

Q I believe my question was something like, isn't it true that the newer models are able to exclude other interfering substances that the older model used in this test could not exclude?

A No.

Q It's not true?

A No.

Q So why then have two more additional filters, if they're not necessary?

A Because some of the controlling authorities in Europe, in order to use the instrument over there,

wanted those filters in there.

There was a -- or is a perceived notion that there can be other substances, like paint thinner, on your breath. In order for a substance to be of a concern --

A No, sir, inhalation. In order for an interfering substance to be of concern, first of all, it has to absorb in the same wave length that ethyl alcohol does; and it also has to be on the breath of a conscious human being in sufficient quantities to be seen by the instrument.

And there are no studies that have been done to show that any of these substances are present on the breath of humans, other than acetone, and that's from diabetics and some people on extreme diets, and so those are conditions that don't exist. You don't find paint thinner on people's breath.

Q Actually, it's true, is it not, that these studies that you're referring to have never tested human beings with taurine? Yes or no?

A On the Intoxilyzer?

Q Yes.

A Correct.

Q Now, it's Mr. Glover, right? You don't have your doctorate, is that right?

A No, just my Master's.

Q You mentioned something about this particular machine calibrating versus checking the calibration. Now, it's true that this machine doesn't calibrate, it simply checks the calibration, isn't that right?

A It verifies that it is properly calibrated.

Q In other words the machine tests itself?

A It doesn't test itself. Again, my best analogy for that is if you weigh yourself every morning on the bathroom scale, and you are very pleased with what you're seeing every morning, and you go, "I want to make sure this is working right. I've got a five pound sack of potatoes I got at Harris Teater. I'm going to put them on the bathroom scales and see if it says the right weight," and you put it on there, and you see it shows five pounds. You're happy because the scales are right.

Well, that's what is happening with the simulator. A sample is introduced into the chamber. It's analyzed, just like a subject's breath is analyzed.

If the analysis shows that the concentration is .07 or .08, and I explained why we can have that variation, then it is deemed by rules and regulations to be properly calibrated. Calibration actually occurs in the lab. We have factory trained authorized service

technicians that do all of the internal work on the Intoxilyzers.

Q Since you brought the subject up, it is true that no one calibrated this particular machine immediately before, during or after this particular test, did they?

A To verify or to --

Q That a yes or no, please, and then you may explain your answer.

A No.

Q Thank you. Do you need to explain your answer?

A Yes, I do.

Q Please.

A To do the calibration, to actually calibrate the instrument takes about $50,000 worth of electronic equipment and factory authorized service personnel to open the instrument up and to do a number of different electronic diagnostic tests. There are a number of potentiometers that can be adjusted, if they need to be adjusted.

That is done in our electronics lab in Raleigh. Once that's completed, they then will take an alcoholic breath simulator, just like the one that's in the picture. They will have it with a concentration of

.08, .16, .24, .32, and they will blow that through the instrument to see if they get a linear response, in other words, if the instrument reads it as it should on those concentrations.

So they do the calibration, and then electronically they then verify it with different concentrations of alcohol. Then it's put back in the field.

To have it calibrated by a field tech would mean that all 165 test sites that we have in North Carolina, we would have to have a factory authorized technician with $50,000 worth of equipment to sit there and take the instrument apart, do the calibration, put it back together, before and after every test, which is what you've suggested.

Q So the short answer is, no, no one checked out the machine before, during or after the test to make sure it was working properly? That's the short answer, isn't it?

A Correct.

Q Let me ask you this. The simulator you have talked about and the preventive maintenance for the simulator, you have to trust that the company that manufactured that simulator has properly measured the percentage of ethyl alcohol in that solution based on

how it's packaged, isn't that right?

A Yes, and that alcohol is prepared by the State Health Lab at our request. It comes to us sealed in vials. There's a lot number for every group of 187 vials that we get. They take samples from every batch that they make, and they confirm its concentration on a gas chromatography.

When I get the stock lot from them, I open a vial up, and I confirm it on the instrument that's in that picture. I do a minimum of 50 calibration checks on that particular vial from the lot. I calculate a mean and a standard deviation. I do that for every lot that we get, which is in addition to the check that the State Health Lab does.

The manufacturers of, and they're private manufacturers of the stock solution, they use a breath test instrument alone to verify the calibration.

THE COURT: What will be next there, Mr. Morgan?

Q Mr. Glover, then it's true that neither you nor anyone else tested this particular solution immediately before, during or after this particular test to make sure that that ethyl alcohol concentration was within the limits that the machine printed out?

A Independent of the analysis done by the

instrument?

Q Yes.

A No.

Q So you assume that the machine was working properly when it measured it?

A Correct.

Q In fact, did you hear yesterday the chemical analyst, Officer Johnson, say that he was taught that it could be within tolerance if it was even as low as .08 on the simulator solution?

A I heard him testify to that. All I can say is that he doesn't stay as current as he should. It says it on the inside of the simulator lot that .07, .08 is what is deemed to be proper calibrated.

Q It's true, Mr. Glover, that this particular instrument does not record false tests?

A I don't know what a false test is.

Q Well, for instance a defendant's attempt to blow where the Intoxilyzer does not accept a sample for any reason.

A I'm not aware of that occurring. When a person blows, they're required to blow a minimum length of time and at a minimum pressure. When they have -- When they initially start to blow, and they blow hard enough at a sufficient pressure, there's an audible tone

that's emitted from the instrument. They then have to maintain that tone for about five to six seconds. If they stop blowing at any time, they will have to restart blowing. This is to insure that we get a deep lung sample. If they don't blow hard enough, they can blow all day long and it will never accept their sample.

Q So if, in fact, Mr. Redmon gave his first sample, and then after trying to give his second sample he was told he wasn't doing it right, would the chemical analyst have to recalibrate the machine before allowing him to blow the third time?

A No, because that would still be on the second test. He can start and stop basically as many times as he wants to within a certain time frame, but that doesn't constitute starting another test.

Q Isn't it true that this particular machine is capable of collecting the data concerning aborted tests and any other problems that the machine has experienced?

A I don't know what you would consider to be an aborted test.

Q Well, it collects some data of some sort, doesn't it?

A Yes, it does.

Q Tell the jury what kind of data it collects?

A It collects the completed test. It collects

if there was RFI, all of the different safeguards I went through, if it goes out of tolerance, if there are interfering substances detected. I think that those are basically the problems that it will collect.

Q And it's true that that data in this particular case has been destroyed, hasn't it? Yes or no?

A I don't think destroyed is the proper term. We were not collecting the data at that time.

Q Well, the machine collected it. You simply weren't downloading it, isn't that a more accurate statement?

A We haven't been downloading it -- Let rephrase that. We started downloading the data from instruments in probably February, and we started at the western part of the state, and we have not completely connected with every unit in the State. Prior to that time, we were not downloading the data.

Q But the machine had software pursuant to the North Carolina specs to collect that data, even though you chose not to download it, didn't it?

A We didn't have the means to download it, but, yes, it does have that software.

Q And that data, for whatever reason, is no longer available, is it?

A Correct.

Q But that data, had it been available, would have been useful to you to confirm the preventive maintenance log and your opinion that it was done properly, wouldn't it have?

A No.

Q If there was disparity between the preventive maintenance log and that data, would that not have caused you some concern?

A I don't know what you're meaning, disparity in the preventive maintenance log.

Q If the preventive maintenance log were to show that there was a problem with some interfering substance -- excuse me, not show there was a problem with some interfering substance on a particular test, and yet the data reflected there was a problem, that would be a major problem to you, wouldn't it?

A It -- I was going to say remembers. It records the data just as it is printed on the test record ticket.

Q Including shutdowns because of interference?

A It doesn't shut down if it gets --

Q It records that?

A Excuse me?

Q It records that?

A It records it. It prints it out on the test record ticket if it's a sufficient level.

Q And that data is recorded, it's captured?

A Yes, but it would also be printed on the test record ticket.

Q But you haven't checked all of the test records. All you checked was the preventive maintenance log, isn't that right?

A I have looked at this test record ticket, and there is no interference tracked on it.

Q When you say this machine and the tests done on it encountered no problems, what you are saying to the jury is, that's according to the machine and what it told you, isn't it?

A According to the completed test record ticket, yes.

Q Isn't it true that the calibration of the Intoxilyzer 5000 can drift out of tolerance on the analysis of a percentage without the internal standard aborting the test?

A We don't use internal standards on these units.

Q No internal standard? So you're denying that that happens?

A I'm saying we in North Carolina do not use internal standards. There are some states that do not use an alcoholic breath simulator attached. They use an electronic internal standard to verify calibration. We prefer using a wet bath simulator so it provides an alcohol sample to be analyzed. We do not use internal standards.

Q To boil this all down for the jury's understanding, isn't it true that this machine does not measure ethyl alcohol, specific, but rather substances that are like ethyl alcohol in their molecular structure? It is not specific for ethyl alcohol, is it?

A The wave lengths -- Yes, it is specific for ethyl alcohol. The wave lengths that were selected -- The wave lengths of infrared radiation that are looked at are specific to ethyl alcohol and are specific with respect to the amount of absorption of the two different wave lengths. It looks at two different wave lengths of IR. It compares the height of absorption. There's a set ratio between the different wave lengths. It's unique to ethyl alcohol.

Q It is true that some interfering substances masquerade or mask, in terms of this infrared detection device, as ethyl alcohol? They cause the same reaction in the machine, the diminution of the intensity of

light?

A Not -- Not substances found on the breath of human beings.

Q There are other substances, though, that you are aware of not commonly found on the breath of human beings?

A I'm saying that --

Q Yes or no?

A I don't understand your question, then.

Q Are you leaving open the possibility that there are other substances not commonly found on the breath of human beings that could mask as ethyl alcohol in that machine?

A You could blow a sufficient quantity of a number of substances through it that it would respond to; however, the concentration of those substances are not and have not ever been found on human breath. If you squirt WD 40 in it, it can respond. We don't find WD 40 on people's breath, not in concentrations that the instrument will recognize.

MR. MORGAN: That's all of the questions I have. Thank you, sir.

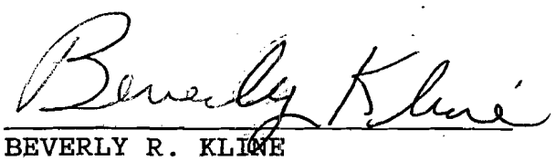
MR. MARTIN: No questions.

THE COURT: Stand aside.

CERTIFICATE OF DELIVERY

I, BEVERLY R. KLINE, OFFICIAL COURT REPORTER FOR THE STATE OF NORTH CAROLINA, CERTIFY THAT THE TRANSCRIPT CONTAINED HEREIN IS TRUE AND ACCURATE, TRANSCRIBED BY ME OR UNDER MY SUPERVISION.

I FURTHER CERTIFY THAT THE TRANSCRIPT CONTAINED HEREIN WAS DELIVERED TO THE PARTIES BY PLACING SAME IN THE U.S. MAIL ON THIS THE 27th DAY OF FEBRUARY, 2002.



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