

1 IN THE DISTRICT COURT OF KING COUNTY FOR
2 THE STATE OF WASHINGTON
3 EAST DIVISION, REDMOND COURTHOUSE
4 HONORABLE DAVID A. STEINER, PRESIDING
5 HONORABLE DARRELL E. PHILLIPSON, MEMBER
6 HONORABLE MARK C. CHOW, MEMBER

7 STATE OF WASHINGTON,)
8)
9 Plaintiff,)
10)
11 vs.) No.
12)
13 AHMACH, SANAFIM,) C00627921
14 CHEUK, ALEXANDER JORDAN,) C00617910
15 CHEUK, ALEXANDER JORDAN,) CR22547KC
16 HILDRETH, BARBARA JEANNE,) C0436675
17 LOEWES, WILLIAM BRIAN,) C005544326
18 REEL, KYLE JOSEPH,) CR16440KC
19 SLAUGHTER, KEVIN WAYNE,) C00534681
20 WATSON, TERESA ANN,) C00601103
21 WOLF, JOSEPH SCOT,) C00608134
22)
23 Defendants.)

24 TRANSCRIPT OF PROCEEDINGS

25 VOLUME II

26 8:45 a.m.
27 January 3, 2008
28 King County Courthouse
29 516 - 3rd Avenue
30 Courtroom W942
31 Seattle, Washington 98104

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1 PROCEEDINGS

2 JUDGE STEINER: Please be seated.

3 Mr. Gullberg, is standing up. Looks like he's
4 ready to go.

5 Are the parties ready to go?

6 MR. ANDERSON: Yes, your Honor.

7 JUDGE STEINER: All right.

8 Mr. Gullberg, I'm going to go ahead and swear you in
9 again.10 ROD GULLBERG, been first duly sworn
11 by the Judge, testified as
12 follows:

13 *****

14 JUDGE STEINER: You may be seated.

15 Mr. Vosk, it was your direct. As I indicated, we're
16 starting at five to nine. So we're expecting one
17 hour.18 MR. VOSK: Yes, your Honor. I'm
19 going to try to get it there.

20 DIRECT EXAMINATION (Continuing)

21 BY MR. VOSK:

22 Q Yesterday, when we finished up, Sergeant, we were
23 talking about weighted mean sand the appropriateness
24 of at least checking them to see if there were a
25 significant difference between arithmetic and a

1 weighted mean?

2 A Yes.

3 Q And if we established significant differences based on
4 whatever the criteria, whether it was instrument or
5 analyst or day, then we would we want to employ
6 weighted mean?

7 A We may want to, yes.

8 Q Now, what I want to go into with you is what we mean
9 by "significant."

10 In the paper that you wrote, you were gauging your
11 analysis on the protocols where they had this plus or
12 minus 5 percent acceptability; is that correct?

13 A No. I don't think that was the criteria I employed in
14 that paper.

15 Q Can you tell me what criteria?

16 A Well, one thing I looked at was the percentage
17 difference between the two methods of the estimated
18 mean, the arithmetic mean or the weighted mean, but I
19 don't think I said there was some upper limit to this
20 percent.

21 Q Okay.

22 A It was just a quantitative assessment of the
23 difference.

24 Q Okay. Now, in a different context, accuracy could
25 mean different things; right?

1 A I would agree with that. In metrology, it does have a
2 very specific definition, but I can see where the
3 concept is interpreted differently in different
4 contexts.

5 Q What I'm getting at, and I think we're going down the
6 same road, in one application a measurement out to two
7 decimal places might be very, very accurate and
8 perfect and fit for the purpose we're using it for?

9 A I wouldn't say accurate in that context. I would say
10 precise.

11 Q Okay.

12 A Because precision means how many significant digits
13 your measurement includes.

14 Q And so in one context, two decimals may make it fit
15 for purpose --

16 A Yes.

17 Q -- and we're exactly where we want to be?

18 A Yes.

19 Q In another context, we might need five significant
20 figures?

21 A Yes.

22 Q In your job, you're a scientist; right?

23 A I would agree generally, yes.

24 Q Okay. But you also -- when you're doing your job, you
25 have to deal with the law; is that correct?

1 A Yes.

2 Q So as a forensic scientist, you have to take into
3 account both scientific factors and legal factors?

4 A Yes.

5 Q Now, scientifically, when we're taking a look at these
6 breath tests and we're looking at weighted means and
7 we see a difference of one-ten-thousandth or
8 two-ten-thousandths, doesn't mean a whole lot, does
9 it?

10 A In this context, scientifically, no, you're right. I
11 would not consider those significant or important
12 differences.

13 Q Okay. But now we add in the complication of the law.

14 Yesterday, we did a calculation where we had a
15 change in two-ten-thousandths. And we showed that
16 that small of a change took a test from being
17 admissible under the law to being inadmissible under
18 the law --

19 MR. ANDERSON: I'd ask Counsel to
20 refer to the specific calculation he's referring to.

21 MR. VOSK: The plus or minus 10
22 percent that we did on --

23 MR. ANDERSON: Is this in one of the
24 exhibits?

25 JUDGE STEINER: Counsel, this was a

1 hypothetical, wasn't it?

2 MR. VOSK: No. It was -- we
3 started with a hypothetical, then we boiled it down to
4 the actual test.

5 MR. TROMBOLD: 58, Ted.

6 MR. VOSK: Okay. I think it's 58,
7 Matt, I believe.

8 I can identify that for Judge Steiner in a moment.
9 Since I just have an hour, if I could go forward, I'll
10 identify that later, your Honor. We did do the
11 calculation.

12 MR. ANDERSON: The State will object
13 as to vagueness.

14 JUDGE STEINER: It is recognized at
15 this point that it was an actual test, and the Court
16 will admit for the -- to allow us to proceed with the
17 requirement that the defense later identify it.

18 Mr. Vosk: I will, your Honor. I
19 promise.

20 MR. ANDERSON: It really just goes
21 to clarity. I really don't know which specific
22 calculation he's talking about. Will we be able to
23 clear up, your Honor, this one?

24 MR. VOSK: No. It's one he did in
25 court yesterday.

1 MR. ANDERSON: Is it identified as
2 Exhibit 58?

3 MR. VOSK: I'm not actually -- I
4 just want to go into the general principle behind it.
5 I'm not actually going to be referencing the specific
6 test.

7 MR. ANDERSON: I'm sorry, but for it
8 to be helpful, we need to know which specific
9 calculation he's talking about. They've identified
10 Exhibit No. 58. There are a number of calculations on
11 this exhibit.

12 For this to be in any way helpful and relevant, we
13 need to tie it to which exhibit we're talking about.

14 MR. VOSK: The calculation was done
15 on the board. It's not in an exhibit.

16 MR. ANDERSON: I would ask, then,
17 that it be marked, so we can identify it for future
18 purposes.

19 JUDGE STEINER: It's very hard for
20 me to know at this point whether or not it really
21 is -- it's almost asked as hypothetical because this
22 is either an issue that applies in this specific case
23 and in this specific case only, and that's the reason
24 you're asking the question.

25 MR. VOSK: It's general.

1 JUDGE STEINER: Or it's an issue of
2 general use.

3 MR. VOSK: Yes. That's all I'm
4 doing. I'm going to general principles. I'm not -- I
5 don't care about the specific tests.

6 JUDGE STEINER: So if you want to
7 mark it, you may. I'm not going to require it.

8 MR. VOSK: If he wants to, he can.
9 I'm not going to.

10 MR. ANDERSON: I would note that the
11 calculations that he's discussing is -- marked as
12 Exhibit 64, Counsel.

13 MR. VOSK: I'll mark it when we're
14 done because it's actually several pages here. We
15 went several pages on it.

16 Will I get this five minutes back, your Honor?

17 JUDGE STEINER: Yes, you may.

18 Mr. Vosk: Thank you.

19 Q (By Mr. Vosk) And so we saw a difference that small
20 in the legal context could take a test from being
21 inadmissible?

22 A Yes.

23 Q And according to Dr. Logan's interpretation in that
24 August memo, a difference as small as
25 one-ten-thousandth can make a significant enough

1 difference to take a test from being over an 08 or
2 under 08, over a 15 or under a 15?

3 A Yes, I would agree.

4 Q So while scientifically we might say and actually
5 agree that out in that fourth decimal place, a change
6 of one or two doesn't have a significant effect.

7 When we put it in the legal context giving us the
8 context for our measurement, it suddenly becomes
9 important, doesn't it?

10 A Yes.

11 Q And so if there's a difference in the weighted and the
12 arithmetic means out there, this might be a case, an
13 instance, where we want to start taking a look at
14 weighted means to see what affect they're going to
15 have because it is having an affect on what we're
16 trying to determine ultimately?

17 A We may -- we might want to.

18 Q Okay. Now, with respect to your corrections, and I'm
19 just going to pull this solution up for illustrative
20 purposes here.

21 That last line, and we spoke about it yesterday,
22 complies with accuracy and precision requirements
23 established by the State Toxicologist?

24 A Yes.

25 Q And you indicated you use the protocols for that?

1 A Yes.

2 Q And so you know the range of acceptability in there?

3 A Yes.

4 Q Now, when you went through -- when you check off on
5 that, what is it on this sheet that you would be
6 looking at?

7 A Specifically, the mean concentration here, that it was
8 within the limits outlined within the protocol from
9 the toxicology laboratory.

10 Q Okay. Did you go through the sheets to check to see
11 if any of these numbers fell outside the range?

12 A No. That was not a criteria identified in the
13 protocol, that the limits of the individual
14 measurement could be in or out, that was not spelled
15 out.

16 Q So just right there? (Indicating.)

17 A That's right. The CV had to be 5 percent or less, and
18 the mean within certain limits.

19 Q Okay. Now, yesterday, I had asked you about
20 solution -- we were talking about Solutions 2018 and
21 2019. Those were the ones where Jayne Thatcher -- the
22 data entered didn't match the chromatogram?

23 A Yes.

24 Q And at one point, I made the statement -- or half
25 statement half question: How do we know what data

1 goes where? And you indicated, Well, we can look at
2 the dates.

3 What dates are you talking about?

4 A The dates and times on the chromatograms themselves.

5 Q Now, what are you going to compare those to?

6 A Well, it might indicate -- if -- for example, if the
7 batches were prepared on different dates.

8 Q Mm-hm.

9 A We might be able to correspond the measurement results
10 to the date of preparation noted on the two sheets
11 here for the batch.

12 Q Okay. But now haven't we already shown that people
13 have signed off on these certifications indicating
14 that they tested the solutions before the solutions
15 were ever prepared?

16 A That has occurred on some, yes.

17 Q And hadn't we identified at least 10 to 20 instances
18 where analysts entered the wrong dates altogether on
19 the worksheet?

20 A Yes.

21 Q And don't we have other instances where the dates -- I
22 think you indicated, the dates don't correspond with
23 the chromatograms?

24 A Yes.

25 Q So simply checking the dates, we've already --

1 MR. ANDERSON: Objection. Void --
2 objection. Vagueness. Which specific dates? It's a
3 whole bunch of different days.

4 JUDGE STEINER: Overruled. You may
5 ask the question.

6 MR. VOSK: Thank you.

7 Q (By Mr. Vosk) So --

8 MR. ANDERSON: I'm sorry, your
9 Honor. There are vague -- relevant. This is also
10 irrelevant.

11 JUDGE STEINER: Counsel, I see this
12 as a general question rather than a specific question;
13 i.e., is it possible that if you check a date, you
14 will be certain that date is correct? It's almost
15 rhetorical at this point, but you may ask the
16 question.

17 MR. VOSK: Okay.

18 Q (By Mr. Vosk) So with all of these errors in the
19 dates, we can't actually be certain by simply checking
20 the date which chromatograms can go with which tests,
21 can we?

22 A Maybe not. I was simply suggesting that may be one
23 thing you may look at.

24 Q Okay. Okay. I'm going to hand you what has been
25 marked as Exhibits 60 and 61. The first is the text

1 by Taylor, "Error Analysis." And the second is the
2 text by Meyer on data analysis.

3 Now, if we blindly reject data that doesn't
4 correspond with what we hoped to find, doesn't that
5 guarantee that we're going to find what we hoped to
6 find?

7 A It may.

8 Q Was that a horrible question?

9 A Well, yes, it may. We don't -- we don't want to
10 blindly reject data.

11 Q Okay. In the Meyer text on Page 18, does he indicate
12 that if we blindly reject data -- well, I'll let you
13 get there.

14 Does he indicate that if we blindly reject data,
15 it's -- and not quotes -- a guarantee of never finding
16 anything that was unanticipated at the beginning?

17 A Well, I would agree in general with that statement.

18 It might take me a minute to find his quote.

19 Q If you agree with his statement, then I don't need you
20 to do that.

21 A Yeah.

22 Q And if we -- in a scientific context, a scientist
23 rejects data without giving us any rhyme or reason for
24 it, in the scientific field, do we have reason to
25 become suspicious?

1 A Maybe or maybe not. Maybe or maybe not. They may not
2 necessarily need to give us a reason. They may have
3 it in their mind why they rejected it. It may be a
4 sound, scientific reason that they may not share with
5 us, and we may not understand not being the scientist
6 in that context.

7 Q How are we supposed to know what happened?

8 A We ask them. Why did you reject this? Give an
9 explanation.

10 Q In Taylor on Page 166, does he indicate that a
11 scientist that engages in this type of activity, and
12 I'll quote, "May reasonably be accused of fixing the
13 data"?

14 A Well, if -- if this activity, you mean blindly
15 rejecting results for no sound, scientific reason --

16 Q That's exactly what I mean, yes.

17 A Yeah. Then, yes. That is incorrect and unacceptable
18 scientifically.

19 Q Okay. You're aware of Chauvenet's criteria that was
20 discussed by Dr. Emery in Arntson?

21 A In a general sense, yes.

22 Q And it's one method of determining of outliers;
23 correct?

24 A It is, yes.

25 Q One method that is generally accepted?

1 A One of many methods that are published.

2 Q So there are many different methods one could use?

3 A Yes.

4 Q When we spoke two days ago, I asked you a question and
5 told you that I was going to ask you again on the
6 stand. And I'm going to ask you again in a particular
7 manner. If you think I'm mischaracterizing anything,
8 you stop me.

9 Did you indicate that you thought the problems
10 we're dealing with now were results of complacency in
11 the tox lab?

12 A To a certain extent, yes.

13 Q And did you indicate that you thought these
14 mistakes -- it was not your belief that it represented
15 any purposeful misconduct, but that it was
16 carelessness?

17 A Yes. Not due to bad faith or any intention to
18 deceive, in my opinion.

19 Q Okay.

20 MR. VOSK: If I could have a minute,
21 your Honor, I think I could wrap up.

22 JUDGE STEINER: Certainly.

23 JUDGE PHILLIPSON: You could have a
24 standing ovation if that helps.

25 MR. VOSK: I have nothing further,

1 your Honor. Thank you, Sergeant -- Mr. Gullberg.

2 JUDGE STEINER: Thank you, Mr. Vosk.

3 Mr. Anderson?

4 MR. ANDERSON: Thank you, your
5 Honor.

6 CROSS-EXAMINATION

7 BY MR. ANDERSON:

8 Q Good morning.

9 A Good morning.

10 Q The hypothetical or rhetorical question posed a little
11 while ago, where the defense was asking you about
12 questions -- or was asking you questions about whether
13 or not a small change in numbers could affect a
14 Breathalyzer.

15 Do you recall that section?

16 A Yes, yes.

17 Q And part of the possible reasons he was giving for
18 such a small change included -- well, there were a
19 number of different reasons.

20 Now, would a change in any of the numbers on the
21 summary worksheet for any of these solutions -- would
22 a change in one of those numbers necessarily change
23 the defendant's breath test?

24 A Any one single number?

25 Q Yes. Necessarily.

- 1 A No, not necessarily.
- 2 Q All right. For instance, if there was a change in the
3 precision CV --
- 4 A Right.
- 5 Q -- would there be a change in calibration error?
- 6 A No. That would not influence the bias estimate for
7 the DataMaster instrument.
- 8 Q And so to be clear, in order to know whether or not a
9 change -- any change in the worksheet would affect a
10 defendant's breath test, you would need to do specific
11 analysis of that specific error; is that fair?
- 12 A Yes, that's right.
- 13 Q Let's back up. You've been working for the breath
14 test section for about 20 to 30 years; is that
15 correct?
- 16 A Yes.
- 17 Q I'm showing you what's been previously marked as an
18 exhibit admitted, Exhibit 59 from the DOL hearings.
19 What is that?
- 20 A It is my curriculum vitae.
- 21 Q Does it accurately relay your experience in these
22 matters?
- 23 A Generally, yes.
- 24 Q Could you just give the Court --
- 25 JUDGE STEINER: I show -- is it

1 Exhibit 59 in the DOL hearing?

2 MR. ANDERSON: Yes. And if your
3 Honor would like, we can mark it as an exhibit here.
4 I'm open.

5 JUDGE PHILLIPSON: Right now it's
6 part of Exhibit 1.

7 Q (By Mr. Anderson) Keeping in mind, we'd like to move
8 things along, can you give us an overview as to the
9 education you've received that qualifies you for your
10 current position?

11 MR. VOSK: Your Honor, real quick.
12 And I don't want to know if the State wants to do this
13 because I can understand if it wants to read this into
14 the record, but I'm going to stipulate that Rod
15 Gullberg is an expert. That's why I called him.

16 JUDGE STEINER: Counsel, I'm not
17 sure this is necessary for either of us.

18 Is there something that you want to bring out in
19 particular? I would just ask you, perhaps you can ask
20 that particular question rather than the entire CV.

21 MR. VOSK: I'm not objecting. I'm
22 just offering.

23 JUDGE STEINER: I think the use of
24 our time would call for a specific inquiry.

25 Q (By Mr. Anderson) What are your specific degrees?

1 A Bachelor of Science from Washington State University
2 and master's degree in public administration and
3 master's degree in biostatistics.

4 Q Do you teach in breath testing?

5 A Yes.

6 Q Where do you teach?

7 A Well, I teach courses at Indiana University a couple
8 of times of a year. I teach people in our own breath
9 testing program, technicians, we train for our
10 statewide program.

11 Q For a significant period of time, you were actually a
12 breath test technician; correct?

13 A Yes.

14 Q You actually performed the QAPs and the servicing of
15 the infield machine -- breath instruments; is that
16 correct?

17 A Yes.

18 Q And you supervised it for a period of time?

19 A Yes.

20 Q You've actually had input what the appropriate
21 procedures are and consulted with Dr. Logan about the
22 appropriate way to do it?

23 A Yes.

24 Q You've actually taught on those subjects, at the
25 places -- those have been the subjects you taught on

1 when we discussed your previous teaching experience?

2 A Yes.

3 Q And you've been published as well; correct?

4 A Yes.

5 Q And specifically you've been published on these

6 specific issues, specifically with regard to breath

7 testing; correct?

8 A Yes.

9 Q I'd like to go into the internal audit that Dr. Logan

10 asked you to perform on the simulator solutions from

11 2005 up to essentially 2008.

12 Can you describe what did you base what you're

13 looking for on?

14 A When myself and Trooper Ken Denton did this, we

15 developed a check-off sheet of certain items that we

16 wanted to evaluate for, correct the entry of data,

17 correct dates, correct calculations, signatures.

18 There's 10 or 12 items there that we wanted to look

19 for, so this was kind of developed before we proceeded

20 with evaluating these solutions.

21 Q And the checklist that you're referring to is actually

22 on the second page of each of these solutions; is that

23 correct?

24 A Yes, that's right.

25 Q Okay. I'm going to ask you to take a look at that. I

1 want the Court to understand what you did do.

2 Is this the sheet that you're referring to?

3 A Yes, that's it.

4 Q All right. First item: Preparation date precedes all
5 analyses dates. Can you explain why you checked for
6 that, and what you did when you checked for that?

7 A Because it had been noted prior to our evaluation that
8 these dates were incorrect. In other words, the date
9 was noted that the testing was done at a time before
10 the date of preparation, which is physically
11 impossible. So there was an correct -- so that's why
12 I put that on there. Let's look for that and correct
13 that if necessary.

14 Q And the source of that error is, essentially, there
15 was a lack of clarity about whether or not the date
16 referred to the date of signing or the date of
17 preparation?

18 A That was part of it. Plus the fact that when the
19 spreadsheet from the toxicology lab was put in, the
20 date was automatically put in, and that may have been
21 some time after the analyst did their testing.

22 And so then the date of preparation showed up
23 later than the date of analysis, so that was part of
24 the problem.

25 Q Perhaps a simple question: Is there any way that

1 entering the wrong date would have affected a
2 defendant's printout?

3 A No.

4 Q Second item: Data entry corresponds to all
5 chromatograms. What is that and why did you do it?

6 A The chromatograms are the actual printouts from the
7 gas chromatograph indicating the measurement result.
8 It is the best evidence of what the result was. And
9 what's recorded on their spreadsheet is where they
10 entered the results through a computer. So we wanted
11 to make sure they corresponded and that there was no
12 errors of data entry.

13 Q And to be clear, the way you did that -- describe the
14 way you did it.

15 Now, you described two different pieces of data.
16 And I'm pointing right now, is this one of the sets of
17 data that you checked?

18 A Yes, yes.

19 Q That's data that the analyst actually had hand input
20 into this worksheet?

21 A Yes.

22 Q The other data is on the chromatogram; correct?

23 A Yes.

24 Q And the result would be the reading right here,
25 apparently a blank ethanol test?

1 A Yes.

2 Q You made sure this number --

3 A Yes.

4 Q -- equals the corresponding number in the worksheet?

5 A Yes.

6 Q How did you guys physically do that?

7 A Well, myself and Trooper Ken Denton did this together.

8 I would go through the spreadsheet and read the

9 results, and he had the chromatograms. And I would

10 read the results, and he would confirm, "Yes, that's

11 right." And then the next one, "Yes," through all

12 these measurement results.

13 Q So what would you have read out, let's say for Analyst

14 1 right here? What would you have told him to go

15 check?

16 A I would have read "0.048."

17 Q And how would you have identified it?

18 A Well, I would have indicated first that this is for

19 Rebecca Flaherty, and that the date of analysis on

20 chromatograms should be 4/26/2007, and he would

21 confirm that. And then I would begin reading the

22 results, the five results and the control.

23 Q And how would he -- when would he respond? After each

24 individual -- after each individual result "0.048" or

25 at the end of five?

1 A Yeah. It might have been at the end or after each. I
2 -- I received from him that these corresponded. If
3 they didn't, then we would confirm: Did I read it
4 wrong? Did he read it wrong? We would confirm it.
5 If necessary, that would be corrected if it needed to
6 be.

7 Q To be clear, you guys were in the same room. You were
8 looking at the summary worksheet, and he had the
9 chromatograms in front of him; correct?

10 A Yes.

11 Q You would read it out. He would be right there
12 confirming that he had it.

13 JUDGE CHOW: Why were you guys
14 checking this?

15 THE WITNESS: Well, because
16 Dr. Logan had asked us to. There had been errors and
17 problems with data entry and so forth with these
18 records, so he asked us to come in and systemically
19 review all of them.

20 JUDGE CHOW: Just so I understand
21 and save time, so this checklist that you have, that
22 you went through, this work checklist, there's 12.

23 THE WITNESS: There's about 12 items
24 on there.

25 JUDGE CHOW: And the 12 items are on

1 the checklist because...?

2 THE WITNESS: In discussing with
3 Dr. Logan ahead of time and the lab personnel, they
4 outlined some of the problems that had been seen.

5 JUDGE CHOW: Okay.

6 THE WITNESS: So we prepared a list
7 so we'd systemically go through all the records.

8 JUDGE CHOW: Now, this new stuff
9 that we got recently, the December 27th -- I think
10 that's the date -- where does any of that fall in any
11 of those 12?

12 MR. ANDERSON: Is your Honor
13 referring to 02018 and 02019?

14 JUDGE CHOW: I think so.

15 THE WITNESS: Okay. That was
16 another batch that we reviewed through the same
17 procedure. It was an older batch in two thousand --

18 JUDGE CHOW: Okay. So you hadn't
19 gone through that batch?

20 THE WITNESS: Well, we did go
21 through 02019. We did.

22 MR. ANDERSON: I can clarify.

23 JUDGE CHOW: Okay.

24 Q (By Mr. Anderson) At the time -- when did you and Ken
25 sit down and do this?

- 1 A We began in September.
- 2 Q Okay. During that September review, what dates were
3 you looking at?
- 4 A We began with the most recent 2007 batches.
- 5 Q And how far back did you go?
- 6 A And then 2006, and then 2005. This went into October.
7 We did this several weeks.
- 8 Q And by and large, except for a couple of cases that
9 were specific requests by our office or other
10 litigants, you stopped in 2005; is that correct?
- 11 A I believe that was as far back as we systemically
12 went, to my recollection.
- 13 Q 02018 and 02019, what date -- when were those
14 performed?
- 15 A 2002.
- 16 JUDGE CHOW: Okay. Thank you.
- 17 Q (By Mr. Anderson) And the labels on all the
18 solutions, actually, the "02," the "05," refers to the
19 actual year they were made; correct?
- 20 A Yes.
- 21 JUDGE CHOW: Thank you.
- 22 Q (By Mr. Anderson) So sitting across, you call out a
23 number; he would confirm it?
- 24 A Yes.
- 25 Q You did this for every single solution between the

- 1 start of 2005 and up to present; correct?
- 2 A Yes.
- 3 Q And if you found a mistake, let's say that Analyst 5,
4 Test 4 was -- should have been 101 instead of a 103, a
5 simple scrivener's error.
- 6 A Yes.
- 7 Q What would you do?
- 8 A I would line it out to the side here, write the
9 correct result, initial, and date it.
- 10 Q Over here, not for that particular mistake, but this
11 is your initial, this is your date?
- 12 A Yes.
- 13 Q And this refers to the changes that were made that
14 we'll discuss later in the statistics; is that
15 correct?
- 16 A Yes.
- 17 Q We're jumping ahead a little bit.
18 You eventually wound up publishing the results of
19 these on the Web; correct?
- 20 A Yes.
- 21 Q And so between 2005 and 2007, all of these are
22 available, corrected by you, along with the
23 chromatogram; correct?
- 24 A Yes.
- 25 Q As a matter of fact, the files we've been going

1 through in painstaking detail over the last day
2 involves essentially just printouts of what's exactly
3 on the Web; correct?

4 A Yes.

5 Q So on the Web anybody can go look at the solution
6 worksheet, can look at the chromatograms, the
7 certifications, everything?

8 A Yes.

9 Q Between 2005 to 2007?

10 A Yes.

11 Q Is there an offer for you to go back and review any
12 solution for any defendant that asks for it?

13 A Yes.

14 Q Where is that offer placed?

15 A I'm not sure if that was put on our Web site also, or
16 how that was communicated.

17 Q I'll go into that with other witnesses.

18 Let's go back to the process. And to be clear,
19 the reason you were double-checking to make sure that
20 one of these results equaled that number that was
21 actually on the chromatogram is because there had been
22 observations of scrivener's errors; correct?

23 A Yes.

24 Q What did you do if you found one of those scrivener's
25 errors besides noting it on the machine?

1 A Well, it would also get changed in the data -- the
2 electronic data file that we had, so I could recompute
3 the mean, standard deviation, CV, range, all the
4 statistical calculations as well, and correct those if
5 necessary.

6 Q Where did you obtain the data that you were using to
7 correct that?

8 A From the toxicology laboratory, from their IT
9 individual.

10 Q To be clear, the numbers that are actually entered
11 into the worksheet, while they are not a direct result
12 of the numbers printed out on the chromatograms,
13 they're scribed over; correct?

14 A By "scribed over," they're entered by hand.

15 Q Right. So there's no automatic?

16 A Right, right.

17 Q But the database that you obtained is the actual
18 program, the spreadsheet, that was created by those
19 entries; correct?

20 A Yes.

21 Q So there's no subsequent -- nobody took these numbers
22 and entered them into a database?

23 A No, no. They were by the original analyst in the lab,
24 entered in electronically.

25 Q When you found an error, did you check the

- 1 calculations as a result?
- 2 A We checked calculations even if there was no errors
- 3 here.
- 4 Q Even if everything was perfect, you still rechecked
- 5 the calculations?
- 6 A Right, right.
- 7 The one reason we noted earlier is, there was the
- 8 12 or more analysts, and Measurement 4 from Analyst 4,
- 9 so I wanted to confirm that these summary calculations
- 10 were correct.
- 11 Q So for every case that you've reviewed between 2005 to
- 12 2008, so the last three years, the calculations have
- 13 been rerun to make sure that they're right?
- 14 A Yes.
- 15 Q And who prepared the spreadsheet that reran those
- 16 calculations?
- 17 A Well --
- 18 Q Who actually programmed Excel to rerun the
- 19 calculations?
- 20 A Well, I did, but it's automatic, doing the mean or
- 21 standard deviations are features of Excel. They're
- 22 very straightforward.
- 23 Q You've relied on Excel throughout your career?
- 24 A Yes.
- 25 Q And it's common within your industry to rely on Excel?

1 A Yes.

2 Q The next thing you looked at -- so data entry
3 corresponds to all chromatograms. You made sure there
4 were no scrivener's errors?

5 A Yes.

6 Q "All signatures present." What is that and why did
7 you do it?

8 A On the spreadsheet, the analyst is to sign next to
9 their name, noting that they have -- that this data
10 is -- corresponds to their results.

11 Q Thank you. Here we go.

12 A These signatures right here, that they were all
13 present.

14 Q Next thing you did. Computation -- those were all
15 form -- the next thing you did has the title
16 "Computations"; correct?

17 A Yes, yes.

18 Q What is the first one, "Average Solution"?

19 A Average solution concentration, correct. That's the
20 average on the spreadsheet, was it correct based on
21 the data noted there. And that's where I redid the
22 analysis. And if it was not correct, you'll see where
23 I made the correction.

24 Q And to just kind of shortcut this, the first six
25 entries under "Computations" are: average solution

1 concentration, standard deviation, range, precision,
2 equivalent vapor concentration, external control
3 information?

4 A Yes.

5 Q Those each have entries on the worksheet; correct?

6 A Yes.

7 Q So we could go through those without flipping back and
8 forth. We could just go to the worksheet, and you
9 could explain that.

10 All right?

11 A Yes, that's fine.

12 Q Let's go do that.

13 A Well, here's the average concentration. You'll see on
14 this example, it was not correct, so I changed it.

15 Q Okay.

16 A The standard deviation is next, SD. That was also not
17 correct, so I had changed that one.

18 And then there's the range, the mean plus or minus
19 three standard deviations. You give a lower limit and
20 an upper limit. Neither of those were correct in this
21 example. You can see the change.

22 The precision, the CV, coefficient variation,
23 which is the standard deviation divided by the mean,
24 multiplied by a hundred. And that was not correct on
25 this one either, so that was changed.

1 And the last one you noted was the target external
2 standard control, and that needed to have a lot number
3 and a date that was future to the date of the
4 analyses. In other words, that's the date that this
5 control is good for.

6 Q Okay. And you checked to see -- and you also checked
7 the equivalent vapor concentration; correct?

8 A Yes. This here is the average concentration divided
9 by 1.23 to give the vapor grams per 210 liter
10 equivalent in a simulator.

11 Q We've been bandying about the terms, "equivalent vapor
12 concentration" and "average solution concentration," a
13 fair amount.

14 A Yes.

15 Q Average solution concentration, what is that?

16 A That's the concentration of alcohol in the water
17 that's in this solution that's prepared by the
18 toxicology laboratory, and that they test by the gas
19 chromatograph. They're measuring the concentration of
20 alcohol in the water, grams per 100 milliliters.

21 Q So if you had 10 grams of alcohol in the liquid
22 solution, and 100 milliliters of alcohol, you would
23 have 10 grams per 100 milliliters of alcohol?

24 A Yes.

25 Q Actually, what's in this solution?

1 A Yes. It's the concentration weight per unit volume of
2 the solution.

3 Q The simulators don't actually care what's in the
4 alcohol. When they're looking at something, they look
5 at the vapor above it; correct?

6 A The simulator is a device designed to heat the
7 solution to a known temperature. And alcohol, because
8 it's volatile, will now go into the headspace, the air
9 above the solution, and create a known concentration
10 if your temperature is constant and known.

11 That is what the DataMaster reads is that vapor
12 alcohol in the headspace from the simulator.

13 Q This was essentially in a .08 solution, right, field
14 solution?

15 A Yes.

16 Q And target value for .08 field solutions is .082?

17 A Approximately.

18 Q Why is that?

19 A The range under the statute for a DataMaster measuring
20 that solution is to be .072 to .088. So it's to
21 provide somewhere near the middle of that range, and
22 perhaps slightly above.

23 Q Why slightly above?

24 A With use, the simulator alcohol is depleted over time
25 and with use. And so we've got a lower limit of 072.

1 We want to get several weeks maybe, 40, 50 tests out
2 of that before we have to change it.

3 Q All right. So the middle of 072 to 088 would be 080;
4 right?

5 A Yes.

6 Q So the idea is to get it at 082. So on Day 1, it's at
7 082, and on Day 60, it would maybe be 078 or something
8 lower?

9 A Yes, yes.

10 Q So the average solution concentration, you
11 recalculated it?

12 A Yes.

13 Q Recalculated the standard deviation?

14 A Yes.

15 Q The range?

16 A Yes.

17 Q Precision CV?

18 A Yes.

19 Q Can you explain to me what the standard deviation is?

20 A It's a measure of variability. It's the way most
21 commonly used to quantify variation in repeated
22 measurement results.

23 If there's large variation, large standard
24 deviation. Small variation which is ideal, the
25 better, more precise, small standard deviation.

1 Q When a tech runs a QAP process, do they make any use
2 of the standard deviations?

3 A Yes. They also compute the standard deviation for
4 their ten measurements at each of the four
5 concentrations.

6 Q And actually my question wasn't clear enough.

7 Do they make any use of the stated value of the
8 standard deviation on this particular worksheet?

9 A No.

10 Q To be clear, this is a descriptive calculation so that
11 somebody looking at this sheet can determine how
12 precise it is?

13 A Yes.

14 Q The one the BAC techs use to QAP, that's not relevant
15 to their job?

16 A That's correct.

17 Q Is it any way used during the actual breath testing?

18 A No.

19 Q So can the change in that value have any effect on
20 what's printed out on a breath ticket?

21 A No.

22 Q I'm going to go down to "Range." That's three times
23 the standard deviation; right?

24 A Yes.

25 Q Why do we multiply that by three on this sheet?

1 A Well, it's to give a range or limits. In some
2 applications, it might be interpreted as a means of
3 identifying outliers or a mean that's -- well, it's
4 also a means of measuring variability.

5 Why three was chosen, that was chosen by Dr. Logan
6 sometime ago and incorporated in this practice.

7 Q Again, this is a descriptive computation useful in
8 evaluating how good the numbers are; correct?

9 A It's a descriptive measure of this data, yes, another
10 way to view it.

11 Q It's useful to somebody evaluating this particular
12 sheet; correct?

13 A Yes.

14 Q Is it of any use, that particular number here, .00213,
15 to a breath technician performing a QAP?

16 A No.

17 Q Is it of any use to a breath technician doing a
18 particular calibration portion of the QAP?

19 A No.

20 Q Is it of any use in a field test situation?

21 A No.

22 Q Going to go down to "Precision CV." What is the
23 precision CV?

24 A Coefficient variation, another way to quantify
25 variability, and it becomes relevant because it

1 relates variability to concentration.

2 Typically in measurement context, the variation
3 increases with concentration. So if you divide the
4 standard deviation by the mean, it can remain fairly
5 constant throughout concentration because at higher
6 concentrations, you've got higher variability, yet the
7 ratio of the two remains very similar. So it's just
8 another way.

9 It's a relative standard deviation that can be
10 converted to a percentage by multiplying by 100, so
11 that's a percent.

12 Q So this is actually a percent. It's a percent of
13 what?

14 A It's a percent of the mean. The standard deviation is
15 2 percent of the mean, in this example.

16 Q And are there ways to describe it statistically how
17 many of the results would file -- would fall within
18 that 2 percent?

19 A No. That's really not telling you that.

20 Q Okay. I'm going ahead -- getting outside --

21 A Yeah.

22 Q Fair enough.

23 Would precision CV have any affect on the QAP
24 process?

25 A No.

1 Q Would it have any affect on the calibration portion of
2 the QAP process?

3 A No.

4 Q Would it have any affect on the breath test or the
5 breath test in the field?

6 A No.

7 Q The equivalent vapor concentration, you've explained
8 that this is a measure of, how much alcohol would be
9 in the air above the simulator at a particular
10 temperature; correct?

11 A Yes.

12 Q Now, this is what actually matters to techs, matters
13 to the machines?

14 A Yes.

15 Q I suppose the average -- and it's -- if you take the
16 average solution concentration, just divide by 1.23,
17 you get the equivalent vapor content concentration;
18 right?

19 A Yes, that's right.

20 Q And so while the concentration does effect the
21 equivalent vapor concentration, it's really the vapor
22 that anybody cares about; right?

23 A With regard to the DataMaster, that's correct.

24 Q And so if there's a change in the vapor concentration,
25 that could actually affect calibration?

1 A Yes.

2 Q And that could actually affect an analysis of whether
3 or not the machine is accurate?

4 A Yes.

5 Q Okay. You recalculated each one of these?

6 A Yes.

7 Q And reported them on the Web?

8 A Yes.

9 Q And there's a standing offer to do that for any other
10 solution?

11 A Yes.

12 Q So that gets us through the first six calculations all
13 present on the worksheet. What's this next entry?

14 A This last one here complies with accuracy and
15 precision requirements established by the State
16 Toxicologist. That's that section of their protocol
17 that the mean of their solution -- the average
18 solution concentration must be within certain limits
19 outlined in his protocols. And we just confirmed that
20 it was.

21 Also the other requirement in the protocol is that
22 the CV be 5 percent or less, and we confirmed that
23 that was.

24 Q So even though the equivalent vapor concentration is
25 useful for the breath techs, the range is in terms of

1 the average solution concentration; right?

2 A In the terms of the protocols in the tox lab.

3 Q Essentially, that's what the lab analysts care about

4 how much alcohol is in the solution; the breath tests

5 technicians care about how much vapor is in the air?

6 A Yes.

7 Q How did you go through and test to see if -- well,

8 let's just deal with one at a time.

9 To check if the mean was within the range, how did

10 you that?

11 A It's just a matter of looking at the corrected mean

12 here on the original, if that was correct, and

13 comparing that to the range outlined in his protocol,

14 which we talked about yesterday.

15 Q Is that a field solution or a QAP solution we're

16 looking at, 06048?

17 A This is a field solution, simulator, external

18 standard, many analysts' field solution .08.

19 Q And what is the acceptable solution concentration for

20 field solution?

21 A I believe it's .098 to 0.108 grams per 100

22 milliliters.

23 Q And without going into painful detail, there are five

24 particular solution concentrations that are used by

25 the lab for this process; right?

1 A Well, four concentrations, but the five you're
2 referring to is the one field and four QAPs.

3 Q So the field is intended to be used in the field?

4 A Yes.

5 Q The .082, which may decrease over time?

6 A Approximately, yes.

7 Q And that's the .08 vapor concentration?

8 A Yes.

9 Q And the other four are at what levels?

10 A .04, .08, .010, .15.

11 Q And I'm going to inquire of Mr. Denton to explain the
12 particulars of the QAP processes, but those are, each
13 four of them, used in the QAP process; correct?

14 A Yes.

15 Q And, in fact, you checked to make sure it was in the
16 range as required by the protocols?

17 A Yes.

18 Q CV plus or minus how much?

19 A Not plus or minus. 5 percent or less.

20 Q CV is a measure of variability; right?

21 A It's a relative percent of measuring variability, yes.

22 Q Now, there are two terms that have been bandied about,
23 "accuracy" and "precision."

24 What does the CV measure?

25 A Precision.

1 Q Can you describe to me what accuracy is?

2 A Accuracy, as a general concept, is the ability of a
3 measurement system to record and report the true
4 result. How close did I get to the true value? And
5 that can be quantified by a percent or by an absolute
6 difference, and that is what we refer to as "bias."
7 Bias quantifies accuracy.

8 Q What is precision?

9 A Precision is a concept relating to measurement
10 variability or repeatability. So one has to do at
11 least two measurements to assess precision or
12 variability or repeatability.

13 You want good repeatability measurements. You
14 want accuracy also. Both are important concepts in
15 measurement.

16 Q Are you comfortable with the bull's-eye analogy?

17 A Yes.

18 Q Could you do that on the board real quick?

19 A Yes. That's a good analogy of measurement.

20 We have a target, and you might have replicate
21 shots at the target, and maybe one's here. And in
22 that example of five shots, that's neither accurate or
23 precise. There's a large scatter. The mean of which
24 do not center on the bull's-eye.

25 We might have this example. There's an example of

1 better precision, repeatability, but not accurate in
2 that there's a systemic bias.

3 We might have this example where the average is
4 accurate, but the precision is not good, too much
5 variability.

6 This is the goal where you have both accuracy and
7 precision. The tight group means precision, good
8 repeatability. And on the average, they're at the
9 true value.

10 Q So the precision CV is a measure of how precise
11 something is without regard as to whether or not it's
12 accurate?

13 A That's right.

14 Q And it has to be less than five; correct?

15 A Less than 5 percent, yes.

16 Q How did you check to see if the precision CV was less
17 than 5 percent?

18 A That's easily calculated in Excel. You take the
19 standard deviation, divide by the mean, multiply by a
20 hundred, and you'll get a percent.

21 Q You actually printed that out every single time on
22 this solution; correct?

23 A Yes.

24 Q On this worksheet summary?

25 A That's right. If it needed correction, you see that

1 one was. Or if it was correct, then it was left
2 alone.

3 Q And so the judges and myself, when we're going
4 through, we can evaluate how precise this was by
5 looking right here 2.0751 percent?

6 A Yes.

7 Q Both you and Ken signed it when you're done with that
8 process?

9 A Yes.

10 Q Now, were you in the process -- now, in particular
11 cases, there was data that had been rejected by the
12 analyst; is that correct?

13 A Yes.

14 Q How did you know it had been rejected by the analyst?

15 A In some cases, they made a note on there. In some
16 cases, they drew line a through the chromatograms.
17 Some may have explained why. Some just said "not
18 used." In some cases even, there was a sticky note
19 put on there. There were some indication indicating
20 that this was not the data used.

21 Q Are you a chemist?

22 A No.

23 Q Did you wind up analyzing why they rejected that data?

24 A No. We didn't investigate -- generally, we did not
25 investigate why. We may -- if it was unclear what

1 they were intending here, we may have went and talked
2 to them and said, "What did you mean by this?"

3 But the scientific or the analytical reason for
4 rejection, we did not investigate.

5 Q Who decided on what you were going to be checking,
6 these 12 things?

7 A It was probably a collective effort of Trooper Denton,
8 myself, Dr. Logan, other people in the toxicology lab,
9 "What are the things we should look for here?"

10 Q And it was based on the information you had available
11 at that time; correct?

12 A Yes.

13 Q You can have a seat.

14 Now, these particular -- you've indicated that
15 none of these solutions actually are used by the
16 breath test technicians; right?

17 A None of those values.

18 Q Excuse me. Thank you. This value is?

19 A Yes.

20 Q Did you analyze how that value changed -- if that
21 value changed, how it would affect the QAP process?

22 A Yes.

23 Q Can you describe what you did on that?

24 A Well, we went back to the QAPs, Quality Assurance
25 Procedures, on DataMaster instruments that would have

1 used solutions where this changed.

2 And typically, it was -- this is a field solution,
3 but in most cases, it would have been QAP solutions
4 that we were comparing, although there were the
5 occasional times where a QAP was done with a field
6 solution, so those would be evaluated too.

7 So we wanted to be sure that having now a new
8 reference vapor ethanol equivalent still ensured that
9 the QAP fell within plus or minus 5 percent because
10 the QAP -- the mean of each ten measurements on the
11 DataMaster must be within 5 percent of that reference
12 vapor concentration. So if the vapor changed, we
13 wanted to be sure that we still were within 5 percent
14 of that value. And where that changed on a QAP,
15 you'll see that corrected too, on the QAP.

16 MR. ANDERSON: Judge Chow?

17 JUDGE CHOW: Question. You stated
18 that there were occasions when the QAP solution was
19 used with a field solution.

20 THE WITNESS: Yes.

21 JUDGE CHOW: How many occurrences
22 did you recall coming --

23 THE WITNESS: Oh, I didn't count
24 those. It's not common, but it has occurred
25 occasionally. Now, in our protocols, as I testified

1 yesterday, only QAPs are to be used.

2 JUDGE CHOW: Right.

3 THE WITNESS: But before that,
4 occasionally a field solution would be used. This is
5 a field solution, for example, there. And
6 occasionally, that may have been used in the QAP.

7 MR. ANDERSON: I'm going to be
8 asking Trooper Denton about the statistics. He's
9 actually the line -- one of the line troopers who is
10 actively doing QAPs day in and day out.

11 THE WITNESS: Yes, yes.

12 Q (By Mr. Anderson) And just to be clear, there's also
13 a number -- all these numbers up here?

14 A Yes.

15 Q Do the BAC techs ever use those numbers?

16 A Only the summary. Only as they are reduced to a mean
17 and then to vapor ethanol equivalent.

18 Q Again, only the equivalent vapor content?

19 A Yes.

20 Q And all this information here from below, all the way
21 down, all the signatures, the dates, and the names,
22 who checked it, is that relevant to the QAP techs?

23 A No.

24 Q Do the QAP techs use the DataMaster .08 simulator
25 solution certification signed by the tox?

- 1 A No. They wouldn't rely on that either.
- 2 Q Do they use the printouts, the computer printouts, the
3 chromatograms, that show the actual results?
- 4 A No.
- 5 Q Same question about those particular documents for the
6 breath test machine in the field and the people who
7 are performing that.
- 8 Do any of those things affect the breath test
9 machine in the field?
- 10 A No.
- 11 Q So the sole thing that may affect a breath test
12 instrument in the field is going to be the equivalent
13 vapor concentration?
- 14 A Yes.
- 15 Q That's the sole reported piece of information?
- 16 A Yes. That's the critical piece.
- 17 Q What are we looking at here?
- 18 A This is a quality assurance procedure printout for
19 instrument with Serial No. 140229 or 8, I believe.
- 20 Q 140028.
- 21 A Okay.
- 22 Q And this documents the process of the quality
23 assurance protocol; correct?
- 24 A Yes.
- 25 Q Can you explain to me where the average solution

1 content is used in this process?

2 A It's this value right here, standard reference value.
3 So this .0402 will correspond to the toxicology lab
4 vapor alcohol equivalent for this Batch No. 04037.

5 For this concentration, 0798 -- 88 -- 98, will be
6 that vapor equivalent on the sheet for Batch 04038.

7 And for the .10, .1132, and the 15, .1521. So
8 those four numbers come from the toxicology lab vapor
9 alcohol equivalent page.

10 Q And, again, primarily this is going to be Trooper
11 Denton's domain, but there's four different -- there's
12 always an 04, an 08, a 10, and a 15 solution; correct?

13 A Yes.

14 Q What other situation is the equivalent vapor
15 concentration entered into and relevant? Is it
16 relevant to calibration?

17 A For calibration, yes. This summarizes the batches,
18 simulator thermometer used during the -- the physical
19 act of calibrating the instrument. That -- that
20 requires that one have a simulator with a known
21 solution, and that that's introduced into the
22 instrument as part of the quality assurance procedure
23 and that calibrates the instrument.

24 Q There were a number of particular errors that the
25 defense wanted to talk to you about, and also some

1 hypothetical situations the defense wanted to talk to
2 you about. Let me ask you about those.

3 You talked about, on the simulator solution
4 worksheet, the calculation error. Well, two -- I
5 guess, by the defense way of figuring it, three
6 different calculation errors?

7 A Yes.

8 Q We're going to look at 07016.

9 There's an error related to the conclusion of
10 Analyst 4, Result 4?

11 A Yes.

12 Q Can you describe what that error is?

13 A Well, the error was in the standard deviation
14 calculation. That measured result, the fourth
15 measurement from the fourth analyst, was not included
16 in computing the standard deviation so that was one.

17 Q So we have a number calculations here?

18 A Yes.

19 Q Average solution concentration, which determines
20 equivalent vapor concentration?

21 A Yes.

22 Q And then we have standard deviation, range, and
23 precision CV.

24 A Yes.

25 Q For some subset of those, the 4th analyst, 4th result

1 was excluded from the calculation; is that correct?

2 A Yes, yes.

3 Q Now, it's been called a "software error"; correct?

4 A Yes.

5 Q And the software that the tox lab was using was

6 FileMaker Pro; right?

7 A Yeah.

8 Q Essentially a glorified Excel?

9 A Similar to Excel, yes.

10 Q Now, they simply could have included -- the FileMaker

11 Pro was capable of including that; correct?

12 A Yes.

13 Q But when there's data entry going in, as far as

14 standard deviation of all these particular boxes, that

15 particular box inadvertently was left out?

16 A Yes.

17 Q Was it left out of the average solution concentration?

18 A No.

19 Q Could it have affected the equivalent vapor

20 concentration?

21 A No.

22 Q What did it affect?

23 A The standard deviation and the CV.

24 Q These two alone?

25 A Yes. And --

1 Q Again, these --

2 A And possibly the range --

3 Q And the range.

4 A -- because the standard deviation is in there.

5 Q Could that error have affected any QAP process?

6 A No. That would not have influenced the mean.

7 Q Any calibration?

8 A No.

9 Q Any breath test?

10 A No.

11 Q There was a second error, Analyst 13 to 16?

12 A Yes.

13 Q Again, this was an error that was called a software
14 error; correct?

15 A Yes.

16 Q FileMaker Pro was capable of including these
17 calculations; is that correct?

18 A Yes.

19 Q And the error was that if any -- if there was analysis
20 done by an analyst -- Analyst 13, 14, 15, or 16, as
21 there was in this case, then that would not have been
22 included in the calculation of the mean; is that
23 right?

24 A Or in any of the calculations, that's right.

25 Q So this, in fact, could have affected the equivalent

- 1 vapor concentration?
- 2 A Yes.
- 3 Q There was a third -- defense called something a third
4 calculation error?
- 5 A Yes.
- 6 Q This was associated with Batch 06037; is that correct?
- 7 A I forget the batch number, but it was a specific
8 batch.
- 9 MR. VOSK: 6037.
- 10 MR. ANDERSON: Thank you.
- 11 Q (By Mr. Anderson) There it is. For this error, the
12 equivalent vapor concentration, if you divide .0486 by
13 1.23 should have been .0395; correct?
- 14 A Yes.
- 15 Q And this is 0400?
- 16 A Yes.
- 17 Q Are you a software engineer?
- 18 A No.
- 19 Q Computer programmer?
- 20 A No.
- 21 Q Have you done research -- have you found -- do you
22 have the ability to look at FileMaker Pro and find out
23 why this happened?
- 24 A No.
- 25 Q Was this because of any type of data entry on behalf

1 of the analyst?

2 A No.

3 Q Was this on the data entry or -- programming error on
4 behalf of the person who setup the worksheet?

5 A No.

6 Q Are you aware of whether or not FileMaker Pro has
7 corrected this error?

8 A They are now using a new version of FileMaker Pro that
9 has taken care of that.

10 Q And within all of that -- and when you check --
11 through all of the solutions you've checked, are there
12 any other solutions that have this mistake, this
13 error, that had that error and that went to QAP?

14 A No. This was the only one that I recall that we came
15 across.

16 Q To be clear, how did you find out this error?

17 A Well, by taking those 15 measurements in Excel,
18 calculating the mean, divided by 1.23, and we arrived
19 at 0395. And then we looked at the sheet and said,
20 "Why does that say .0400?"

21 And recalculated, confirmed that we had the
22 correct data in there, and still got the .0395. And
23 so we went to the people in the toxicology lab to
24 discuss this and to find out what was going on.

25 Q They actually made phone calls to FileMaker Pro to

1 determine what the issue was?

2 A Yes.

3 Q And you weren't actually a party to those phone calls?

4 A No, that's right.

5 Q Because you -- if this existed -- if this popped up

6 anywhere else, you'd be able to catch it because you

7 do that calculation, and you know it; correct?

8 A Yes.

9 Q And you'd have that very unusual circumstance of this

10 number needing to be corrected and this not; correct?

11 A Yes.

12 Q Is this an ongoing problem for any future breath

13 tests?

14 A No.

15 Q Because it's corrected in FileMaker Pro?

16 A Right.

17 Q So there are three calculation errors --

18 A Yes.

19 Q If you want to call them that.

20 A Yes.

21 Q One solution?

22 A Yes.

23 Q One result?

24 A Yes.

25 Q And it's been corrected?

- 1 A Yes.
- 2 Q And have you gone back through and corrected the QAP
3 process that relied on this?
- 4 A Yes. That was reviewed also to see if there was any
5 affect on the QAP 5 percent criteria.
- 6 Q The other one excluded Analyst 4, Analyst's 4 fourth
7 result; correct?
- 8 A Yes.
- 9 Q First of all, is that ever going to come into play for
10 a QAP solution?
- 11 A No, that would not.
- 12 Q QAP solutions are done with three analysts?
- 13 A Yes.
- 14 Q But regardless, it only affects the standard
15 deviation, et cetera, not the equivalent vapor
16 concentration?
- 17 A That's right.
- 18 Q So let's talk about the one area that could affect a
19 breath test.
- 20 What checks are there to make sure that a breath
21 test reading is accurate in Washington State?
- 22 A There are several. First of all, employing an
23 approved instrument; secondly, following
24 preestablished protocols for analysis.
- 25 Next is a quality assurance procedure that must be

1 performed on every DataMaster before it's put in the
2 field where it must meet very tight criteria for
3 accuracies, precision, proper working order,
4 linearity, and so forth.

5 Next, employing trained, qualified operators.
6 Next, having required predetermined protocol of
7 measurement: 15-minute observation, duplicate breath
8 test, four blank tests, internal standard, external
9 standard. All of this in a sequential predetermined
10 order that must be met or that the entire test is
11 aborted.

12 Finally, a printout at the end whereby an
13 automatic printout, not handwritten, whereby we can
14 interpret the results.

15 So all of these protocols, trained personnel,
16 approved equipment, put together is what gives us
17 confidence in breath alcohol measurements, not in
18 every case, but where all the criteria have been met.

19 Q Do you believe that the breath tests that printout on
20 breath test tickets are accurate?

21 A I believe that accuracy has an important, specific
22 definition in metrology. The bias, the accuracy can
23 be measured and estimated for any individual's breath
24 alcohol test's results.

25 As a general rule, when that printout is generated

1 and we see those results, knowing all that went into
2 that result, by approved equipment, trained operator,
3 protocols, and sequential results, then I believe
4 they're accurate. They're fit for purpose, but its
5 specific bias could be estimated beyond that if
6 necessary.

7 Q Now, is any measurement ever going to give the true
8 value of what it's measuring?

9 A No -- no measurement is perfect.

10 Q There's always going to be some error; correct?

11 A There's limitation in our technology, in our
12 procedures, in our understanding of the whole
13 measurement process. There's limitations, so no
14 measurement is perfect. You design the system to be
15 fit for its intended purpose.

16 Q And going back just a little bit. From the system but
17 in general, for whether or not a measurement can be
18 entirely accurate, if you're asking if I'm six-foot,
19 probably someone is going to measure me and say,
20 "Yeah. He's six-foot," if you're only going for six
21 feet; correct?

22 A Perhaps, crude, rough estimate you might be six-foot,
23 but it depends on the variety of measurement elements,
24 the equipment used, whether you were wearing shoes or
25 not, things of this sort that all introduce small

- 1 sources of uncertainty.
- 2 Q It also matters to how many decimal places you carry.
- 3 Am I 6.1 feet, 6.2, 5.11; correct?
- 4 A That's right.
- 5 Q Probably, if somebody with a yardstick would come out,
- 6 if they're just going to how many feet, would measure
- 7 me every single time, measure me to six feet?
- 8 A Yes, yes.
- 9 Q But even though you may not see it in the number of
- 10 digits, I'm actually 5-point-something?
- 11 A That's right. If the resolution of the measurement is
- 12 all digits, you carried it out, must be justified by
- 13 the equipment, the procedure, and so forth. Not every
- 14 measurement justifies three decimal places. Perhaps a
- 15 very precise exact instrument would, a yardstick would
- 16 not.
- 17 Q And how precise you need to be depends upon the
- 18 purpose?
- 19 A Yes.
- 20 Q You were earlier talking about field bias; correct?
- 21 A We talked about that. Yes.
- 22 Q And certainly any ticket that gets printed out has a
- 23 number attached to it -- two numbers; right?
- 24 A Well --
- 25 Q I'm sorry. Two readings of the defendant's breath?

1 A Yes.

2 Q How close do those measurements have to be with each
3 other?

4 A They must be plus or minus 10 percent of the mean.

5 Q So you add them up, 8 and 10, makes 18; the mean would
6 be 9?

7 A Nine, yes.

8 Q Which is one-half of that?

9 A Yes.

10 Q And then 10 percent above that, whatever it is?

11 A Yes.

12 Q .9 above and .9 below.

13 JUDGE STEINER: It's 10:15. We're
14 going to take a break. How many questions do you
15 have?

16 MR. ANDERSON: I can stop here.
17 That's fine.

18 JUDGE STEINER: We'll be about
19 15 minutes then.

20 (Recess from 10:15 a.m. to
21 10:34 a.m.)

22 JUDGE STEINER: Please be seated.
23 Mr. Gullberg, thank you very much. Mr. Anderson, I'll
24 let you proceed.

25 MR. ANDERSON: Thank you.

REXCROSS-EXAMINATION

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BY MR. ANDERSON:

Q We are talking about the protections or the checks on the BAC. Ultimately, how accurate is a particular result that's printed on any defendant's ticket?

A Well, that determine -- that is based on several factors that can be estimated. For that particular instrument, we can estimate that the bias that that instrument has at the time of that subject's test, by looking at the control standards, the field simulator standards, several of them around that time. And we can see that instrument is reading high or low by some specified percent. And if it is, we could then correct that person's result by that amount.

That is why the accuracy of everyone's test might be different slightly because everyone's instrument is different, and the time of the test might be different. So a lot of factors would influence the accuracy at that time, but it could be estimated.

That's the point. The data is there to do that.

Q It's unlikely that the number actually -- the lowest, I guess, of the two numbers actually printed out on the test or for that matter, the mean of the two numbers actually printed out on the test are going to be the exact likely true mean; isn't that true?

- 1 A That's right. There's probably some degree of bias.
2 It might be 1 percent, a half of percent, 3 percent.
3 Rarely, would I expect that you get zero bias.
- 4 Q And that was true before we discovered any of these
5 errors; correct?
- 6 A That's true. That's true of measurements in general.
- 7 Q And that was true and that will continue to be true
8 even if the tox lab sat for a year with Dr. Emery and
9 did everything that Dr. Emery wanted them to do; isn't
10 that true?
- 11 A Yes.
- 12 Q The breath test machines just have a general degree of
13 accuracy, and it's just impossible, like any machine,
14 to actually hit the exact -- to regularly hit the
15 exact true value?
- 16 A Right. There's uncertainty in every measurement.
17 There's virtually always some degree of bias, but
18 that's okay as long as it's acceptable and within
19 acceptable limits, and it can be corrected for. If
20 you have the controls and data available, then you can
21 correct for it.
- 22 Q In fact, some amount of your time in your current
23 position is responding to defense requests to
24 calculate, "What is the bias of this machine?"
- 25 A Yes.

1 Q Isn't that true?

2 A Yes.

3 Q And often that will make a difference if it's at

4 .08 --

5 A Yes.

6 Q -- isn't that true?

7 A That's right.

8 Q Have you ever seen bias that made a difference at a

9 .30?

10 A Well, not a significant difference, no.

11 Q Is that any more or less true now that we know that

12 there have been errors made?

13 A No.

14 Q How does the discovery that there were typographical

15 errors and calculation errors change your ability to

16 determine what the bias of a machine is?

17 A Well, the relevant part of this is, if there is a

18 change in the reference value concentration which I

19 used to estimate bias, then I need to know that.

20 And if that's been incorrectly computed or because

21 of data entry errors that changes, I need to know that

22 because I'm relying on the reference value from that

23 gas chromatograph to identify this simulator solution

24 concentration, which this DataMaster instrument

25 measured, that I'm using to estimate the bias for this

1 person's breath who is tested on that instrument.

2 From that sense, that's critical.

3 Q I'm sorry. Could you explain that one more time?

4 A Well, I do need to know the true -- the reference
5 value from the toxicology lab. I want to be confident
6 that's correct, not calculation errors or data entry
7 errors so that I know the reference value of this
8 simulator solution which this instrument, DataMaster,
9 has measured, which has also measured some defendant's
10 breath test.

11 Q Now that the calculation errors have been corrected,
12 do you, in fact, know that?

13 A Yes. I have much more confidence now in this
14 reference value of that solution.

15 Q And you can take that into account; correct?

16 A Yes, yes.

17 Q It's just one particular step in the process?

18 A Yes.

19 Q Before these issues ever came up, what would you say
20 the best estimate of someone's breath test was? The
21 number on the ticket?

22 A Well, that's the best estimate given the context in
23 which that measurement was made: qualified operators,
24 approved instrument, protocol, all those details, but
25 that's not saying there's zero bias associated with

1 that result.

2 There may be some, which if I were asked, I could

3 go and compute and estimate it.

4 Q And so after computing bias, you would have what's

5 closer to the closely likely true mean -- to the true

6 test?

7 A Yes. It would be much closer to the true. It's

8 still --

9 Q So that was before these errors?

10 A Yes.

11 Q And it will continue to be true after these errors?

12 A Yes.

13 Q I've talked about true mean. You've used the term

14 "corrected mean" in the past.

15 A Yes.

16 Q What's your preference? What's the better term?

17 A Well, either one corresponds. I want to correct to

18 the true, so we could be calling it the "true mean,"

19 "unbiased mean," or "corrected mean." Both are really

20 equivalent concepts.

21 Q What do you need in order to calculate the true mean?

22 A I need the reference value for the simulator used as a

23 control on that instrument.

24 Q Okay.

25 A And I also need the measurement results of that

1 instrument when it measured that control standard.

2 Q Just by way of example, if we looked at the QAP of
3 Instrument 140028, and let's look at one of the more
4 recent QAPs -- I'm sorry -- 140035, and let's say that
5 another solution was used as the external standard
6 solution.

7 Well, let's say there was a test done on a machine
8 QA'd -- on this machine QA'd on October 1st of 2007.

9 A Okay.

10 Q And let's say there was a breath test of .10.

11 A Okay.

12 Q What would you want to know in order to compute the
13 bias?

14 A Maybe I could write that up here?

15 Q Sure.

16 A First of all, this is what we talked about yesterday.
17 But how bias is estimated, the mean of replicate
18 results of an instrument of a simulator standard,
19 minus the reference value for that solution, the vapor
20 alcohol equivalent, divided by that vapor alcohol
21 equivalent, times 100, gives us a present estimate of
22 the bias. It might be reading high or low. It's just
23 what it is.

24 Once I know that, I correct the person's alcohol
25 results. I could correct it according to that. And

1 the way that I showed yesterday, the correct result
2 equals the measured result times the reference value
3 over that simulator measurement result. So this is my
4 measured result. This term takes into account the
5 bias, right here. (Indicating.)

6 Now, if there is zero bias, and then the reference
7 and the mean here are the same zero bias, and that
8 becomes one, times the measured result, equals the
9 corrected result, no need to correct.

10 Quite commonly, there is a small amount of bias,
11 and that's -- taking that into account and multiply it
12 by this, it might go up or down.

13 Q So essentially, we've got a .10.

14 A Okay.

15 Q And the reference, which is the value of the actual
16 solution --

17 A Yes. That's vapor alcohol equivalent.

18 Q Let's say that that was a -- what would you look at --
19 would you look at the field solution, or would you
20 look at the? One of the QAP solutions?

21 A For somebody at this concentration, 10 grams per 10
22 liters, I would look at the QAP solution that's at .10
23 because it's closer to their concentration.

24 Q So in this case, the stated reference value is a
25 .1028; correct?

1 A Yes, that's right.

2 Q So the lab said it was a .1028?

3 A Okay. So that's "R," and that goes right there.

4 Q And then the one underneath is?

5 A At the bottom of that column, you'll see the mean of
6 that one --

7 Q Let's make sure we're on the same date, 10/2/06. No,
8 we no longer are. 101071028.

9 A So this mean right here, 1036. So that is the -- this
10 is going to take into account any bias in that
11 instrument. So our result is 0.0992, our corrected --
12 so we notice that it was corrected down slightly
13 because the bias is slightly high.

14 The instrument is reading slightly high, which
15 this also points out right here, .78 percent high.
16 That's plus .78 percent. This is taking that into
17 account and corrected it down.

18 Q So because the lab said the value is a 1028 --

19 A Yes.

20 Q -- and after ten different tests of this on the same
21 machine, one after another, the machine says it's a
22 1036 --

23 A Yes.

24 Q -- you know the machine is reading a tiny bit high?

25 JUDGE PHILLIPSON: 7 percent, right?

1 THE WITNESS: .7 percent, yes,
2 that's a percent.

3 Q (By Mr. Anderson) So this over this is .7 percent,
4 1028 over 1306?

5 A Yes. This result at the bottom here is .7 percent
6 higher than this one, and this has corrected it down,
7 taken that into account.

8 Q Right. And when you have the result with the
9 corrected field simulator solution, all you do is you
10 stick the corrected solution in the top; right?

11 A Yes. That's the reference, "R," that goes in the
12 numerator.

13 Q Let's say, for example, that at the .08 level we had a
14 corrected value -- we've had a lot of talk about the
15 calibration or the change in solution value on the
16 calibration.

17 A Okay.

18 Q Now, solution value is one of the things taken into
19 account when a machine is calibrated; correct?

20 A Yes.

21 Q Can you explain how that works?

22 A Well, during the process of calibration, we introduce
23 a known simulator reference standard into the
24 instrument. We tell the instrument this is the
25 standard you're receiving. The instrument may or may

1 not read that. It may read something different.

2 So part of calibration is to compute a cal value,
3 C-A-L, which is -- it takes CA, the value you tell it
4 you're going to receive from this simulator, 082, for
5 example. And the instrument reads that result. It
6 may not read it .082. It may read it something higher
7 or less than that.

8 And by taking what the known is, what you told it,
9 divided by what it reads, it computes a constant cal
10 that will be multiplied by every subsequent
11 measurement performed by that instrument that takes
12 into account the difference that it saw at the time of
13 calibration.

14 Q What goes into calibration besides the numbers
15 reported?

16 A A host of factors. There's also XQ, an internal
17 standard, that's read by the instrument, and that's
18 taking into account that influences future
19 measurements.

20 Also, water vapor is measured by the instrument,
21 and it reads -- typically, it reads something in the
22 third decimal place. For water vapor, it subtracts
23 that from every future measurement because water is
24 absorbed in the infrared region also, and that's not
25 to be added to someone's test result.

1 And so these, in addition to electronic
2 considerations, environment temperatures, optics, a
3 host of other variables that all impinge on
4 calibration, you end up with some values in memory are
5 now in employed in future measurement.

6 Q But aren't they an electronic instrument? Aren't they
7 a constant from one test to another?

8 A No. Electronics change a small amount: temperatures
9 change, aging of components, dust, humidity, power
10 supply, any analytical instrument is subject to a host
11 of random components impinging on the results.

12 And the way all that can be acceptable as long as
13 you have done replicate measurements and controls, you
14 can assess the influence of these random factors. Are
15 they too great, or are they acceptable?

16 Q So I guess I understand, like, why, let's say, with
17 electronics, you know, there's interference, things
18 like that measuring from one breath test in the field
19 that happened at 12:00 at night and another one that
20 happened the next day at 5:00. But don't they at
21 least stay constant between in these ten tests?

22 A They stay more constant. Those are all done within
23 12 minutes to run ten tests, so your sources of
24 variation are greatly reduced.

25 If you ran one test a day for ten days, you would

- 1 have much more variation than we see in minutes.
- 2 Q Four of these -- let's look at 04. There were results
- 3 of 039, 39, 40, 40, 40, 41, 40. So there are three
- 4 different results?
- 5 A Yes.
- 6 Q Is that because of those --
- 7 A Yes.
- 8 Q -- all those intangibles --
- 9 A Electronics, optics, dust, vibrations, humidity, a
- 10 host of unpredictable random causes.
- 11 Q Now, the calibration part of the process, is that
- 12 based on ten different, so you at least get the
- 13 average of all these differences?
- 14 A No. It's one measurement. Calibration introduces one
- 15 sample, one time, and performs a measurement, compares
- 16 that to what you said it was, that becomes a constant.
- 17 And that's what the acceptability of that --
- 18 calibration process is evaluated when you perform ten
- 19 afterwards, that tells you, How good was my
- 20 calibration? Is it acceptable?
- 21 So those bias -- those four bias estimates at four
- 22 concentrations tell you the acceptability of your
- 23 calibration process, and the analytical properties of
- 24 the instrument.
- 25 Q So going back to the three different numbers in the

1 04. That was -- pretend there's a world where -- so
2 let's just say we have three different numbers for the
3 08. We actually only have two.

4 A Okay.

5 Q For the one particular test that this machine
6 calibrated itself on, it's kind of chance as to
7 whether it would be 079 or 080; right?

8 A You mean for -- I'm not sure.

9 Q We need to calculate the cal factor; right?

10 A Okay. Right.

11 Q And the cal factor is partially determined by what the
12 lab said the solution value is?

13 A Yes.

14 Q But I guess there's really no way to know whether the
15 electronics and other factors you talked about would
16 make this machine say this is an 080 or 079?

17 A That's true. That's right.

18 Q And assuming that there was as much variability in
19 this one as there was in the 04, there would really be
20 no way to know if it was an 079 or 080 or an 081?

21 A Right.

22 Q And so the cal factor -- the cal factor could be
23 any -- could be changed .001, 002, or be exactly the
24 same depending on just that random chance?

25 A Yes. That's subject to random variation because X sub

1 A is subject to random variation.

2 Q Now, I guess that's something you'd like to measure
3 that really, as far as random variation, you have
4 those numbers, and that's about what you're limited
5 to?

6 A Right.

7 Q To the extent that you want to measure the effect a
8 misstated field simulator solution would have, can you
9 do so accurately?

10 A Yes.

11 Q Can you correct for that?

12 A Yes.

13 Q And would your calculation of the cal factor, would
14 you be able to know how much exactly that affected
15 bias?

16 A I would not rely on the cal factor estimate. I would
17 rely on the run of ten from the QAP or the run of ten
18 measurements in the field on a known field standard.
19 That's what I would use as my reference value for that
20 instrument at that time that subject was tested, not
21 back to here, not -- because this is only one part of
22 the total calibration process.

23 The total assessment of your calibration process
24 comes from evaluating a known standard in replicate
25 and estimating the bias from that.

1 Q So like always, the best of someone's breath test --
2 someone's true, true breath alcohol level is based on
3 an evaluation of bias?

4 A Yes.

5 Q And whether or not the machine was calibrated at a
6 point-zero -- with a simulator that had a corrected
7 solution, still the best estimate is using bias?

8 A The estimate of bias from known standards run in
9 replicate, yes.

10 JUDGE PHILLIPSON: Mr. Anderson, if
11 I can interrupt.

12 So this is trial time; tech is on the stand, and
13 then tox takes the stand, and none of this is
14 mentioned. Machine bias is not mentioned. Jury
15 relies upon the stated value.

16 Aren't we, in essence, misleading the jury as to
17 the actual reading if we don't talk about bias?

18 THE WITNESS: We may be. We need to
19 acknowledge there's uncertainty in every measurement,
20 and bias is part of that uncertainty.

21 JUDGE PHILLIPSON: And techs and
22 toxes aren't trying to talk about that issue, are
23 they?

24 THE WITNESS: No. They're rarely
25 asked about that issue, but if they are, we need to

1 acknowledge that. And there's ways to estimate that
2 that we've pointed out here.

3 JUDGE PHILLIPSON: So you and I have
4 been doing this not together but at the same time
5 since this machine was created and brought into the
6 state of Washington. And all this time, we've not had
7 that discussion in a courtroom to my knowledge.

8 THE WITNESS: I have only on rare
9 occasions. Yes, it's rarely brought up. Where it's
10 critical is at the borderline cases.

11 JUDGE CHOW: Oh, yeah.

12 THE WITNESS: And that's where it's
13 much more relevant than high concentrations, not
14 nearly per se.

15 JUDGE CHOW: So I guess my next
16 question is loaded but: Isn't that something the
17 State toxicology should be telling the judges of the
18 State, and judiciary of the State that this is an
19 issue?

20 THE WITNESS: Possibly. Generally,
21 the bias is quite small, 1 or 2, 3 percent, but it's
22 there, and it needs to be acknowledged. And we do
23 when we're asked that. But I agree, that perhaps it
24 should be discussed and part of presentation of the
25 evidence.

1 JUDGE CHOW: Okay. Thank you. I'm
2 sorry. Go ahead.

3 JUDGE STEINER: I just have one
4 question. The bias that we've been discussing, the 1,
5 2, 3 percent assumes everything is working properly,
6 and no one is making a mistake?

7 THE WITNESS: Well, it -- it's
8 taking all the information available on this
9 instrument: those standards, that subject, at this
10 time, and putting it together in an appropriate way
11 statistically, computationally, and estimating the
12 bias because we have no more information than that.
13 And we acknowledge it's not a perfect system, so it's
14 always an estimate.

15 JUDGE STEINER: So just to be clear,
16 the bias assumes the machine is working as well as we
17 expect it to work?

18 THE WITNESS: Yes.

19 JUDGE STEINER: That the solution
20 preparers have prepared them, as well as we can expect
21 them to prepare them, and the tech has done his job as
22 well as we can expect him --

23 THE WITNESS: Yes.

24 JUDGE STEINER: -- to do his job.

25 You add the error that we've been discussing into

1 this, and this estimate of one to 3 percent bias is
2 thrown out?

3 THE WITNESS: It's changed. It
4 might become 4 percent or 2 percent.

5 JUDGE STEINER: Or it could come the
6 other way, make it zero?

7 THE WITNESS: Yes, yes.

8 Q (By Mr. Anderson) When you're calculating bias --
9 actually, I mean, the whole essence of bias is that,
10 inherently, there's a limit to how accurate a machine
11 could be; correct?

12 A Yes. There's limitation in the technology and the
13 procedures, the whole process.

14 Q And that limitation includes the human portion of the
15 quotient; right?

16 A Right.

17 Q When there's a blow by a defendant, you'll actually
18 see plus or minus 10 percent commonly on tickets
19 because that's what's allowable; right?

20 A That's talking about more repeatability of the two --

21 Q Correct, correct.

22 A -- precision, not the bias.

23 Q Right sorry.

24 But you always would have had to correct for bias
25 just because every machine is going to in some way be

- 1 biased?
- 2 A Yes.
- 3 Q Has discovery of these issues in any way affected your
4 ability to do so?
- 5 A No. We can still do it. The thing that this has
6 revealed though is our reference value from the tox
7 lab. I want to be confident in that. And I've got to
8 recheck their results, or in some way, enhance my
9 confidence that my reference is correct because when
10 we correct a result or determine bias, that's the
11 value we're talking about from the tox lab. That
12 affects any correction that's made.
- 13 Q Since you've done this work, this correction, are you
14 confident in those results?
- 15 A Much more so, yes.
- 16 Q Now, are you confident enough to say that your
17 calculations there are acceptable for this purpose?
- 18 A Yes, yes, yes.
- 19 Q There were questions asked by the Court about cases in
20 which the attorneys ask you questions about the breath
21 machines and don't ask you to compute bias.
- 22 A Right.
- 23 Q Specifically, Fox Bowman Duarte has at times asked you
24 about that; correct?
- 25 A About bias --

1 Q Attorneys from Fox Bowman have asked you about the
2 bias of a machine?

3 A Yes.

4 Q In a particular case; right?

5 A Right.

6 Q And do they do that in a majority of cases in which
7 you testify?

8 A No.

9 Q Many cases you testify are well away from the .08;
10 correct?

11 A Yes.

12 Q So the bias would not be relevant because it would be
13 so small?

14 A Yes, typically.

15 Q So those attorneys essentially are making a
16 determination that it's just not relevant in that
17 case?

18 A Or they may not be aware of the concept to ask of it.

19 Q But Fox Bowman is aware of it?

20 A Yes.

21 Q And they don't ask you about it in the vast majority
22 of the cases?

23 A Right.

24 Q Are you available for inquiries about whether or not
25 the breath test is accurate?

1 A Yes.

2 Q If somebody asks you whether or not the reading is the
3 best, the most accurate -- whether or not this reading
4 should be corrected in any way, what would you tell
5 them?

6 A I have that information available. I'll calculate
7 that and estimate that for you.

8 Q So if anybody came up and said, "Is this reading
9 accurate? Should it be corrected?" You would say,
10 "Let me go calculate the bias for that"?

11 A Yes, that's right.

12 Q And, in fact, you generally face a fair amount of
13 cross-examination on breath tests near the limit about
14 how accurate that test really is?

15 A Yes.

16 JUDGE CHOW: I have a question.

17 JUDGE STEINER: Okay.

18 JUDGE CHOW: When is there too much
19 bias?

20 THE WITNESS: That's decided --
21 well, depending on whether scientific or legal
22 context. The concentration we're talking about, this
23 .080, and 1 percent might be too much.

24 At .20, 1 percent is not too much, maybe
25 20 percent is. So it's relative to the concentration,

1 to the interpretation and application of the results,
2 and also whether it's legal or scientific application
3 or interpretation.

4 It's hard to give a clear, straight answer to
5 that.

6 Q (By Mr. Anderson) In fact, for the machine result to
7 be acceptable, the measurement of the bias is plus or
8 minus .072 or .088?

9 A Well, that's one assessment of bias associated with a
10 field simulator test. That simulator must be between
11 .072 and .088. And when it is, then acceptable
12 accuracy is inferred, but if you want to know the
13 specific percent bias, that requires some other
14 information and calculation.

15 Q Let's talk about the situation in which -- you tell me
16 if this occurs often, but a situation in which machine
17 is biased by 50 percent?

18 A Okay.

19 Q The machine read 115.

20 A Okay.

21 Q And after you calculated everything out, you figure
22 out it should have read a .10.

23 A Okay.

24 Q Even at such a large scale, would you still be able to
25 calculate the true breath --

- 1 A Yes.
- 2 Q -- what the true --
- 3 A If you're confident that 50 percent is the correct
4 bias, you correct for that. That gives you the
5 correct estimate accounting for the bias. Yes, that
6 can be done.
- 7 Q Now, you have calculated bias on a huge number of
8 cases over the years; correct?
- 9 A Yes.
- 10 Q Usually what's the bias?
- 11 A Well, less than 5 percent. It might be 1, 2, 3. It
12 might be minus 2 percent. From minus 5 percent to
13 plus 5 percent accounts for a vast majority.
- 14 Q And earlier you were actually saying that most of them
15 turn out to be 1 or 2 percent?
- 16 A Yes.
- 17 Q Have you ever seen a 50 percent bias on a machine?
- 18 A No.
- 19 Q So most are 1 to 2 percent, vast majority within 5?
- 20 A Yes.
- 21 Q Do the errors that we're talking about here, the
22 scrivener's errors, the defense claim that the
23 weighted mean would be the more appropriate way, have
24 you evaluated bias --
- 25 A Not use --

- 1 Q -- taking into account those?
- 2 A On a few cases in preparation for this hearing, I did,
3 yes.
- 4 Q Does that materially affect the magnitude of the bias?
- 5 A No, no.
- 6 Q In general, I asked you those questions about, you
7 know, usually you'd see most results 1 to 2 percent,
8 vast majority within 5?
- 9 A Yes.
- 10 Q Would you expect the same even assuming that we had
11 calculation errors and even assuming that the lab
12 should have done a weighted mean instead of an
13 arithmetic mean?
- 14 A I would expect the same.
- 15 Q Do you think these errors change the ball game as far
16 as in general how accurate or how much bias a BAC
17 machine has?
- 18 A No. They change only that I want to have better
19 confidence in the reference now that all these errors
20 have been taken into account. But generally, they've
21 been very -- the effect has been very small, and so
22 the effect on the reference has been very small.
- 23 Q Now, the effect on any particular defendant can be
24 measured; correct?
- 25 A Yes.

1 Q Just like the bias for any particular defendant could
2 always be measured even before these?

3 A Yes.

4 Q Essentially, it's just one extra step in the process
5 of your calculation of bias?

6 A Yes.

7 JUDGE PHILLIPSON: Mr. Anderson,
8 I've got to interrupt.

9 If it's one extra step to do these things in an
10 individual's case, why don't we? I mean, that's a
11 rhetorical question.

12 The question specific to you is: You're one guy
13 in a great big state, with thousands of DUI tests, and
14 hundreds of machines, et cetera. Clearly, not
15 everybody is going to call up Mr. Gullberg and say,
16 "Will you calculate this for me?" It isn't going to
17 happen.

18 So maybe the real question is: Why aren't these
19 published somewhere? Why aren't they part of the BAC
20 ticket? Why aren't they part of something available
21 to a prosecutor and defense counsel when they sit down
22 to negotiate a case before it ever gets to trial?

23 I mean, I guess that's my question. Is that a
24 possibility?

25 THE WITNESS: Yes. It -- it -- all

1 that you suggested could be done. The method -- I
2 could publish a document on the Web that says, "Here's
3 how you do this," and anybody could go to it.

4 The data has always been there for anyone to have
5 done it in the last 20 years. The instrument could do
6 it. It's not programmed to do it now, but there's the
7 capability and technology to internally do this, and
8 print out the corrected result.

9 JUDGE CHOW: In the field of your
10 expertise, okay, is it acceptable in your field when
11 trying to establish confidence to have recorded bias
12 so that your peer group in that community can check to
13 see if they can replicate and have confidence?

14 THE WITNESS: Mm-hm. Yes. When
15 publishing scientifically, when presenting scientific
16 data, research results, bias is an important
17 consideration and should be included so another
18 scientist could come along and reproduce your results.
19 So bias is very important in interpreting scientific
20 research. It's not commonly employed in forensic
21 breath alcohol testing nationwide.

22 JUDGE CHOW: That's a matter of
23 practice or a matter of culture?

24 THE WITNESS: Matter of practice.
25 It's just that forensic scientists don't think about

1 it, don't think it's relevant, or aren't aware of it.
2 For a variety of reasons, it's not employed.

3 JUDGE CHOW: But in the scientific
4 community, it's almost a --

5 THE WITNESS: Well, in the forensic
6 scientific community involving forensic toxicology,
7 it's not common in the application of blood or breath
8 alcohol measurement. If you're doing research, you
9 will see it more in research papers. But in field
10 practice, these things are not commonly employed.

11 JUDGE STEINER: And I'm sorry. I do
12 apologize for all three of us.

13 But in the average breath test, Fox Bowman Duarte
14 is not hired, and so an individual citizen attempting
15 to decide should I plead guilty, should I plead not
16 guilty, is not going to have any idea if they're at
17 08, that there may be a bias that might put them below
18 a legal reading.

19 THE WITNESS: Yes.

20 JUDGE STEINER: The toxicology
21 office or the breath test section has made a decision
22 not to purchase the programming or to pay a programmer
23 to program the breath test machine to correct for
24 bias.

25 Do you know why?

1 THE WITNESS: Well, first of all,
2 there's at least as many bias low as bias high.

3 JUDGE CHOW: Bias low doesn't go
4 into jail.

5 THE WITNESS: Yeah, well --

6 JUDGE STEINER: To state the
7 obvious.

8 THE WITNESS: Where if it's reading
9 low to begin with, there's no harmful bias there. So
10 it's only those reading high and only those at the
11 critical .08. So there's very few -- that's probably
12 the bottom line. There's very few individuals
13 impacted by this.

14 So there are those few that this would be a
15 relevant issue in a particular case. And 1 to 2 or 3
16 percent, this is the third decimal place that we're
17 talking about so an 080, 081, 082, those are the cases
18 where this would be relevant.

19 JUDGE STEINER: Last question. This
20 is not a prohibitively costly fix?

21 THE WITNESS: No. It could be done.
22 It would require several considerations: software in
23 the DataMaster; protocol changes; when the technician
24 changed solution, they'd have to put in the reference
25 value of this solution and the instrument now computes

1 its bias, and then applies that to the defendant's;
2 the test printing could be changed. It could be done,
3 but there would be a programming change necessary.

4 JUDGE PHILLIPSON: Does it require
5 replacement of all those machines?

6 THE WITNESS: It would not. It
7 could be done in the existing instruments we employ.
8 Newer technology is available that would do it even
9 easier.

10 JUDGE CHOW: So even in a scientific
11 setting, not a forensic, but even in a scientific
12 setting, bias is a factor?

13 THE WITNESS: It is, yes.

14 JUDGE CHOW: It's not necessarily
15 the, quotation, killer, for lack of a better term. It
16 goes to weight?

17 THE WITNESS: Yes. It is a factor
18 to consider, then if it's small or irrelevant, then
19 the scientist knows that, or whoever's interpreting
20 the data will know that. So one has to consider,
21 okay, here's bias but it's not just bias. What's the
22 magnitude of it? What's the direction of it, and
23 what's the impact on interpretation?

24 JUDGE STEINER: Thank you.

25 JUDGE CHOW: Thank you. Sorry.

1 JUDGE STEINER: Let me just note
2 that there will be a celebration of some sort taking
3 place in this courtroom over the lunch hour, and
4 they'll be serving food. I have volunteered, since
5 the superior court has been so nice to let us use this
6 courtroom, that we would attempt to leave early, and
7 we would not be back until five after one.

8 JUDGE CHOW: So this is the
9 clear-your-table stuff.

10 JUDGE STEINER: Ten minutes early
11 will probably be our quitting time for lunch.

12 Q (By Mr. Anderson) You testified that with regard to
13 research, bias is commonly reported?

14 A Yes, published research.

15 Q And with regard to fieldwork -- I'm not sure if that's
16 the word you used -- it's not generally reported?

17 A It's not commonly done or considered in the field of
18 forensic application of blood or breath alcohol
19 testing.

20 Q And generally, with regard to fieldwork, it's less
21 commonly reported; correct?

22 A Field toxicology work. I'm not generalizing to all
23 sciences.

24 Q Okay.

25 A But in this field, generally not employed.

- 1 Q So research toxicology, reported. Field toxicology,
2 generally not reported?
- 3 A As a general rule.
- 4 Q There were questions about your availability, in fact,
5 every single tech can calculate bias; isn't that
6 correct?
- 7 A Yes.
- 8 Q And in calculating -- and so they can come and do the
9 same calculations you have just done?
- 10 A Yes.
- 11 Q And get the true mean?
- 12 A Yes.
- 13 Q The likely true mean?
- 14 A Better approximation of the true mean.
- 15 Q And quite frankly, even the true mean or the corrected
16 mean --
- 17 A Right.
- 18 Q -- let's call it by the correct term; is that
19 accurate?
- 20 A Well, that may not even be the truth because we're
21 limited: technology, procedure, people. It's a
22 better estimate than we had before, but I would still
23 never say it's the truth because we don't know that
24 for sure.
- 25 Q And presumably you can build a system that would

1 create an even better estimate than that; correct?

2 A True.

3 (Exhibit marked.)

4 Q (By Mr. Anderson) I'm showing you State's Exhibit 65.

5 JUDGE PHILLIPSON: Is this a new
6 exhibit?

7 MR. ANDERSON: It's just been
8 marked, yes. And the State offers 65.

9 JUDGE STEINER: So 65 is simply the
10 breath test ticket for each breath test of each
11 defendant in this case?

12 MR. ANDERSON: Yes. One of the
13 defendants had a blood so...

14 JUDGE STEINER: Okay. Motion to
15 admit 65 is granted.

16 (Exhibit admitted.)

17 MR. VOSK: Yeah. We have no
18 objection. I think we were wondering is there an
19 Exhibit 64?

20 THE CLERK: 64 is the diagram.

21 Mr. Vosk: Oh, okay. Thank you.
22 Thank you.

23 MR. ANDERSON: I was also going to
24 ask that this be marked.

25 (Exhibit marked.)

1 MR. ANDERSON: State's going to move
2 to admit Plaintiff's 66. This is a summary of the
3 particular solutions used and breath test results for
4 the defendants in this case for some relevant criteria
5 in this case.

6 MR. VOSK: No objection.

7 JUDGE STEINER: 66 is admitted.

8 (Exhibit admitted.)

9 Q (By Mr. Anderson) 65 is a bit hard to read. I'm
10 going to refer you to 66.

11 MR. ANDERSON: I'm going to hand up
12 some courtesy copies to the Court.

13 JUDGE STEINER: We're looking at 66?

14 MR. ANDERSON: Yeah.

15 Q (By Mr. Anderson) Sample 1 and 2, there were
16 questions from the Court about whether or not
17 defendants were aware of potential variability in the
18 machine. Sample 1 and 2 for Barbara Hildreth, those
19 values are 088 and 087; correct?

20 A Yes.

21 Q For Amach it's 146 and 156?

22 A Yes.

23 Q For Wolf it's 185 and 164?

24 A Yes.

25 Q For Reel it's 240 and 226?

1 A Yes.

2 Q For 192 -- oh, I'm sorry. For Cheuk's first one, it's
3 192 and 179?

4 A Yes.

5 Q Cheuk's second is 014 and 013?

6 A Yes.

7 Q Slaughter's first one is 261 and then 251?

8 A Yes.

9 Q I'm sorry. That was actually Watson.
10 And then Slaughter's is 184 and 183?

11 A Yes.

12 Q In your experience, the majority of tickets actually
13 have variability written all over them, don't they?

14 A Yes. The difference you see between the person's
15 first and second sample, that's variability.

16 Q The legislature has made a determination that with
17 that type of variability, it's acceptable if it's plus
18 or minus 10 percent; correct?

19 MR. VOSK: Let me make my first
20 objection. I have no problem if he's testifying as to
21 what the law's standard is. I don't think he can
22 testify to what the legislature determined.

23 MR. ANDERSON: That's fine.

24 MR. VOSK: I don't mean to be
25 obstreperous.

1 JUDGE STEINER: No. I understand
2 what you're saying. I'm going to overrule the
3 objection. I'm going to ask a question.

4 Counsel, maybe I can just direct you into this
5 area rather than asking the questions. Typically,
6 what we're told as jurors and judges is that the
7 variability is related to the defendant, not the
8 machine. So if you want to maybe spend a little time
9 on that, that would be...

10 Q (By Mr. Anderson) There's variability -- the law is
11 plus or minus 10 percent; correct?

12 A Yes.

13 Q And the bias -- and that's a decision of precision --
14 that's about precision; correct?

15 A Yes. 10 percent of mean is precision.

16 Q And actually precision for the 08 here on these ten
17 tests via the simulator --

18 A Yes.

19 Q -- is only -- the variability here is 079 to 080. The
20 04 level is 038 to 041; right?

21 A Yes. That's the range.

22 Q That's much tighter than the average difference
23 between two defendants' blows; right?

24 A Yes.

25 Q So that is, in fact, usually when you're looking at a

1 breath test, the majority of the variance is due to
2 the defendant's blows; isn't that correct?

3 A Yes. How they provide the sample, yes.

4 Q Now, bias, is that about precision or is that about
5 accuracy?

6 A Accuracy.

7 Q Is there a measure of -- and so is it a measure of
8 accuracy on the breath ticket?

9 A Well, that control standard, that simulator measuring
10 the instrument -- the instrument measuring the control
11 standard, that "must be 072 to 088," is an assessment
12 of accuracy, but it's a general one but it's within
13 the general range.

14 But now if you want to know the specific bias,
15 plus or minus some percent, that requires some more
16 information to calculate that.

17 Q The target range of bias -- the solution -- the target
18 alcohol vapor concentration for one of those field
19 simulator solutions is .082; right?

20 A Not always. It might be. You see it --

21 Q Just the target range when it's originally made.

22 A As a general target, yes.

23 Q In fact, there's a reported simulator solution value
24 that's available on the Web?

25 A Yes.

1 Q And it has been corrected for any scrivener's errors
2 or anything like that? The mean -- the alcohol vapor
3 concentration, for all -- for everything on the Web
4 has been reported -- has been corrected; right?

5 A Yes, that's right.

6 Q And looking at the tickets that you have -- I guess
7 just in general, when you receive a ticket, you'll see
8 readings higher or lower than 08, an array of that.
9 And quite frankly, most defense attorneys who ask you
10 questions, have seen those same variances --

11 A Yes.

12 Q -- in the accuracy of that particular simulator
13 solution?

14 Mr. Vosk: Can I ask that that
15 question be repeated. I might have an objection.

16 Q (By Mr. Anderson) For breath tickets -- when you're
17 going and looking over breath tickets, it's very
18 common to see a widespread of reported values for the
19 field simulator solutions, correct, between .072 and
20 .088?

21 A I don't know if I'd characterize it as wide. I see it
22 in that range.

23 Q You'll at times see 087?

24 A Yes.

25 Q More often see 080, at times 073?

- 1 A Rarely 073, rarely 087, but within that range.
2 Generally, they're closer to 080 than the outer
3 limits.
- 4 Q And if anybody wants to find out how to evaluate that
5 even better, they can look on the Web because what the
6 reported mean for that solution is available at the
7 time it was put on -- at the time it was produced is
8 on the Web; correct?
- 9 A Yes.
- 10 Q 080 to 088 or 080 to 072, what percentage of 080 is
11 088?
- 12 A 10 percent higher.
- 13 Q And so if the machine read a true 080 solution as 088,
14 it would still qualify under the laws of this State;
15 correct?
- 16 A It would, yes.
- 17 Q And it would be reading 10 percent high; right?
- 18 A Yes.
- 19 Q And in general, the bias you see is most often 1 to 2
20 percent, almost always less than 5?
- 21 A Yes.
- 22 Q Just to be clear, the errors claimed by the defense,
23 have they affected your ability to accurately estimate
24 the true mean or the corrected mean?
- 25 A No.

1 Q Is the corrected mean even by itself really the true
2 value of the breath test?

3 A It's our best estimate given our limitations that I've
4 discussed.

5 MR. VOSK: Your Honor, at this
6 point, I think that's been gone over three or four
7 times. We'll stipulate those points.

8 MR. ANDERSON: I'm moving on.

9 Q (By Mr. Anderson) Let's move on to some of the
10 specifics. Let's talk about some of the specific
11 cases referenced by the defense.

12 The defense asked you about 06028, this is Lisa
13 Noble's rejected data set.

14 MR. ANDERSON: Your Honors, Lisa
15 Noble was Lisa Piquette. She was married, just to be
16 clear.

17 Q (By Mr. Anderson) To be clear, 6028 contains some
18 test results from Lisa Noble, formerly known as Lisa
19 Piquette; correct?

20 A Yes.

21 Q Let me make sure it's clear down here. She was
22 Analyst No. 1; correct?

23 A Yes.

24 Q She included results of 096, 097, 096, 097, and 097?

25 A Yes.

1 Q And there were a series of test results that she
2 ultimately excluded: 091, 092, 091, 090, 091?

3 A Okay.

4 Q Did you review whether or not the exclusion of those
5 results was an appropriate thing for a chemist to do?

6 A No. I did not go into the reasons why she did, no.

7 Q The defense asked you questions -- are you familiar
8 with rejection for assignable cause?

9 A Yes.

10 Q What is that?

11 MR. VOSK: We'll stipulate to that
12 fact that data should be rejected if you can assign a
13 reasonable identifiable cause to it.

14 MR. ANDERSON: State's satisfied
15 with that stipulation.

16 Q (By Mr. Anderson) And even if something falls outside
17 of the statistical measure of whether or not something
18 is an outlier, if there's an assignable cause, you
19 should still reject that?

20 A That's the decision of the scientist to make because
21 they know the process, the equipment, the
22 interpretation application best. Statistics is one
23 tool they can consider but not the only.

24 Q A statistician shouldn't come back in and second-guess
25 that if they're not familiar --

- 1 A Right.
- 2 Q -- with the science and the process in the lab?
- 3 A Right.
- 4 Q Counsel asked you questions about this and asked you
5 to analyze whether or not the rejected data
6 constituted outliers.
- 7 Do you remember that question?
- 8 A Yes.
- 9 Q Were you talking about the outlier by a statistical
10 calculation or because of an assignable cause?
- 11 A By a statistical calculation.
- 12 MR. VOSK: And we'll stipulate that
13 all we asked him to do was go into statistical
14 calculation. We did not have him go into assignable
15 cause. I believe that's what the testimony was.
- 16 Q (By Mr. Anderson) Counsel asked you to recalculate
17 the means replacing her original set -- or the set
18 that was originally reported with the set that she
19 ultimately excluded; correct?
- 20 A Yes.
- 21 Q And there was a difference in the reported equivalent
22 vapor concentration; isn't that correct?
- 23 A Yes, right.
- 24 Q If that data had been properly excluded for assignable
25 causes, that would have been the wrong thing to do;

- 1 correct?
- 2 A No. I mean, if there were assignable causes and
3 reasons -- sound, scientific reasons why they rejected
4 the data and they rejected it, that's appropriate.
- 5 Q So if the original set of data, the higher or the
6 lower values, were appropriately rejected, then you
7 should keep this reported set of data that we have
8 right here?
- 9 A Yes.
- 10 Q And so all those calculations would be irrelevant?
- 11 A On other rejected data, yes.
- 12 Q There were questions about the effect on whether or
13 not particular DataMaster -- DataMaster QAP
14 processes -- so there were subsequent DataMasters
15 QAP'd with that particular solution?
- 16 A Yes.
- 17 Q And Counsel identified three of them that would not
18 have been -- passed that QAP process if, in fact, you
19 should have included that first run of data?
- 20 A Yes.
- 21 Q Those all would have passed the QAP process if we --
22 those all did, in fact, pass the QAP's process with
23 the original data reported; correct?
- 24 A Yes.
- 25 Q If those QAPs had not passed the data or had not

1 passed the process, what would have happened?

2 A Well, then the technician is required to start over
3 the QAP and not put that instrument in the field if it
4 doesn't meet the plus or minus 5 percent for accuracy
5 or bias estimate at the time of the QAP.

6 Q So what would happen to the machine? Would they have
7 just junked the machine?

8 A Well, no. They have to try to find out the cause;
9 they may have to recalibrate; they may have to change
10 simulator solutions; change simulators; change tubing;
11 check electronic settings again; whatever a technician
12 knows what to do to correct it, then they start over.

13 MR. VOSK: Can I just -- can you
14 read -- can I have the court reporter just read back
15 the last few questions. I'm sorry, your Honor. I'm
16 not trying to interrupt. I honestly just didn't hear.

17 JUDGE STEINER: Please.

18 (Requested questions read by
19 the reporter.)

20 Mr. Vosk: Thank you.

21 Q (By Mr. Anderson) Would he have still been able to
22 determine the bias of that machine?

23 A Yes.

24 Q And, in fact, the rejected data and the included data
25 is both available on the Web if somebody wanted to go

1 look at that?

2 A Yes.

3 Q And so if they wanted to have somebody else do it,
4 that other person could have done it?

5 A Yes.

6 Q One last thing, in determining whether or not -- or in
7 determining the bias, in fact, there's some judgment
8 about what particular bias -- or about what particular
9 solution to use in computing bias?

10 A Yes.

11 Q Can you explain that?

12 A Yes. Well, we're talking about this reference value
13 here. What solution should I use to put in there? It
14 might be a field solution that's near 08. I would use
15 that for a person's breath test that's near a .08.

16 But if a person's breath test is near .18, I would
17 not use that field. I would put in the QAP bias
18 estimate at .15. The QAP is closer to that 18. It's
19 a better estimate for that person.

20 If the person's a .03, I would use the QAP .04,
21 it's closer. Or if they're 10 or 11, I would use the
22 10 QAP. Someone near .08, I think the field .08 is
23 the better estimation, but if someone doesn't agree,
24 they can go to the QAP 08 and calculate it based on
25 that.

1 Q So, in general, if it's a very high reading, you're --
2 there's a good chance you're going to look at the ten
3 tests of the QAP at .15?

4 A Yes.

5 Q If it's close to .10, you're going to look at the ten
6 tests close to .10?

7 A Yes.

8 Q Same for 08 and same for 04?

9 A Yes.

10 Q Sometimes you're going to have a situation where the
11 QAP, like, where the breath test is, let's say, a 125?

12 A Okay.

13 Q And reasonable minds could disagree about whether or
14 not it's more appropriate to use 15 QAP solution, the
15 10 QAP solution, which one of those two would be
16 appropriate; right?

17 A Yes.

18 Q You could do it both ways and make a decision and, in
19 fact, if you had an 09 breath test, reasonable minds
20 might disagree about whether or not you should use the
21 08 QAP or the 10 QAP; correct?

22 A Yes. Or the 08 field.

23 Q And, in fact, people may wish and -- in fact, I guess
24 that's just exactly where I was going. The 08 field
25 sometimes will be available because there have

1 actually been ten tests or enough tests?

2 A Yes.

3 Q For early in the process, it may not be available

4 because there haven't been enough tests done on it;

5 isn't that correct?

6 A Yes, that's right.

7 Q And reasonable minds, again, can differ about which.

8 So if the machines were programmed to calculate the

9 bias --

10 A Yes.

11 Q -- it would just have to be a set way without using --

12 exercising that judgment; correct?

13 A Yeah. You would basically write the routine so that

14 if it was a value, you would choose this reference.

15 If it was that, you choose that. You would have to

16 program it appropriately.

17 Q Is there -- and that presumably, if you were to write

18 that protocol, that would be based on your opinion of

19 when those cutoffs would be appropriate?

20 A Yes. Mine and several people who would be involved in

21 this process.

22 Q Others could disagree with that and would get a

23 computation of bias as a result; correct?

24 A Yes, yes.

25 Q And if they were correct about it, then you would

1 wind -- then presumably then, the bias reported would
2 be wrong?

3 A If -- I mean, they might persuade me that their way
4 would be better, and then I would have to agree to,
5 Yes, we should do it your way.

6 Q And, in fact, when I have asked you about bias, there
7 were times you were, like, In this case I would
8 probably use this one, and then later on you're, like,
9 You know what, no, maybe a different one is better for
10 this particular case.

11 Isn't that true?

12 A Yes.

13 Q Is it always purely a number issue, or is there
14 sometimes a qualitative judgment?

15 A Yes. There's sometimes qualitative judgment involved
16 to make this decision as to which is the best
17 reference value to use.

18 Q But getting back to 6028 -- actually, I'm done with
19 that. Thank you. You can have a seat.

20 There were questions about 6048. One moment.

21 JUDGE STEINER: 48?

22 MR. ANDERSON: 06048.

23 Q (By Mr. Anderson) Actually, there were a number of
24 questions about 06048, 06003, both of those had
25 corrected ranges which were .1024 or .1027. If you

1 were to recall, that was outside the solution content
2 range for the QAP solutions?

3 A Yes.

4 Q All right. So the acceptable range for a field
5 solution 098 to 108. For a .08 QAP solution, it's 092
6 to 102?

7 A Correct.

8 Q And Counsel asked you a number of questions and
9 initially asked you whether or not that was, in your
10 estimation, outside the standard range, a 1024?

11 A Yes.

12 Q To be clear, what was your answer about whether or not
13 that was outside the standard range, the acceptable
14 range?

15 A I don't really recall how I answered that. If you
16 include the fourth decimal place, it is outside.

17 Q Okay. The acceptable range, does it actually include
18 a fourth decimal range?

19 A No. I don't -- no.

20 Q It's reported in three decimals?

21 A Yes.

22 Q Now, there were a number of questions asked after that
23 about whether or not something was then outside the
24 range.

25 Did you change your answer saying that these were

1 outside the range, or were -- or was your
2 understanding of those questions merely that based on
3 the defense claim that it was outside the range you
4 were -- were you saying that you thought that a result
5 of 1024 was outside the range, or were you merely
6 responding to the defenses' hypothetical?

7 Did you wind up changing -- did you wind up
8 thinking that because it's a 1024, it's outside the
9 range?

10 A Well, I included the fourth digit. I forget exactly
11 what I said, but that would be technically outside
12 102, but if the practice was to truncate, then they
13 would be equal.

14 Q Or a 1024 rounded would be --

15 A Rounded simply would be 102, yes.

16 Q Are you governed by the QAP solution preparation
17 protocols?

18 A No. They don't -- no. Not in our practice of doing
19 the QAPs, no.

20 Q Have you ever had to apply those protocols?

21 A No.

22 Q Have you -- are you a chemist?

23 A No.

24 Q And who would know best about how those protocols --
25 whether or not there's something -- where there's a

1 matter of interpretation necessary, whether or not the
2 range fell inside or outside those protocols?

3 A Dr. Logan.

4 Q If a solution is -- why do you use the .08 QAP to
5 calibrate the instrument?

6 A That's the way the manufacturer has designed the
7 calibration process in the instrument. It's to be a
8 solution value near .08, so we couldn't use a .15 to
9 calibrate it or a .02. That's a part of the
10 programming routine.

11 Q And to be clear, a solution content of .1024 when made
12 to be an equivalent vapor content is near .018;
13 correct.

14 A That's right, right.

15 Q Would calibrating the instrument using, let's say, a
16 .15 vapor content solution, so the high QAP, would
17 that change whether or not the machine could still
18 calibrate correctly?

19 A You wouldn't be able to calibrate at that
20 concentration. It's designed to be near .08.

21 Q If you used a .10 solution, so a .10 vapor content?

22 A No. You -- if -- I believe it allows plus or minus 10
23 percent around .08, so .07 to .09, approximately, is
24 the range that you would have to use to calibrate
25 with.

- 1 Q What happens if you enter the solution value to
2 greater than plus or minus 10 percent?
- 3 A Well, if you incorrectly entered a value, it goes into
4 that cal that we talked about.
- 5 Q No. I guess that's not what I'm asking.
6 When you have a solution with a stated value of,
7 let's say, .808, equivalent --
- 8 A .0808.
- 9 Q Thank you. .0808 equivalent vapor content, and the cal
10 factor -- and this is the stated value. So let's say
11 that the mean that the machine gets is .0805. All
12 right. Then part of the calibration factor would take
13 into account that the machine was reading high; right?
- 14 A Actually, that it was reading low.
- 15 Q Thank you. Stated, actual? (Indicating.)
- 16 A Yes.
- 17 Q Let's say that you got a -- so you think the machine
18 doesn't accept values greater than 10 percent of 080?
- 19 A Right. You wouldn't be able to calibrate outside
20 approximately 10 percent of 08.
- 21 Q So that would be 088?
- 22 A Right, that would be -- yeah. I think that would
23 be -- I think it allows 07 to 09 as your limits of
24 calibration.
- 25 Q So it can be .09 stated?

1 A Okay, right.

2 Q Let's say you have a .91. That was the stated value
3 and you entered it in.

4 A Okay.

5 Q What would the machine do?

6 A I don't believe it allows you to enter that value for
7 calibration.

8 Q So you just wouldn't be able to --

9 A Right, right.

10 Q -- complete the process. Logistically the machine
11 doesn't allow you?

12 A Right.

13 Q Is there any reason that you can't calibrate the
14 machine using an 091 --

15 MR. VOSK: Your Honor, I'm going to
16 object at this point. I think the witness already
17 testified that the only person that could tell that --
18 the best person to tell that would be Dr. Logan.

19 MR. ANDERSON: I don't remember that
20 testimony.

21 Mr. Vosk: If I'm incorrect, the
22 Court can correct me.

23 JUDGE STEINER: I don't recall that
24 specifically said concerning this issue, that is the
25 ability of the machine.

1 MR. VOSK: If I'm wrong, I withdraw
2 my objection, and I apologize to the Court and to the
3 State.

4 Q (By Mr. Anderson) The 090 is just a programming limit
5 that they say we're only going to accept 090 to .07;
6 correct?

7 A Yes.

8 Q Is there anything -- is there any difference in the
9 process if you reported a .089 versus .808?

10 I guess we're going to step back. First let's say
11 we're within the .091, .089. The process of the
12 machine goes, and let's say we got a .0807; the stated
13 value from the lab is .890?

14 A Yes.

15 Q The machine will accept that?

16 A Yes.

17 Q Is there any difference in the machine when they get
18 .0890 and the mean tested is whatever it is. It
19 doesn't really matter?

20 A Right.

21 Q Is there any difference between the process the
22 machine goes through for the .0890 and something
23 closer to the .090?

24 A No, no.

25 JUDGE CHOW: I have one very basic

1 question: How do you know this? How do you know the
2 machine will not accept it or not?

3 THE WITNESS: You could try putting
4 the values in, I guess.

5 JUDGE CHOW: I mean, you're giving
6 me the manufacturer's limit, but have you done it?

7 THE WITNESS: It's a programming
8 thing. I don't remember if I have or not.

9 JUDGE CHOW: Okay. Thank you.

10 Q (By Mr. Anderson) You believe the manufacturers
11 limited that?

12 A Yes.

13 Q It's possible that they have or haven't, but that's
14 what you understand?

15 A That might be a question for Trooper Denton.

16 Q Okay. Is the process the same regardless of the level
17 of the stated mean?

18 A Yes. The mathematics, the calculations are the same.

19 Q And is there any reason that if the machine accepted a
20 .10 or a .15 -- and that got a reading of, let's say,
21 of .15, you know, 07, whatever it is --

22 A Yes.

23 Q -- would the calculations for the machine be at the
24 same as at the 08 level?

25 A If the it were programmed to allow you to calibrate at

- 1 .15, it would be the same.
- 2 Q Is there any reason to believe that a calibration of
- 3 .15 would be less accurate than a calibration of .08?
- 4 A Having not done that, I don't think so, but I've never
- 5 confirmed that. It's a one-point calibration design
- 6 in the instrument. It's very linear.
- 7 We see very acceptable accuracy, bias, at all
- 8 concentrations from 04 to 15 using the one-point
- 9 calibration. So I would -- but they've chosen to take
- 10 somewhere in the middle of this relevant range near
- 11 .08 to be the calibration point.
- 12 Q For a .1027 concentration solution -- solution
- 13 concentration, what would the equivalent vapor
- 14 concentration be?
- 15 A .1027?
- 16 Q Yes. It's the corrected value for the field solution
- 17 06048.
- 18 A It's dividing that by 1.23. .0835 grams per
- 19 210 liters.
- 20 Q That's within the limit you stated; correct?
- 21 A Yes.
- 22 Q Is there any reason that a calibration at 0835, as far
- 23 as the machine goes, would be any less accurate than a
- 24 calibration at something lower?
- 25 A No. That's well within that range. You would confirm

1 it in your run of ten afterwards, that it was correct
2 with all concentrations.

3 Q And ultimately the -- so calibration at those two
4 levels are equally accurate?

5 A They can be. You verify it though through your run of
6 ten afterwards.

7 JUDGE STEINER: We thought people
8 would be coming in. I'm going to press the envelope,
9 and we'll go to five till.

10 Q (By Mr. Anderson) Historically, what QAP level --
11 what field solution was used to calibrate the
12 machines? Was it -- you used to use the .10 level;
13 correct?

14 A Years ago before 1995, the prior generation
15 DataMaster, .10 was the calibration level, yes.

16 Q And do the manual -- does the policy manual that
17 governs techs, does that require that you use a
18 particular QAP or a particular level of QAP solution
19 in order to calibrate?

20 A The .08 level, but it doesn't specify 0835 or 0817,
21 "Is this to be an 08 general concentration?"

22 Q And it actually says one that's near 08, correct, as
23 opposed to a label? Does it speak in terms of labels
24 put on by the lab? Do you know?

25 A No. I'd have to look and see specifically what it

1 more.

2 JUDGE STEINER: Three or four?

3 MR. ANDERSON: Yeah.

4 JUDGE STEINER: Perhaps you can both
5 discuss those, and you can see if you have an
6 objection to that method, and we can deal with that
7 when we come back at five after one.

8 MR. ANDERSON: Thank you.

9 THE CLERK: All rise.

10 (Lunch recess.)

11 JUDGE STEINER: You may be seated.

12 MR. VOSK: Your Honor?

13 JUDGE STEINER: Yes.

14 MR. VOSK: There are a couple of
15 issues before we go back to testimony, if it would be
16 okay.

17 JUDGE STEINER: Sure. If you
18 wouldn't mind approaching, both of you. It would make
19 it a little easier to hear.

20 MR. VOSK: The first issue is, and
21 it's just my assessment, I don't know if the State
22 agrees. I don't think we're going to get through this
23 by Friday, and so I thought we might want to discuss
24 what your Honors -- what action your Honors find
25 appropriate.

1 JUDGE STEINER: You're not the only
2 one that talked about the possibility of by Monday,
3 but I think that we would like to hear your
4 assessment, but our position remains that we are going
5 to be done by Friday. So we hold out the possibility
6 that we could change your minds.

7 MR. VOSK: Okay. The second issue
8 is we had and -- Francisco, do you want to -- and we
9 had one of witnesses that we had agreed to a month ago
10 who was the officer who had investigated the Ann Marie
11 Gordon situation. I didn't the know the name at that
12 point.

13 As you recall, both parties had just received the
14 discovery the day before. That individual is
15 Washington State Trooper Penry, Detective Penry, and
16 he has been subpoenaed now.

17 What had happened was, we had subpoenaed everybody
18 originally for the first date. And when this was
19 continued over, we had issued subpoenas for the
20 witnesses, but the second set of subpoenas went out
21 for the Seattle hearing which is going on, and the
22 second set of subpoenas did not get sent out for this
23 hearing.

24 But we ask the Court in that it was an honest
25 oversight, not trying to play games, it was a

1 witnessed agreed to, would the Court allow us to call
2 Detective Penry still?

3 MR. ANDERSON: And this is where I
4 think, as Counsel indicated yesterday, our memories
5 diverge on that. I certainly agree that he did wind
6 up indicating that he wanted to call the investigator,
7 and since they hadn't been able to review the
8 discovery, they weren't clear of what bounds or
9 whatever.

10 And with regard to the other witnesses agreed to,
11 we understood that they were going to, we didn't know
12 the purpose for which they were going to call them,
13 and I believe that the relevance needs to be tied in.

14 I think, the most I would imagine is that he would
15 be an impeachment witness, and I don't know that
16 that's been established as relevant, and I don't know
17 the actual relevance category. So I think this falls
18 into the --

19 JUDGE STEINER: Well, unless there
20 is new information, I'm not sure why it would be
21 helpful to hear from this investigator.

22 MR. VOSK: In any case where we --
23 when we're in court to convict somebody of a crime,
24 the primary witness is always the officer that did the
25 investigation, that interviewed the witness, that got

1 the information out.

2 Ann Marie Gordon has claimed the Fifth Amendment
3 at every proceeding so far that we have had her at, so
4 we haven't been able to get information from her. She
5 did do an interview with this investigator. We are,
6 although not prosecutors, we are, in essence, accusing
7 her of having committed a crime.

8 And in order, I guess, to support the allegation
9 that we're making here, the crime being perjury, we
10 think it -- that the detective who did the
11 investigation who spoke to her would be --

12 JUDGE STEINER: Let me just
13 interrupt. As far as I understand, the State agrees
14 to your recitation of facts. The State disagrees to
15 the result, but we don't need a witness for a debate
16 recording the results. Why would we need a witness?
17 Are there any facts that you think the State has not
18 agreed to regarding Ms. Gordon?

19 MR. DUARTE: There are a couple of
20 things --

21 JUDGE STEINER: Please identify
22 yourself for the record.

23 MR. DUARTE: I'd be happy to do
24 that. I'm Francisco Duarte spelled, D-U-A-R-T-E,
25 appearing on behalf of various defendants joined for

1 this motion this afternoon, this last couple of days.

2 There are some relevant facts that would come
3 through Detective Penry that are not present in the
4 Skagit transcript. For example, there were two
5 notices -- two tips sent to the Washington State
6 Patrol related to the improper certifications of the
7 simulator solutions. There were actions taken by the
8 Office of State Toxicology to inquire about those
9 particular tips.

10 One of the relevant factors, your Honor, is that
11 apparently at the time that Dr. Logan asked Ann Marie
12 Gordon to look into these matters with the forensic
13 toxicologist Ed Formoso, that there was no discussion
14 or admission by either one as to the inappropriateness
15 of the handling of the simulator solution
16 certifications.

17 JUDGE STEINER: That's Dr. Logan's
18 position?

19 MR. DUARTE: Exactly. Since
20 Detective Penry investigated this matter, it has come
21 to light that there were discussions, material
22 discussions, that Dr. Logan had with Ann Marie Gordon
23 about the impropriety of the certifications to the
24 extent that Dr. Logan indicated that she no longer
25 should be doing that.

1 That is not part of the record in the Skagit
2 matter. In fact, Dr. Logan, I believe, has denied
3 that there was that type of communication related to
4 the inappropriateness of the certification of the
5 documents.

6 JUDGE STEINER: His conclusion is
7 not in of itself, I would assume, admissible unless
8 it's factually based.

9 MR. DUARTE: Right. And so --

10 JUDGE STEINER: And in this case,
11 it's my understanding that Ann Marie Gordon indicated
12 that she had told Dr. Logan that she was signing these
13 certificates. I don't remember what Ed Formoso said.
14 I believe it's similar.

15 MR. DUARTE: I don't believe that's
16 the case, your Honor.

17 JUDGE STEINER: Okay. Well, let's
18 talk about Ann Marie Gordon. Ann Marie Gordon, I
19 believe, says she did.

20 MR. DUARTE: I believe she indicated
21 that -- I'm not quite sure if she did indicate to
22 Dr. Logan or not that she was actually signing those
23 certifications when the first investigation was done.

24 JUDGE STEINER: May I make a
25 suggestion. It doesn't sound like we're too far off.

1 I wonder if just after the hearing, if the parties can
2 get together, see if they agree to the facts. And if
3 they don't, then we can address this.

4 MR. DUARTE: I think the Court's
5 suggestion is a valid one. The parties can take the
6 time later on today to discuss these matters, and
7 hopefully, we can proceed by way of stipulation.

8 If there is an outstanding issue that needs to be
9 resolved, then we'll bring it to your attention, and
10 then you will resolve as you see appropriate.

11 JUDGE STEINER: Great.

12 JUDGE CHOW: I think you all are in
13 a slash-and-burn mode, so you can stipulate to as much
14 as you can being that Friday is rapidly approaching.

15 Mr. Vosk: Okay. Yep.

16 JUDGE STEINER: You said there were
17 two issues. Is there another?

18 MR. VOSK: No. Those were two. The
19 fact it's going to go long and then the second one.

20 JUDGE STEINER: I was going to ask
21 each party how long you think it will go. Mr. Vosk,
22 your opinion?

23 MR. VOSK: I think that my cross of
24 Sergeant Gullberg will probably be an hour or two.

25 JUDGE STEINER: Okay.

1 JUDGE PHILLIPSON: I think it's
2 redirect, isn't it?

3 MR. VOSK: We're kind of --

4 JUDGE STEINER: So you think
5 tomorrow we will spend time, and then we will have to
6 go over by how long the next day?

7 MR. VOSK: I -- yeah. I thought
8 because they're going to have, I think, seven analysts
9 come in, if we do that, I would think it would
10 probably take an extra two days.

11 JUDGE STEINER: Let's talk about
12 that before I get your interpretation. The analysts
13 have already filed affidavits. How far beyond -- do
14 you dispute the information in the affidavits?

15 MR. VOSK: I do dispute some of that
16 information, and I want to be -- based on those
17 affidavits, I do have cross.

18 Now, my cross is going to be short and direct
19 because there's some specific things. There are two
20 witnesses that I would expect a little longer cross.
21 One is Dr. Nuwayhid and the other is Lisa Noble. I
22 think for the others, it will be relatively short and
23 direct.

24 JUDGE STEINER: Any reason the State
25 simply can't present the affidavit and the witness,

1 and go right to cross?

2 MR. ANDERSON: Provided that my
3 redirect is pretty literal. I mean, obviously the
4 affidavits don't get all the -- you can't
5 anticipate -- the affidavits don't have as much detail
6 as the testimony would. As long as the Court would be
7 liberal with the redirect, that would be fine with the
8 State.

9 MR. VOSK: I couldn't possibly
10 object to that.

11 JUDGE STEINER: I think it would
12 save a great deal of time, and then the State doesn't
13 have to anticipate all the issues that might be issues
14 that might be raised by the defense, then can deal
15 with those issues on redirect, liberal redirect, and
16 that could save a great deal of time.

17 MR. ANDERSON: No problem. I would
18 note, I will speak with Counsel and find out if there
19 is an agreement with regard to Asa Louis, but they
20 brought up 5012, and essentially appear to argue that
21 all of his results should have been out because there
22 was no control. I think that we need to provide a
23 factual basis for the Court, if that's going to be
24 argued.

25 JUDGE STEINER: I think that's

1 reasonable.

2 MR. ANDERSON: And the only other
3 issue is Mr. Louis is gone at 2:00 on Friday.

4 MR. VOSK: My position through all
5 of this is that if it's going to get more facts before
6 the Court, I won't object.

7 JUDGE STEINER: Other than these
8 toxicologists, Dr. Logan, Trooper Denton, do we have
9 any other witnesses?

10 MR. VOSK: Ashley Emery and Nayak
11 Polissar.

12 JUDGE STEINER: How long do you
13 anticipate this to take?

14 Mr. Vosk: I think Dr. Emery will
15 probably be an hour or two.

16 JUDGE STEINER: Well, anything else
17 then?

18 One of the things that we discussed was ensuring
19 that we understand, rather than just me, the
20 difference, if any, between the article that was
21 discussed yesterday indicating that a 1.3 percent
22 error ratio is unacceptable scientifically, and I
23 don't remember the exact words. I think you
24 understand the --

25 JUDGE CHOW: Forensically

1 indefensible.

2 JUDGE STEINER: That's right.

3 -- 3 percent bias and the 10 percent
4 differentiation concerning the simulator solution.
5 And so what we'd like to do is, if it's possible, to
6 have some discussion and say, These meet here or they
7 don't, completely different -- three completely
8 different concepts, or they overlap in these areas.

9 I think it would be very helpful to have
10 Mr. Gullberg's opinion on those.

11 MR. ANDERSON: Okay. Some of that
12 will indeed be covered by Trooper Denton.

13 JUDGE STEINER: Okay. Thank you.

14 FURTHER CROSS-EXAMINATION

15 BY MR. ANDERSON:

16 Q So we've already talked about Ms. Noble's excluded
17 data in 06028. We've also talked field solutions
18 being outside the QAP, being at 1024 instead of 1020?

19 A Mm-hm.

20 Q And I'm going to ask you about 05012 -- actually, I'm
21 going to ask you about 6037. So 6037 was the -- was
22 the topic was the solution that actually prompted the
23 discussion of the Dubowski article?

24 A I don't recall the batch number related to that.

25 MR. VOSK: We'll stipulate that that

- 1 was the batch number.
- 2 Q (By Mr. Anderson) And just to be clear the batch
3 number is now up on -- this is the batch number that
4 had --
- 5 A Yes.
- 6 Q -- FileMaker Pro had a bug in it that wound up
7 printing an 0395 instead of a 0400.
- 8 A Yes.
- 9 Q And in there were calculations done that if you only
10 considered the affect of simulator solution on the
11 calibration, that the affect of the change in the
12 number printed on the ticket would be -- I forget
13 exact --
- 14 MR. ANDERSON: Do you remember,
15 Counsel, how much was it?
- 16 MR. VOSK: I'm going to object
17 because that's not what the testimony was that test --
18 if you -- if you want to attest to change, the percent
19 between and the error and the correction and the
20 original, it was the between 0395 and the 0400.
- 21 Q (By Mr. Anderson) Can you calculate the difference
22 between the reported value of 0395 and .0400?
- 23 A First of all, which will we be comparing as our base?
24 Is .040 the base and 395's compared to that?
- 25 Q 0395 would yield a greater percentage and was the

1 correct data; correct?

2 A Okay.

3 Q Let's going with 395.

4 A So to find the percent difference between those two is

5 1.27 percent. What we're saying is that .040 is

6 1.27 percent greater than .0395.

7 Q And if we had used -- if we had switched these

8 numbers, the percent would have been a bit less;

9 right?

10 A A little bit different. It would have been a minus.

11 The 395 is less than 040 by close to the same percent

12 not exactly.

13 Q A slightly smaller or larger percentage?

14 MR. VOSK: For what?

15 MR. ANDERSON: If he used the other

16 one instead.

17 THE WITNESS: Now, we get minus

18 1.25 percent, so there's -- there's your difference --

19 Q (By Mr. Anderson) So it's one of those two

20 percentages?

21 A That's right.

22 MR. VOSK: Can I just ask for

23 clarification. I just don't understand what you asked

24 him. What was that second calculation? Just the

25 change.

1 MR. ANDERSON: Is 0395 -- sorry.
2 Can you explain that, Trooper.
3 THE WITNESS: This one comes from if
4 I simply switch 0395 to here and 04 to here and 04 to
5 here. Now, we're saying .0395 --
6 MR. VOSK: I understand.
7 THE WITNESS: -- is 1.25 less than
8 040.
9 Q (By Mr. Anderson) So approximately 1.25 or 1.27 for
10 either of those two?
11 A Right, yes.
12 Q And you were presented an article by Mr. Dubowski
13 which referenced an error rate of 1.3 percent in
14 Defendant's Exhibit No. 37; is that correct?
15 A Yes.
16 Q Can you explain what that portion of the article was
17 discussing?
18 A Well, in the context, I would interpret him as stating
19 that this is indefensible at a critical per se limit
20 .08, for example, then 1.3 percent can be critical.
21 Q And actually I'm asking -- I definitely want to get
22 there. I just want to have the judges understand what
23 the article is discussing. What's the topic of the
24 article at that point?
25 A Oh, the issue is what factor you're using in

1 converting from a water-alcohol concentration to a
2 vapor, and we use 1.23. Many jurisdictions use 1.21.
3 This article advocates 1.226.

4 Q And just to clarify, so when you have an average
5 solution content here of .0486, if you divide by 1.23,
6 you would get .0395?

7 A Yes.

8 Q Is that right?

9 A Yes.

10 Q Some other people divide by 1.21 and that would over
11 estimate the equivalent vapor concentrate by 1.3
12 percent; is that correct?

13 A Yes, approximately that, yes.

14 Q To be very clear, our jurisdiction actually uses a
15 conversion ratio that is kinder to defendants than the
16 one even suggested by Dubowski; is that correct?

17 A Yes.

18 Q So our jurisdiction doesn't run afoul of that at all?

19 A That's right.

20 Q The original one-point -- there's different -- there's
21 a 1.21 conversion which Dubowski doesn't like, and a
22 1.23 conversion which Dubowski does think is
23 appropriate; right?

24 A He doesn't specify the 1.23.

25 Q I'm sorry.

1 A He actually states the results in here of 1.226, which
2 is very, very close.

3 Q Thank you. So 1.226 or 1.21, those are the
4 possibilities?

5 A Right. That's the two he's discussing here.

6 Q As the article related, which one of those two the
7 first calculated as an estimate?

8 A Well, 1.21 has been used historically. It comes from
9 work by Dr. Harger in the 1950s.

10 Q And this article discussed that there was subsequent
11 work that showed that that was essentially incorrect;
12 isn't that right?

13 A Yes. That maybe 1.226 is a little bit better estimate
14 is the point of this article.

15 Q And Dubowski's conclusion actually was that the vast
16 weight of scientific authority at the time as opposed
17 to before is that pretty much everybody has accepted
18 that 1.226 was the new standard; the most correct
19 standard?

20 A I don't know if he's saying "everybody." Most still
21 probably do not use that value. They use the 1.21,
22 but I think he's presenting evidence of more recent
23 work that suggests that we should be using 1.226.

24 Q Better science, essentially?

25 A Yes.

1 Q And despite that -- and so when he was talking about
2 it being forensically indefensible, was he
3 specifically referencing the magnitude or the size of
4 the difference, 1.3 percent, or was he talking about
5 the decision to keep that particular value despite the
6 science to the contrary?

7 A Well, I think he's -- if I'm interpreting what he's
8 saying here correctly, he's saying this 1.3 percent
9 overestimate that results from using the factor of
10 1.21 is not defensible at critical per se levels.
11 There it becomes important and makes a significant
12 difference. That's my interpretation.

13 Q In light of the authority that it should be a 1.226?

14 A Yes. He's advocating the 1.226 which would avoid that
15 1.3 percent error.

16 Q That was not a random error; correct?

17 A That's correct. It's not. It becomes a fixed factor
18 because of the constant you employ, 1.21 or 1.226 or
19 1.23 you systemically change the reference value for
20 that solution.

21 Q So essentially, this would be -- this would be --
22 every time it would read out, that machine would read
23 out higher than it should, 1.3 percent; right?

24 A Well, okay...

25 Q Well, maybe I'm not -- the numbers -- the conversion

- 1 ratios, I'm not interested in, but it would read
2 out --
- 3 A Not necessarily because of the other factors that go
4 into calibration. You might have used 1.21, but
5 because of other factors, the instrument ended up
6 reading a percent low.
- 7 Q But over time, there's going to be consistent bias
8 against the defense if you wind up using that factor?
9 I guess I'm confusing terms.
- 10 A Yeah. Because calibration, this is one -- one
11 component of calibration. There are several others we
12 discussed earlier. The way you evaluate the net bias
13 resulting from the calibration process is to run ten
14 measurements and -- of known standard and look at the
15 bias there.
- 16 Q And I'm not trying in the discuss the bias of
17 instrument. There's random error?
- 18 A Yes.
- 19 Q Which might benefit the defendant, or might not
20 benefit the defendant; right?
- 21 A Okay.
- 22 Q This one is also going to be to the defendant's
23 detriment; isn't that true?
- 24 A I can't say always. I can't -- I can't --
- 25 Q Why not?

- 1 A Because the calibration process involves more than
2 just this.
- 3 Q If you take out all other parts of the calibration
4 process and only isolate for this particular variable,
5 this variable would always tend -- would always act to
6 the defendant's detriment?
- 7 A Okay. If you consider everything else equal, using
8 1.21 calibrates it 1.3 percent higher, yes.
- 9 Q Does that article say that it's indefensible to have a
10 random error rate of 1.3 percent?
- 11 A No. It's not a random component.
- 12 Q Does it anywhere say that if you know there's error
13 and you correct for it, that because the error might
14 be 1.3 percent or more, that it would be forensically
15 indefensible?
- 16 A No. It doesn't make that statement.
- 17 Q Do you believe that that is what the article means?
- 18 A Well, I think that I gave my opinion as to what I
19 think he means --
- 20 Q Fair enough.
- 21 A -- by this statement.
- 22 Q And that was regarding an error that excluding all
23 other variabilities, always works to the defendant's
24 detriment?
- 25 A Right, right, right.

- 1 Q Once state patrol learned of this error, did they
2 continue to report this simulator solution at the
3 incorrect 040 level?
- 4 A No. It was corrected.
- 5 Q So going forward, the state patrol did not continue to
6 use the 040?
- 7 A Right, right.
- 8 Q I'd like to draw your attention to 020019 [sic] and
9 solutions 020018 [sic]. These are the two solutions
10 that it appears Ms. Thatcher switched her results on.
- 11 A Yes.
- 12 Q Did you reach a conclusion as to -- I guess, Counsel
13 is asking whether or not you could really know what
14 happened, be certain what happened?
- 15 A Right.
- 16 Q Did you reach a conclusion of what was likely to have
17 happened?
- 18 A I think we arrived at a opinion that it looked like
19 this -- these two number groups were swamped.
- 20 Q And again, the chromatogram on 02019, while there were
21 incorrect numbers entered in the solution sheets, the
22 actually chromatograms on 02019 solution, those
23 actually sit -- those actually were labeled 02019;
24 correct?
- 25 A Yes, right.

1 Q And those were the ultimate results that you included
2 in the worksheet for that solution; correct?

3 A And recalculated, yes.

4 Q And vice versa for 02018?

5 A I don't think we fully reviewed 018.

6 Q Mr. Denton may have reviewed that afterwards?

7 A Yeah, yeah.

8 Q Okay. Now, you indicated you could never know with
9 absolute certainty whether or not that was what
10 happened?

11 A Right.

12 Q Do you have significant doubt about whether or not
13 that happened?

14 A I can only give what it appeared to me based on my
15 limited observation of these documents.

16 Q Okay.

17 A That Ms. Thatcher would probably have to give the
18 better explanation.

19 Q Now, 02018 was a field solution; correct?

20 A I believe it was, yes.

21 Q And actually, I think Mr. Denton actually did the
22 research of the affects of that; right?

23 A Okay. I think that's correct.

24 Q I'll defer to Mr. Denton on that.

25 Counsel asked you about a 05008, which had a

1 reported mean of 1020. I'm bringing 05008 up from
2 State's Exhibit 1. So this was a field solution test.
3 He asked you whether or not there would be a change of
4 the solution if you excluded Ann Marie -- the results
5 attributed to Ann Marie Gordon from the calculation of
6 the mean.

7 Do you recall that?

8 A I think this is one of the calculations I did for
9 Mr. Vosk.

10 Q Right. Ultimately, you testified if you didn't have
11 Ann Marie Gordon's data in there, the reported mean
12 would be 1.22?

13 A Okay.

14 Q Do you believe that Ann Marie Gordon's results should
15 be excluded from this worksheet?

16 A No, I don't believe so.

17 Q Why not?

18 A Because we have chromatogram analytical results
19 generated by the gas chromatograph. I have confidence
20 in those values. Whether she ran them or somebody
21 else, we have the numerical results. So they should
22 be, in my opinion, included in there as an estimate of
23 the mean of that solution.

24 Q And to be clear, you did not -- are you basing this in
25 any way on the belief that she actually conducted the

1 results?

2 A No. I guess that was irrelevant to me, whether she
3 did it or someone else did it.

4 Q He also asked you what the affect would be if you did
5 a weighted mean; is that correct?

6 A Yes.

7 Q Without Ann Marie Gordon's results?

8 A Right.

9 Q And so then the number would change 120 -- I'm
10 sorry -- from 1022 to a 1023?

11 A Yes.

12 Q Do you believe you should be using the weighted mean?

13 A No.

14 Q Why not?

15 A There's not that much difference 1022, 1023,
16 three-ten-thousands is irrelevant, meaningless, in
17 this particular analytical context.

18 Q Have you done analysis of other cases with regard to
19 how much difference the weighted mean would make?

20 A Yes. I have looked at weighted means on several of
21 these solutions.

22 MR. ANDERSON: State offers State's
23 Exhibit -- Mr. Gullberg, was that --

24 THE WITNESS: 67.

25 (Exhibit offered.)

1 JUDGE STEINER: Any objection?

2 MR. VOSK: Real quick. Those are
3 calculations done by --

4 MR. ANDERSON: Yes.

5 MR. VOSK: No objection.

6 JUDGE STEINER: They'll be admitted.
7 And, again, these are copies of 67.
8 (Exhibit admitted.)

9 MR. ANDERSON: One of those I gave
10 is wrong. Judge Chow has the wrong pages. Judge
11 Chow, those are the wrong pages.

12 JUDGE CHOW: I'll give you
13 everything.
14 (Exhibit offered.)

15 Q (By Mr. Anderson) I'm going to ask you to take a look
16 at Summary 1, which is the first document there.

17 A The third page?

18 Q Sorry.

19 A Or is Summary 3 on the left?

20 Q I'm going to ask you to take a look at Summary 1.
21 Which page of that is of that?

22 A The third page.

23 Q This is organized by each of the defendants in this
24 case except for the defendant that had a blood test;
25 correct?

- 1 A Yes.
- 2 Q On the left-hand side?
- 3 A Yes.
- 4 Q And these batches -- what batches are these in
5 relation to the case? I can provide you State's
6 Exhibit 66, just for cross-reference, if that's going
7 to be handy to you.
- 8 What relation do these batch numbers have to the
9 defendants at issue?
- 10 A Well, the first -- these batches were the ones I used
11 to assess any bias in this person's breath alcohol
12 result and the instrument and their measurement
13 results.
- 14 Q And so sometimes that's going to be one of the QAP
15 solutions because it's closest to that value; is that
16 correct?
- 17 A Yes.
- 18 Q And sometimes it will be the field simulator solution
19 because it's close to an 08, and it's the most recent
20 one done; correct?
- 21 A Right.
- 22 Q The second line, that's the original result; is that
23 correct?
- 24 A Well, the third column.
- 25 Q Sorry. Third column.

1 A Yes. The original results on the breath test
2 document.

3 Q So each ticket printed out these particular values?

4 A Yes.

5 Q Did you correct these results for the inherent bias or
6 the inherent error in the machine?

7 A Yes.

8 Q And what results did you -- and is that correctly
9 relayed in Column 4, "Corrected Results"?

10 A Yes, right.

11 Q Which cases was there a difference in?

12 A Well, the first individual, the first line shows the
13 instrument was reading about 3 percent low, so
14 correcting their results up by that percent yielded
15 091090.

16 Q And the second was reading about how high?

17 A That one may be a half a percent low so very slight
18 adjustment up in that second defendant.

19 The third line, the third defendant there was
20 either no bias or was so small that it made no
21 difference to the third decimal place, so the results
22 were the same.

23 The fourth, we see that that instrument was
24 reading low slightly and was adjusted up in this third
25 decimal place slightly.

1 The fifth defendant was reading slightly low, and
2 so you see the adjustment again in this third decimal
3 place.

4 The sixth individual was reading slightly high,
5 and so you see it's corrected down by a slight amount
6 in the third decimal place.

7 The seventh individual, there was no effect on the
8 measurement result by any bias adjustment.

9 And the last individual, the instrument was
10 reading high by 1 or 2 percent, so you see the
11 adjustment down in the third decimal place.

12 Q You then took the weighted mean or corrected each of
13 these to see what would happen if you used the
14 weighted mean; correct?

15 A Yes.

16 Q Which weighted mean did you use, the Mandel Method or
17 the one suggested by the defense?

18 A The traditional one I put on the board yesterday that
19 involves "N" and the variance.

20 Q And that was actually the one calculated by the
21 defense at the last hearing; is that correct?

22 A I believe it was.

23 Q Was the result in any of the results -- was there
24 change in any of the breath tests?

25 A The second individual, you see a third decimal place

1 change adjustment. That was the only one.

2 Q One change out of eight?

3 A Out of these eight, yes.

4 Q Was there a change correcting or -- if you then
5 excluded Ann Marie Gordon's data and still used the
6 weighted mean?

7 A Well, the next column is without Ms. Gordon's data but
8 not a weighted mean there. That was just back to the
9 original estimate of bias. "Did removing her data
10 affect the bias at all?"

11 And in only the first defendant's case did she
12 have measurements assigned to her name, and there was
13 no effect in removing her data. So the other seven
14 she did not -- was not involved with.

15 Q And, in fact, Ann Marie Gordon -- do you see any
16 result -- do you remember any results -- her test --
17 her name being shown on any QAP batches that you
18 reviewed?

19 A I don't remember. I know that in the last couple of
20 years, I don't think she was on any. But whether back
21 in 2005, I don't remember.

22 Q You don't remember any; correct?

23 A Right.

24 Q And the QAP results were the ones you had only three
25 analysts instead of 12 to 16?

1 A Yes.

2 Q The last column, what does that describe?

3 A Where any outliers were removed, that is, if there
4 were any of the analysts' results from the toxicology
5 lab that exceeded 3 standard deviations from the mean.
6 And there we see there were no outliers except in the
7 first individual where there was one.

8 Q And did that change the results?

9 A No.

10 Q To be clear, when you're talking about the calibration
11 of the machine, for it to change any, it would
12 actually need to not only change in the fourth digit
13 but in the third digit; correct?

14 A Right. The third digit is what we enter at the time
15 of calibration.

16 Q I'm going to ask you to look at Summary No. 2.

17 A Okay.

18 Q Which batches did you compare here?

19 A Well, this --

20 Q All right. I guess, what does this table illustrate?

21 A This relates very closely to the first summary we just
22 looked at. Here, I show the same batches for each
23 individual. Now I identify the DataMaster used, and
24 now I compute the original mean.

25 On the first summary, I showed both original

1 results. The second summary shows the mean of those
2 two, under "Original Mean."

3 Then the next column -- the next two columns
4 indicate which solution I used to estimate the bias
5 from, whether it was the field 08 solution or the
6 quality assurance solution. And you see for only the
7 first defendant did I use the field solution because
8 their results were near .08. And based on that, you
9 see that the instrument was reading 3.8 percent low.
10 So that's why back on Summary 1, you'll see an
11 increase in both of their results up by 3.8 percent.

12 For all of the other defendants, I used the QAP
13 solution because they have higher concentrations, .15
14 or higher, with the exception of the last defendant
15 who I used .04 QAP for. So here you see the bias
16 based on the QAP solution. For -- and you see most
17 are reading low with one defendant, Slaughter, reading
18 high and the last line reading high.

19 And then you see next, the corrected mean. So
20 that's applying this bias estimate to the original
21 mean of their results and correcting it to the -- what
22 it should be.

23 And then the last column, I do a 99 percent
24 confidence interval for this corrected mean, an
25 interval within which we have 99 percent confidence

1 that their true mean breath alcohol concentration will
2 lie.

3 Q Thank you. Summary 3, could you take a look at that?

4 A Okay.

5 Q What is this summary? What does this show?

6 A This takes those same defendants, their same
7 instruments, and now I look at the solution that was
8 used to calibrate the instrument with. And I compute
9 the mean, the arithmetic mean that would be a
10 appropriate to use during calibration, and then I also
11 compute the weighted mean.

12 From those I divide by 1.23, and I get the vapor
13 arithmetic mean and the vapor weighted mean. So it
14 was those last two columns that I was particularly
15 interested in to see the affect of using a weighted or
16 arithmetic mean.

17 Since we only use three digits to calibrate with,
18 we can only enter three digits from those last two
19 columns. We see that every one of those would be
20 rounded to the same third digit value, .080, .082,
21 .080, .080, .080, .080. .080. So whether you use the
22 arithmetic mean or the weighted mean to calibrate with
23 would make no difference.

24 Q 02019 -- or Hildreth's was actually calibrated using
25 02019; is that correct?

1 A Yes, right.

2 Q And those calculations, essentially, that's how we
3 found out about 02019; correct?

4 A Right.

5 Q Those calculations have not been done yet; correct?

6 A That's right.

7 Q For each of the others, there was no difference?

8 A Yes.

9 Q Thank you. There was a letter to the editor that you
10 were asked about. I'm handing it to you.

11 Do you believe this letter conflicts with your
12 opinion that the weighted mean -- that the arithmetic
13 mean is appropriate or is fit for purpose in the
14 breath test program?

15 A No. I don't think there's a conflict.

16 Q Can you explain to the Court why?

17 A Well, first of all, this was done 17 years ago,
18 different instrumentation, different methodology,
19 difference sources of variability.

20 At that time, I weighted on the analyst. I felt
21 they were the largest source of variation, and so they
22 should be each weighted differently to look at the
23 affect of that. And that's what I report here. These
24 are the affects considering each analyst as the major
25 source of variation and them weighing on them

1 appropriately. Now "N" was the same in every case of
2 five measurements from each. So "N" didn't really
3 enter into the weight, just the variance.

4 Today we have different instrumentation, much more
5 automated. Today I'm weighing on the instrument
6 itself, the gas chromatograph. There's different "N."
7 There's different variance and when I do that, I see
8 very, very little difference. And so I -- that's why
9 my opinion here is that I don't think that the
10 weighted mean is necessary.

11 Q To be clear, the article says you should at least
12 compare the two?

13 A At least, yeah. That was what my suggestion was then,
14 consider this. And it's still a valid consideration
15 to look at.

16 Q And have you compared the two?

17 A I have done the two, not in every single batch, but on
18 several, yes.

19 Q That's essentially what we're talking about on the
20 defense on this case; correct?

21 A Yes.

22 Q Do you consider -- back then you indicated that there
23 was a significant source of variability from the
24 analyst back then?

25 A I don't know about significant.

1 Q Sorry.

2 A That is what I recognized as being -- of all the
3 factors entering into the measurement, what would be
4 the largest source? The analyst.

5 Q The most likely need for weighting would occur because
6 of the analyst?

7 A Yes, that's right.

8 Q What was the source -- do you know what the source of
9 the variance was with the analyst back then?

10 A Well, because the process was much more manual, they
11 would inject the sample, physically inject samples
12 each into the column of the gas chromatograph. So
13 that involved some variation, different technique of
14 injection, and so forth. They were more involved in
15 the process, so therefore, they're a larger source of
16 variation.

17 Q Is that true anymore?

18 A No. It's an automated injection system now.

19 Q To have confidence in a breath result from today's
20 breath test program, what would you need to consider?

21 A Well, many things that I've already testified to
22 earlier today: approved instrumentation, quality
23 assurance, tested and standards met on that individual
24 instrument, trained operators, predetermined
25 established protocol for testing, 15-minute

1 observation, two breath samples, blank tests, internal
2 standard, external standard, printout. All of -- all
3 of these factors combined together, they're all
4 analytical instrumental and protocol elements
5 important in a measurement system.

6 Q Given that each of those happened, would you have
7 confidence in a breath test ticket printed out today?

8 A If they all happened appropriately and all the
9 criteria were met, yes. Then I believe the results
10 are appropriate and fit for purpose.

11 Q And given the past test and the fact that you've
12 identified errors, what would you need to evaluate
13 whether or not those results were reliable?

14 A The same criteria.

15 Q Given that there were -- how do the errors fit into
16 that equation scheme?

17 A Well, they make a very slight affect. If you want to
18 get down to the level for adjusting for bias, then
19 these are important errors that we've talked about,
20 and they made a slight difference, a very small
21 difference.

22 Q Given the requirements of the legislature, the
23 precision requires that the mean of the two tests must
24 agree within plus or minus 10 percent, that the
25 control -- that the external standard reading needs to

1 further.

2 JUDGE STEINER: Redirect.

3 REDIRECT-EXAMINATION

4 BY MR. VOSK:

5 Q Sergeant Gullberg, do you know who A.W. Jones is?

6 A Yes.

7 Q Who is?

8 A A forensic toxicologist from Sweden.

9 Q And a recognized expert in this field?

10 A Yes.

11 Q And is he somebody who you recognize as an expert in
12 this field?

13 A Yes.

14 Q And is he somebody whose work you rely on in coming to
15 your own determinations?

16 A Yes.

17 Q And his work the type of stuff other forensic
18 toxicologists would rely on?

19 A Yes.

20 Q I'm going to hand you what has been marked as
21 Exhibit 68. Can you please identify that for the
22 Court?

23 A This is a photocopy of an article written by Dr. Jones
24 published in the International Association for
25 Chemical Testing newsletter in 2002.

1 Q And have you ever seen that article before?

2 A Yes.

3 Q And are you familiar with its contents?

4 A Generally. I've read it, yes, but a few years ago.

5 Q And does he discuss bias in breath test measurements
6 in that article?

7 A I believe so, yes.

8 Q And does he conclude that before the result of breath
9 tests should be reported, that all bias should be
10 corrected for before the results are given?

11 A He may. I'd have to find that.

12 Q Please, take your time.

13 A Do you have a --

14 Q You can read the page, "Conclusions." Just read it to
15 yourself.

16 A (Witness complies.)

17 Yes. He makes that statement here.

18 Q So it's his conclusion that you -- in order to report
19 the breath -- a breath test result, you need to
20 subtract the bias off first.

21 A He suggests that if there's significant bias, that
22 should be accounted for, adjusted for.

23 Q We keep throwing around this word "significant," so I
24 want to cut right into it. If bias can interfere with
25 somebody's liberty is that significant?

1 A Yes.

2 Q Okay.

3 MR. ANDERSON: Objection.

4 Argumentative.

5 MR. VOSK: I was trying to get an --

6 MR. ANDERSON: He's not an expert on
7 the law. He's an expert on science.

8 Mr. Vosk: He's actually a forensic
9 scientist, which means he's got an expertise in both
10 science and its application to the law. And in his
11 expert opinion, what I need to understand is: What is
12 a "significant difference"?

13 JUDGE STEINER: I'm going to sustain
14 the objection. It's a very close call, but I'm just
15 going to indicate that it's a rhetorical question.

16 MR. VOSK: Okay. I didn't mean it
17 that way.

18 JUDGE STEINER: It's just not
19 necessary.

20 Mr. Vosk: I apologize, your Honor,
21 and I apologize to witness.

22 JUDGE STEINER: It's not what you
23 bring this witness forward for. It's not what anyone
24 brings this witness forward for. The legal aspect of
25 it, certainly he has opinions about it, but he is here

1 for knowledge in the technical aspects on it.

2 MR. VOSK: Well, if I can address
3 the Court on that matter. We've got Dr. Polissar and
4 Dr. Emery, who are scientists outside of the law.
5 They do science pretty much most of the time and
6 nothing else.

7 The forensic scientist, as Rod Gullberg has just
8 testified to, really has his foot in a combination of
9 fields. It's science and the law. So when he makes a
10 technical judgment, he's got to be concerned with both
11 sides, and he has an expertise in both sides. In his
12 scientific judgment, as we discussed earlier, is
13 informed by, for instance, when we're talking about
14 what is accuracy --

15 JUDGE STEINER: I just -- it would
16 be helpful if you asked the technical questions of
17 this witness, and you argued the implications to this
18 Court.

19 MR. VOSK: Okay, your Honor, and I
20 apologize to the Court and the witness. I didn't not
21 mean to --

22 JUDGE STEINER: I understand where
23 you're going, I believe that his expertise is much
24 more help in the technical realm.

25 MR. VOSK: Okay.

1 JUDGE STEINER: We can make the
2 obvious conclusions.

3 Mr. Vosk: I'm going to move to
4 admit 68.

5 JUDGE STEINER: Any objection?

6 MR. ANDERSON: No, your Honor.

7 JUDGE STEINER: 68 will be admitted.

8 (Exhibit admitted.)

9 Q (By Mr. Vosk) Now, when we spoke this morning we
10 looked at of -- or yesterday, I guess, we looked at a
11 number of solutions and identified what I was calling
12 a number of different errors.

13 A Yes.

14 Q None of those had anything to do with the calculation
15 of weighted mean, did they?

16 A No, that's right.

17 Q So all of those errors, if we were to forget about
18 weighted means altogether, all of those errors are
19 still separate?

20 A Yes.

21 Q Now, Counsel kept asking you about something called a
22 "scrivener's error." It's a legal word that's got a
23 specific legal meaning, so I want to take a look and
24 make sure what we're talking about.

25 Counsel also indicated a number of times that a

1 change in one data point here or there doesn't really
2 matter.

3 A It may or may not.

4 MR. ANDERSON: I'm sorry what was
5 the question, Counsel.

6 MR. VOSK: I said that you indicated
7 that a single change in the data point in this
8 worksheet didn't matter.

9 Q (By Mr. Vosk) I'm going to show you solution 6015.
10 Can you tell me what kind of solution this is?

11 A Quality assurance solution at the .04 concentration.

12 Q So this is something used in the QAP procedure back in
13 the lab?

14 A Yes.

15 Q Now, is there an error on this sheet?

16 A Yes.

17 Q And what is it?

18 A Well, it looks like one of the data entries has been
19 changed.

20 Q Okay. Now, would you call that just a clerical or
21 meaningless error?

22 A Well, those are two different descriptions. It may be
23 clerical; it may or may not be meaningless.

24 Q So simply because somebody is designating these are
25 scrivener's or clerical errors, doesn't mean they

1 don't have an impact on the test?

2 A I would agree with that.

3 Q And we've shown that differences of a ten thousandth

4 could make a difference in somebody's liberty at the

5 end?

6 A We did. Assuming a certain set of scenarios, we did.

7 Q Was there a change in the equivalent vapor

8 concentration in this solution?

9 A Yes.

10 Q And how much did it change it by?

11 A From 0400 to 0401.

12 Q So it changed by one-ten-thousandths?

13 A Yes.

14 Q Now, in this case, the error was working for whoever.

15 It theoretically would have worked in favor of whoever

16 took a breath test, so it would have been reading a

17 higher value lower or recording higher value as being

18 lower?

19 A So "Y" corrected, "Y" measured. (Indicating.)

20 Q You can do the calculation if you want. I really --

21 okay.

22 A So I'm showing this has increased now slightly, so

23 it's going to read a measured result -- the corrected

24 result would be slightly higher. Yeah.

25 Q Right. So this one, this mistake before it's

1 corrected, would work in somebody's favor who took a
2 breath test?

3 A Yes. I just wanted to look at the math to visualize
4 it.

5 Q Okay. No, that's just fine. However, the difference
6 could have gone the other way.

7 A Yes.

8 Q So a mistake in a value, a single data value, put into
9 somebody's worksheet and then kicked out can have an
10 impact at the end on an individual's liberty?

11 A Yeah. I would agree.

12 Q Now, the State also went on and on about how you're
13 only concerned with one number in the breath test lab
14 when you're doing a QAP, the equivalent vapor
15 concentration?

16 A That's the most important from our perspective, yes.

17 Q You said you needed an accurate one to get it right?

18 A Yes.

19 Q Where do you get the equivalent vapor concentration
20 from?

21 A From the average solution concentration.

22 Q So now you need that too then; right?

23 A Yes.

24 Q So while the equivalent vapor concentration is all you
25 look at, you have to have this other number before you

1 get there; right?

2 A Yes.

3 Q And how do we get that number? How do we get the

4 average solution concentration?

5 A From the individual raw data measurement's results.

6 Q Okay. So before you can get the alcohol concentration

7 or the equivalent vapor concentration, first we need

8 all the data?

9 A Yes.

10 Q So those numbers are pretty important?

11 A Yes.

12 Q So there's no number up here. There's nothing up

13 there that we looked at that we just spoke about

14 that's not important?

15 A I agree.

16 Q You need every single number up there to do your job

17 in the breath test lab?

18 A I agree.

19 JUDGE STEINER: May I just ask for a

20 clarification? Does that include all of the numbers

21 under the standard statistics section?

22 Mr. Vosk: I'm not referring to

23 standard deviation or --

24 JUDGE STEINER: I understand, but

25 I'm asking --

1 THE WITNESS: No.

2 JUDGE STEINER: And so those numbers
3 are unnecessary to this process?

4 THE WITNESS: Right. From our
5 perspective, they're unnecessary.

6 JUDGE STEINER: And so a very quick
7 question, one that troubled me is: Why are they
8 there?

9 THE WITNESS: Dr. Logan could
10 probably better answer that. They're toxicology lab
11 required calculations as part of their program.

12 JUDGE STEINER: Are they there to
13 ensure the other numbers -- are they there as a check
14 to ensure the other numbers are correct?

15 THE WITNESS: They are, yes. The
16 standard deviation, when that's acceptable, it's
17 ensuring the whole process that generated those 15
18 numbers are acceptable. You have confidence.

19 JUDGE STEINER: Okay.

20 THE WITNESS: And the CV is another
21 measure of the precision. So yes, they are important
22 for interpreting the whole process.

23 Q (By Mr. Vosk) And so let's go there for a second.
24 Let's say, on this sheet, every even number -- or
25 let's go every other number.

1 The first number is twice as great as it's
2 reported there; the second one is half as much. So
3 they're each -- one's increasing by an amount; one's
4 decreasing by an amount. They all go that way.

5 We're going to get the same mean; right?

6 A Yes.

7 Q That standard deviation's going to get really big?

8 A Yes.

9 Q And we're going to have numbers going from 075,
10 dropping all the way down to, like, an 025 or an 03,
11 somewhere thereabouts?

12 A Yes.

13 Q Would you trust those numbers if you saw those
14 bouncing around like that?

15 A No, probably not.

16 Q And so that standard deviation is pretty important for
17 you to be able to even want to consider the mean
18 alcohol concentration or equivalent vapor
19 concentration?

20 A It is important. We, in the breath test section,
21 don't look at that particularly. There's a standard
22 it must meet under the tox lab protocols before we
23 would even get this solution.

24 Q Okay.

25 A It is important, but we don't really look at it as

1 part of our --

2 Q So let me clarify that then. When you say you don't
3 need the numbers, or numbers might not be critical to
4 you, it's not because they're not important and
5 critical to your analysis. It's because your
6 depending on the fact that the analyst in the
7 toxicology lab already took care of this stuff and got
8 it right?

9 A I would agree with that.

10 Q Now, when we spoke about some of the solutions
11 earlier, and Counsel was pointing to how few tests
12 might be involved or affected, we looked at three
13 solutions, 6003, 5008, and 6048, that were field
14 solutions that were used to QAP machines.

15 A Okay.

16 Q And when we did the calculations in the way that I
17 requested you do them, we found out that they fell
18 outside of the protocol bounds?

19 A Yes.

20 Q 14 instruments -- when we went through and counted up,
21 14 instruments had been QAP'd by those solutions.

22 Do you know how many tests were affected by all
23 those QAP'd machines?

24 A No.

25 Q Let's talk about 2019 and 2018. It sounds pretty

1 reasonable to assume some chromatograms got swapped?

2 A That's what appeared occurred.

3 Q But Jayne Thatcher specifically entered a set of data
4 into worksheets that said -- that were clearly labeled
5 "2019 and 2018." And she also had two separate
6 chromatograms labeled "2019 and 2018," and they had
7 different data. And we've already established that we
8 can't be certain of the dates.

9 In fact, didn't you say that that date of
10 preparation was something that the machine just -- the
11 software just input at some point, and we can't have a
12 whole lot of confidence in that date?

13 MR. ANDERSON: Which date of
14 preparation is Counsel referring to? The date on the
15 worksheet or on the chromatograms?

16 MR. VOSK: On the worksheet.

17 Q (By Mr. Vosk) Didn't you indicate that?

18 A Yes. It's on the worksheet. It's on the top of the
19 page there if you scroll back, you would see that date
20 of preparation automatically entered when the -- yes.

21 Q While those chromatograms were either switched or the
22 data input was switched, we have no idea which data
23 actually goes to which solution right now, do we?

24 We just know we've got two sets that go one to one
25 and one to the other?

1 A I'd -- I'd be speculating. I'm not certain.

2 Q We went through machines that had been QAP by 2019,
3 and we came up with 39 of them. Do you know how many
4 tests are affected by all those 39 machines?

5 A No.

6 Q So far the first two errors we looked at have nothing
7 to do with weighted means, do they?

8 A That's right.

9 Q We looked at 6028, Lisa Noble's data, with the
10 suspected -- what we've been doing all of our outlier
11 stuff on. We went through, we identified 36 different
12 instruments that had gone through 38 QAPs.

13 Do we know how many tests are affected by the QAPs
14 that were performed by all of those instruments?

15 A I don't know.

16 Q And 6037, the one where the FileMaker Pro gave the
17 wrong value for the vapor concentration, we identified
18 15 instruments that had been QAP'd.

19 Do we know how many tests were affected by that?

20 A I don't know.

21 Q Now, I've also heard a lot of -- and it's easy to get
22 here, because I think this is where everybody wants
23 the -- when you think about it, this is where you go.
24 Well, it's just a small difference in the BAC value,
25 and so we think about, Oh, it's only important at an

1 08. But we know in that memo that we looked at, that
2 August memo, that it's important at 15 too.

3 But aren't these errors just as important at a .02
4 for the juvenile statute?

5 A Every critical level that we're concerned with: 04,
6 08, 15, yes, they may be critical.

7 Q And we saw with calculations earlier that changes that
8 small that can knock a test that complies with a plus
9 or minus 10 percent cannot get outside of plus or
10 minus 10 percent.

11 Remember the calculations we did yesterday?

12 A Yeah, yeah.

13 Q And that can happen at any BAC level?

14 A That's right.

15 Q And then we've got the .072 to .088 that the external
16 simulator solution has to fall into, these errors can
17 knock it outside of the 072 to 088 as well; correct?

18 A Yes.

19 Q And that can happen no matter what an individual's BAC
20 is?

21 A Yes.

22 Q Now, why do we have the range 072 to 088?

23 A Well, it was chosen because it's near the critical per
24 se level; it's a plus or minus 10 percent around .08;
25 it's a reasonable interval within in which you would

1 expect a controlled standard under field operating
2 condition from day-to-day, fall to within.

3 So it's a scientific judgment basically made by
4 the State Toxicologist that this will be the
5 acceptable range.

6 Q And when we had the old per se limit, 10, it was a .09
7 to a .110; correct?

8 A Yes.

9 Q And was plus or minus 10 percent?

10 A That's right.

11 Q And so generally, what we're trying to figure out is
12 whether or not the DataMaster can measure an 08 or a
13 10 within plus or minus 10 percent of its value?

14 A Under a field operating condition, yes.

15 Q Now, we've just said or we -- you said earlier that
16 these field solutions are purposefully set high in an
17 082, approximately.

18 Now, if I've got an 082 solution sitting out in my
19 breath test machine, and it tests the external
20 standard and it kicks back a .72, is that within plus
21 or minus 10 percent of that solution's value?

22 A No.

23 Q So then that machine may not have an accuracy within
24 plus or minus 10 percent?

25 A Well, that -- that single measurement at that time I

1 would not use to assess bias at all.

2 Q I'm not asking that. You said in the field, these
3 solutions are critical to determine, at the time of
4 the test, the accuracy of the test. It's a critical
5 part of that process?

6 A The accuracy but it's not by itself specifying any
7 percent of bias. That's -- that's another matter
8 we've talked about, and I would need more information
9 to do that.

10 Q Certainly. But that 072 would be outside plus or
11 minus 10 percent?

12 A Of .082.

13 Q Yep.

14 A Yes. It's more than 10 percent low.

15 Q So if we want to actually be able to tell whether or
16 not our instrument is able to read within plus or
17 minus 10 percent, why don't we adjust it a little bit
18 to account for this?

19 A We're not trying to make it read within 10 percent.
20 We've got a range, 072 to 088. That's not specifying
21 the instrument must be within a certain percent.

22 Now they are for limits around 10 percent around
23 08, but that's not why they're set there. It's a
24 range within which the instrument must measure this
25 control standard.

1 Q So did we just choose that range arbitrarily?

2 A I told you earlier. It was chosen because it's near
3 .08. It's a relevant limit for a field evidential
4 test context.

5 Q Why?

6 A It was not arbitrarily selected.

7 Q Why is it relevant though, if it's not for the --
8 because it's plus or minus 10 percent?

9 I guess I'm trying to understand why we've got
10 this perfect agreement, it seems, between the old
11 standard and the new standard. They both have this
12 plus or minus 10 percent. If that's not the
13 motivating factor, then why do we use it?

14 A It's the limits --

15 MR. ANDERSON: Objection, your
16 Honor. Argumentative. This is a question for the
17 State Legislature.

18 MR. VOSK: No. It's a question for
19 an expert who can tell me why we might or might not
20 want --

21 JUDGE STEINER: Counselor.

22 MR. VOSK: I'm sorry, your Honor. I
23 get a little carried away. I apologize to the Court,
24 and I apologize to the State.

25 What I'm trying to get from this expert is why

1 scientifically we would have this value. If it's
2 something by the legislature that they just picked out
3 of thin air, then it would arbitrary. He said it's
4 not arbitrary. So I'm trying to get at why it's not
5 arbitrary. Why do we have it? He tells me because we
6 need appropriate bounds. Why is it appropriate?

7 JUDGE STEINER: I believe that
8 you're talking at cross-purposes, but I don't know
9 enough articulate that.

10 MR. VOSK: Would you like me to move
11 on?

12 JUDGE STEINER: Yes, please.

13 Mr. Vosk: We'll move on.

14 JUDGE STEINER: We'll break in about
15 eight minutes, nine minutes.

16 MR. VOSK: Okay, your Honor. I'm
17 just trying to -- I duplicated notes here.

18 Q (By Mr. Vosk) When you were going through your
19 checklist of things that you do, you skipped -- I
20 think you skipped or I missed this one right here.
21 (Indicating.)

22 Can you read this one and let us know what that
23 is?

24 A "External control information, lot number, and future
25 date." That relates to on the toxicology lab data

1 sheet, the control standard they run with every run of
2 five simulator solutions. That really corresponds
3 with the simulator run with the DataMaster. They run
4 a control with the GC also. And that's what that
5 control value is.

6 JUDGE STEINER: GC?

7 Mr. Vosk: GC, gas chromatograph.

8 THE WITNESS: Yeah. Gas
9 chromatograph.

10 Q (By Mr. Vosk) I'm going to hand you what's been
11 labeled as Exhibit 69. Please don't identify it yet.

12 You were aware that an external audit by ASCLD was
13 done; correct?

14 A Yes.

15 Q Now, you haven't seen the final report?

16 A No.

17 MR. VOSK: Your Honors, I'm going to
18 ask the Court, if I can, I've handed the witness a
19 copy of the audit. I want to ask him a question from
20 it. I will get it in through Dr. Logan, who does have
21 a copy and can identify it.

22 So I would ask the Court to allow me a little bit
23 of leeway on a couple questions here.

24 MR. ANDERSON: I don't know what the
25 question is so...

1 JUDGE STEINER: I'm not making a
2 ruling then.

3 Q (By Mr. Vosk) Can you turn to Page 10 of 10. Oh, I
4 guess Page 10.

5 A Okay.

6 Q Can you read the box, the last box, on the left-hand
7 side to yourself.

8 A (Witness complies.)

9 Q First let me ask you: Is that talking about the
10 external control?

11 A Yes. It appears to be.

12 Q Now, you indicated that --

13 A Excuse me. Okay. The external control that we're
14 talking about there?

15 Q Yes.

16 A No. I don't think this is referring to that.

17 Q Okay. Then what is that external control referring
18 to?

19 A If you go to the next page below the -- this value
20 right here, external control, lot number, date of
21 expiration, and its target value. That is the control
22 that is located right here when they measured it.

23 For each analyst, they do one control with their
24 run of five. So that's what they're referring to.

25 Q Okay. And where does that control -- I'm sorry.

1 A That's purchased commercially.

2 Q That's not mixed in the lab?

3 A No.

4 MR. ANDERSON: I guess at this
5 point, the State is going to object, your Honor,
6 primarily because it's beyond the scope of any of my
7 cross --

8 JUDGE STEINER: There isn't a
9 question. Are you objecting to the last question?

10 MR. ANDERSON: Yes, your Honor. It
11 seems to be beyond the scope.

12 JUDGE STEINER: I'm going to
13 overrule that.

14 MR. VOSK: I'm going tie it up.

15 Q (By Mr. Vosk) Do you know where the control came
16 from?

17 A I know the company.

18 Q Okay. Have you seen the documentation of
19 traceability?

20 A Yes.

21 Q Is that documented anywhere for a defendant to see
22 here in these documents?

23 A It's -- it's not been presented. The document's not
24 been presented in these last two days in any of this,
25 no.

1 Q Does -- okay. And that's exhibit --

2 A 69.

3 Mr. Vosk: I'm about to move to a
4 new subject, if you wanted to break, your Honor.

5 JUDGE STEINER: We'll come back at
6 five till.

7 THE CLERK: Please rise.

8 (Recess from 2:41 p.m. to
9 3:01 p.m.)

10 REDIRECT EXAMINATION (Continuing)

11 BY MR. VOSK:

12 Q Sergeant Gullberg, I'm going to hand you back
13 Exhibit 37. This is the Dubowski article.

14 A Okay.

15 Q Now, when you indicated that what Dubowski was talking
16 about had to do with the difference in the factor by
17 which we arrive at the equivalent vapor concentration?

18 A Yes.

19 Q He was looking at the difference between a 121 and a
20 1226?

21 A Yes.

22 Q Now, when we looked at Solution 6037 --

23 Mr. Vosk: Your Honors, I don't mean
24 to sound paranoid, but I think the State did something
25 with the evidence. Let's see if I can fix this.

1 JUDGE PHILLIPSON: Counsel, it's the
2 knot that connects the keyboard to the floor.

3 Mr. Vosk: Got it. There it goes.
4 You see, it worked.

5 JUDGE PHILLIPSON: If you can
6 tighten that up, you'll be fine.

7 Q (By Mr. Vosk) Now, earlier when we looked at this, I
8 had you do a calculation, and we determined that if we
9 had wanted to get to 0400 from the alcohol
10 concentration, we could have simply divided by 1.215?

11 A Something like that, yes.

12 Q So we were comparing a value of 1.1215 to a value of
13 1.23?

14 A Yes.

15 Q Now, this is compared to the values in the Dubowski
16 article, 1.21 to 1.226?

17 A Similar, yes.

18 Q So we're talking about very similar values being
19 compared?

20 A Yes.

21 Q And so this 1.3 percent, this forensically
22 indefensible margin of error, this is exactly the type
23 of thing he's talking about right here?

24 A Yeah. Very similar, yes.

25 Q Now, I'm going to read something here, only because --

1 or let me, I guess, I'm going to direct you to that
2 paragraph, and you said that he indicated that it's
3 only forensically indefensible at a critical level.

4 But is that actually what he says down there in
5 that last paragraph? Does he say, "It's indefensible
6 only critical at a critical level"?

7 A Do you want me to read what he says?

8 Q You can answer the question, and if I don't like it,
9 I'll come back.

10 A Well, maybe I should read it.

11 Q Please.

12 A "Such overestimation is forensically indefensible at
13 the especially at the critical 0.10 percent in blood
14 alcohol concentration which is a key decision point in
15 jurisdictions with per se driving under the influence
16 of alcohol statutes, and in borderline decisions in
17 jurisdictions using the .10 BAC presumption."

18 Q Now, he says it's forensically indefensible, and then
19 modifies it with especially at critical levels.

20 A Yes, yes.

21 Q So he doesn't say, "Only at critical levels"?

22 A True.

23 Q And we've seen that even, far away from critical
24 levels, we've seen this morning with respect to plus
25 or minus 10 percent, and a number of other things,

1 that far away from critical level, real small errors
2 like this can have a big effect?

3 A They can have an effect.

4 Q Now, when you go through the QAPs, you set -- you --
5 let me back up for a second.

6 Calibration, you said we could calibrate using any
7 value we wanted in 0835 or a 15. We could calibrate
8 the instrument using anything we wanted to --

9 A No. Not the way it's currently set up. The software
10 doesn't allow these values. Only those near .08 are
11 allowed.

12 Q But you indicated that if this restriction were taken
13 off, you could calibrate it at any level?

14 A Yes.

15 Q And when you went through and you were talking about
16 the QAP 04, 08, 10, and 15, you indicated something
17 about linearity?

18 A Yes.

19 Q Can you explain that for me a little bit.

20 A I could perhaps draw it.

21 MR. ANDERSON: Objection. Beyond
22 the scope.

23 JUDGE STEINER: Counsel, quite
24 frankly, I have no idea where we're going, so I cannot
25 rule on your objection. But if it becomes clear to

1 me, I'd be happy to.

2 THE WITNESS: We have the instrument
3 response on this variable axis, and the standards that
4 you're measuring against here that you're using, these
5 controls standards, and we measure it -- we do QAPs at
6 four concentrations, 04 to .15, and so you get a
7 response. You can plot the mean and each of these
8 levels.

9 And when you get acceptable accuracy and precision
10 at each range you measure, you assume linearity has
11 been established within that range.

12 Q Okay. Now, have you ever done --

13 JUDGE STEINER: I'd like to deal
14 with the objection now. Any response?

15 Mr. Vosk: Can you repeat the
16 objection?

17 MR. ANDERSON: Beyond the scope.

18 JUDGE STEINER: Beyond the scope.

19 MR. ANDERSON: This was beyond the
20 scope of any my direct [sic].

21 MR. VOSK: It was indeed, your
22 Honor. He talked about -- what he talked about was
23 whether or not when they're talking about when they're
24 checking for error in somebody's breath test, what
25 they have to look at on the QAP.

1 Sergeant Gullberg indicated, "Well, we'll look at
2 the value nearest to the value of the breath test to
3 get correct bias so we can correct that."

4 What we're talking about here with linearity is
5 going to get us, I believe, to the point where --

6 JUDGE STEINER: I'm going to
7 interrupt and give you more time to progress.

8 MR. VOSK: Thank you.

9 JUDGE STEINER: And you can renew
10 your objection if you wish.

11 Mr. Vosk: Okay.

12 JUDGE STEINER: I'd take as much
13 time to figure out whether to sustain as to hear it.

14 Q (By Mr. Vosk) Have you done a regression analysis on
15 the data reported by a breath test machine in your
16 QAPs?

17 A It's been many years if I have done that. One could
18 do that. I -- I don't remember specifically.

19 Q So do you know for certain whether or not this is
20 linear?

21 A Well, when you do --

22 MR. ANDERSON: Objection. Beyond
23 the scope. The witness testified that the best place
24 to measure it was it at the level close to the breath
25 test. This has nothing to do with whether or not this

1 has nothing to do with -- whether or not there was
2 continuity apparently between these four sections. It
3 doesn't take anything from what the witness said on
4 that.

5 And it's certainly beyond the scope, and it's
6 certainly not a topic I went into on my direct.

7 JUDGE STEINER: I'm going to allow
8 you to finish this question. And whether you get a
9 second question, we'll see.

10 Mr. Vosk: Can you read back the
11 last questions I asked?

12 And if I could just make two responses.

13 JUDGE STEINER: Let's do this, deal
14 with that.

15 Mr. Vosk: Please, please.

16 (Requested questions read by
17 the reporter.)

18 THE WITNESS: And my opinion is,
19 yes, it is linear.

20 Q (By Mr. Vosk) If it's linear, then the difference is
21 in the bias at each point should be the results of
22 random errors, shouldn't it?

23 MR. ANDERSON: Objection beyond the
24 scope.

25 MR. VOSK: Your Honor, if this --

1 JUDGE STEINER: I think you're
2 moving. I'm going to give you two more questions then
3 again I'll...

4 MR. VOSK: Okay.

5 THE WITNESS: Would you repeat that,
6 please?

7 Q (By Mr. Vosk) If our data is linear, then the
8 differences in the biases at each point are the result
9 of random error; correct?

10 A No. Random error is not used to assess bias. They're
11 two different forms of measurement error.

12 JUDGE STEINER: Okay. Counsel, I'm
13 sorry. We've got stop here because I'm going to
14 sustain the objection because we are running out of
15 time and this appears to be a new area for me.

16 MR. VOSK: Okay.

17 JUDGE STEINER: If you could move
18 on, I'd appreciate it.

19 MR. VOSK: If I can address the
20 Court for a second on that, and I do apologize.

21 JUDGE STEINER: Very quickly.

22 MR. VOSK: The reason I'm going into
23 this is the relationship between linearity and which
24 point we're looking at to determine bias. That
25 relationship there should indicate that if we do have

1 a linear relationship, the bias ought to be the same,
2 theoretically. So that when we take a look at those
3 points, the bias that should be applied is the largest
4 bias and not the one nearest to the value in question.

5 So for instance, in some of the solutions we have
6 here, if we've got a solution down at an 04, and it's
7 got a large bias against the defendant, but the
8 defendant has a result up at a 15, if the instrument
9 truly has -- and the bias up there is the opposite
10 way, if the instrument truly is linear as the witness
11 is now claiming, then the bias at each point ought to
12 be the same. And the differences are simply the
13 result of measurement, so the largest one is the one
14 we would apply.

15 On the other hand if it's not linear, then we have
16 no way to consider any test that falls outside of the
17 range 04 to .15, which is the range within which they
18 QAP it, because if it's not linear, we don't know the
19 response of the instrument out there. The defense --

20 JUDGE STEINER: I'm sorry. I'm
21 going to stop you there. I would love to take more
22 time to explore this area, but --

23 MR. VOSK: I'll move on.

24 JUDGE STEINER: -- we simply don't
25 have time.

- 1 MR. VOSK: I'll move on.
- 2 Q (By Mr. Vosk) Now, the State asked you about the
3 three software errors. And we found out that, in
4 fact, two of them didn't have do with the software,
5 but they had to do with people in the lab?
- 6 A Yes.
- 7 Q The first error, the error with precision, what was
8 that?
- 9 A That the fourth measurement for the fourth analyst was
10 not being included in calculating the standard
11 deviation.
- 12 Q So that was actually an error made by the programmer?
- 13 A It -- it was, yes.
- 14 Q Somebody within the WSP?
- 15 A Yes.
- 16 Q And the second error, the error that had to do with
17 the additional analyst, that was an error by a
18 programmer?
- 19 A Yes.
- 20 Q Somebody within the WSP?
- 21 A Yes.
- 22 Q Both of those are instances where a programmer went in
23 and made an affirmative change to a spreadsheet to
24 perform a specific function?
- 25 A Yes.

1 MR. ANDERSON: Objection.

2 JUDGE STEINER: You may proceed.

3 Q (By Mr. Vosk) The third error, the one with 6037,
4 that really was a software problem itself, wasn't it?

5 A Yes.

6 Q So we've got within these three errors, two different
7 kinds: Errors by programmers in the WSP, and an
8 error, a problem, with the software itself?

9 A Yes.

10 Q When you went through and you were checking the
11 solutions certifications, which ones did you check?
12 Which solutions did you check?

13 A All beginning in 2007 then back to 2006, 2005, and
14 some earlier.

15 Q And did you perform the same check on them whether
16 they were a QAP or a field solution?

17 A Yes.

18 Q Now, with the -- with the errors we looked at this
19 morning, the one with Lisa Piquette, with the 6028,
20 Solution 6028, what was the --

21 MR. ANDERSON: Objection
22 mischaracterization as an error. The witness hasn't
23 said that. Certainly Counsel --

24 MR. VOSK: Your Honors, can I --

25 JUDGE STEINER: I don't understand

1 the question. I understand Piquette --

2 MR. VOSK: I'll rephrase the
3 question, your Honor but can I --

4 MR. ANDERSON: She's the one that
5 rejected the data.

6 MR. VOSK: Can I ask a question?
7 During the State's examination, I didn't raise any
8 objections, although there were many areas I could
9 have. I wanted to let them get through it. If the
10 State will just let me get through this, it will be
11 much quicker, and I can get done. I feel like --

12 JUDGE STEINER: I don't want to say
13 you may not object, but I would hope too -- ER 1101
14 does apply in these hearings.

15 Unless Counsel is really attempting to deceive, if
16 you will, by these questions, I would hope that we can
17 sort of try to get through this because some of the
18 objections simply result in delay, as opposed to the
19 ones that I sustained, in which case they were
20 profound objections. So I just want to say --
21 profound, yes. I don't want to stop you from
22 objecting, but I would agree that we are...

23 JUDGE PHILLIPSON: You can object,
24 but only good ones.

25 JUDGE STEINER: That's right, only

1 good ones. Take that for what it's worth.

2 MR. VOSK: Thank you, your Honor.

3 Q (By Mr. Vosk) If we take a look at Solution 6028,
4 that's the one with Lisa Noble?

5 A Yes.

6 Q What I've concluded was in error?

7 A Yes.

8 Q What was the difference between the originally
9 reported BAC -- or the originally reported equivalent
10 vapor concentration and the one you recalculated?

11 I'm going to hand you 58, I don't know that's it
12 actually -- I'll give you that, and I'll put it up on
13 the screen for you.

14 A 06028?

15 Q Yes. What was the equivalent vapor concentration that
16 you -- just give us the difference.

17 A It was originally 0.0975 grams per hundred mil, and
18 after your recalculation 0957.

19 Q And what I want is the difference between the
20 equivalent vapor concentrations?

21 A Oh. It's originally 0.0793 grams per 210 liters.
22 Recalculation is 0.0778 grams per 210 liters.

23 Q So what's the difference between those two?

24 A I calculate that to be 1.8 -- minus 1.85 percent.

25 Q I'm sorry. I'm being unclear. I just want the

1 difference between the vapor concentration as reported
2 and the vapor concentration as you recalculated. Not
3 the errors. Just the absolute difference.

4 A Yeah. That's what I did.

5 Q And is that value .0015?

6 A Oh, the difference?

7 Q Yeah.

8 A 0005. Yeah, 0015.

9 Q Okay.

10 MR. ANDERSON: Your Honor, I'm going
11 to ask for a side bar real quick.

12 (Discussion off the record.)

13 JUDGE STEINER: All right. So at
14 side bar, it is my intent to try to push things along
15 a little bit. And it's my hope that ten more minutes
16 would be sufficient for the redirect, and then
17 hopefully, we can get to anything else from the State
18 very quickly after that.

19 MR. VOSK: Your Honor, I'm sorry. I
20 was asking that -- I was asking if we could take a 5
21 or 10-minute break, and I'll try to cut out. That's
22 what I meant.

23 JUDGE STEINER: But we only have
24 until 4.

25 Mr. Vosk: Okay.

1 JUDGE STEINER: So if there's any
2 way you can simply cut as you work.

3 MR. VOSK: Okay.

4 Q (By Mr. Vosk) Now, we've talked a lot -- or you spoke
5 a lot with the --

6 JUDGE STEINER: Thank you.

7 (Discussion off the record.)

8 MR. VOSK: I'm agreeing with what he
9 did. I'm trying to accommodate.

10 JUDGE STEINER: I'm actually beyond
11 that at this point and inclined to say we need to wrap
12 up with this witness. I'm at the point, perhaps even
13 going to ask you what are you going to ask next. What
14 areas are we going into, and then we're going to
15 decide what can you tell us where you want to go.

16 So you need to tell us where you want to go.

17 Mr. Vosk: One of the areas I want
18 to get into is on the QAPs where they were discussing
19 -- or in the solutions where they were discussing
20 precision, the difference between a group precision
21 and a pooled precision, that is, if we were to assume
22 all the data came from a single instrument or if they
23 came from multiple different instruments and how we
24 would do the two different calculations. That would
25 be one area.

1 (Judges conferring.)

2 JUDGE STEINER: So I think that our
3 ruling is that is outside the scope, and we're going
4 to ask you move onto your next proposed area.

5 MR. VOSK: Okay. Your Honors, up to
6 this point, one of the claims that's been made is that
7 there's no problem because all the data is always
8 there for everybody to look at.

9 I'm going to ask the witness whether or not the
10 calculations can be made without the correct data, and
11 whether or not somebody who is not an expert in
12 statistics would really have the ability to do those
13 calculations.

14 JUDGE STEINER: I think we
15 understand that issue.

16 MR. VOSK: Okay. I wanted to
17 address the issue of uncertainty just a little bit
18 more. The State over and over again went into the
19 fact that every process has uncertainty. It's not
20 something that's in dispute, but it's the
21 characterization, and the way you limit uncertainty
22 and the degree of uncertainty that you find
23 acceptable.

24 JUDGE STEINER: Well, how many
25 questions?

1 MR. VOSK: I don't know, your Honor.
2 I mean, I didn't script out questions. I just
3 scribbled down notes.

4 JUDGE STEINER: That is something we
5 can allow you.

6 Mr. Vosk: The State spent a lot of
7 time of getting into the best estimate of BAC, being
8 based on the breath test tickets. I want to get into
9 whether or not that is the best estimate of the BAC.

10 JUDGE STEINER: I think we've
11 already had testimony that indicated that it's not.

12 Mr. Vosk: Okay.

13 JUDGE STEINER: That the bias is
14 something that can be calculated afterward. Unless
15 there is something else you wanted to discuss?

16 MR. VOSK: No, your Honor. That's
17 fine.

18 I wanted to get into the aspect of sources of
19 imprecision. Sergeant Gullberg testified that because
20 the instruments are now internal injection, that
21 there's no longer any reason to be concerned about
22 lack of precision.

23 And I think that we can show through the use of
24 some of these solutions that, in fact, one, operators
25 are still a source of lack of precision. And by that,

1 the State asks, Would it make any difference if you
2 removed Ann Marie Gordon? Sergeant Gullberg said, No,
3 because the data was still there. But I think we can
4 demonstrate with some of these solutions is that if
5 you take a look at the data that was generated by Ed
6 Formoso for Ann Marie Gordon, those two data sets are
7 always remarkably the same and can be very different
8 from the rest of the data in the set. So that having
9 one person do the test would validate -- validates
10 what Sergeant Gullberg said 17 years ago, that the
11 difference between operators does make a significant
12 difference. That's got to be taken into account.

13 (Judges conferring.)

14 JUDGE STEINER: I think we think
15 that is an area that's been covered sufficiently. Are
16 there any other issues?

17 Mr. Vosk: Can I -- and I
18 understand, your Honor, I'm not trying to get your
19 ire. I can I readdress that one just momentarily. I
20 do apologize.

21 The claim, I think, will be made that, Look, her
22 data is there. It's just fine. We can use it. It
23 makes no difference. And what we want to establish is
24 that it does, there is a difference in using that
25 second set of perjured data.

1 JUDGE STEINER: I think it's my
2 understanding that there may be a difference looking
3 at, in the results you can see the differences, but
4 they are not statistically significant and, therefore,
5 that is the reason that the witness has testified that
6 the weighted mean is not necessary under these
7 circumstances.

8 So I don't know that you're going to get any more
9 from this witness. He's already indicated that there
10 is a difference, and it's not statistically
11 significant. So I'm going to ask that you move onto
12 the next issue.

13 MR. VOSK: Will your Honors allow us
14 to argue that based on exhibits in the record in
15 closing?

16 JUDGE STEINER: I'm just talking
17 about this witness.

18 MR. VOSK: Okay. With respect to
19 whether or not it would be difficult for the State
20 Patrol to either take care of the bias right at the
21 point of the QAP so that there can be a note made
22 the --

23 JUDGE STEINER: I think that's been
24 adequately covered.

25 MR. VOSK: Okay. He made a

1 distinction with respect to when scientists are
2 reporting their data whether or not they have to
3 report the standard deviation, and he distinguished
4 that from the field context, when they are doing that
5 in the field. And I wanted to --

6 JUDGE STEINER: A few questions in
7 that area would be acceptable.

8 MR. VOSK: I wanted to address the
9 comment that he made that's not bound by the QAPs.

10 MR. ANDERSON: I think there might
11 have been testimony that QAPs did not -- HSDC.

12 JUDGE STEINER: And very quickly,
13 we're running out of time discussing what you want to
14 discuss. Are you just about through?

15 MR. VOSK: I'm trying your Honor.

16 JUDGE PHILLIPSON: That book needs
17 to get seized. I'll sign the order, if you'll prepare
18 it, David.

19 MR. VOSK: There was, I think, a
20 little bit of unclarity with respect to whether or not
21 the difference in that division factor when we're
22 taking a look at 6037, a 1215 or the one -- 1.23 would
23 always work for or against the defendant. I just
24 wanted to clarify that with a couple of questions.

25 JUDGE STEINER: I don't think that

1 it's important.

2 MR. VOSK: If your Honor doesn't
3 find it important, neither do I.

4 JUDGE STEINER: The issues we're
5 dealing with can go both ways.

6 MR. VOSK: That one can't. That one
7 error will always run one way, that's what I wanted to
8 establish.

9 JUDGE STEINER: Which way?

10 MR. VOSK: It will always run
11 against the defendant. It has to. It's a
12 mathematical fact.

13 JUDGE STEINER: The most you'll get
14 is all the errors can run both ways. You're saying
15 this can only run one way?

16 MR. VOSK: That's correct.

17 JUDGE STEINER: Even if that's
18 true --

19 Mr. Vosk: If the State is
20 stipulating --

21 JUDGE STEINER: If that can run
22 potentially against the defendant, in my mind, it just
23 doesn't have to run against the defendant, the fact
24 that it could run is as just important.

25 MR. VOSK: Okay. Will the Court

1 accept the stipulation of the State on that one?

2 JUDGE STEINER: Not necessary, but
3 yes.

4 MR. VOSK: Thank you. Sergeant
5 Gullberg and I had a conversation in the hall where he
6 made a comment concerning the fact that he believed
7 all of this should have been changed long ago, and I
8 think --

9 JUDGE STEINER: I'll allow you to go
10 in that area.

11 MR. VOSK: The --

12 JUDGE STEINER: Mr. Vosk, I don't
13 want to put a time limit.

14 MR. VOSK: I just want to address
15 the specific test that the spreadsheet was on the
16 screen for, the test for the defendants named in this
17 matter, the Hildreth case, in particular.

18 JUDGE STEINER: How about just the
19 Hildreth case?

20 MR. VOSK: Yeah. It goes -- what
21 I'm trying to get out here is that Hildreth's breath
22 test was done on a machine that was QAP'd by Solution
23 02019, and the fact that we don't have -- we can't
24 ascribe a particular set of data to that machine
25 renders the QAP itself invalid.

1 JUDGE PHILLIPSON: That's evidence
2 that you can argue that, but the evidence is already
3 in.

4 MR. VOSK: If your Honors are --
5 that's just fine.

6 JUDGE PHILLIPSON: The evidence is
7 in. You get a ten-minute closing. Well, maybe three.

8 JUDGE STEINER: The Court had a
9 question too.

10 MR. VOSK: Yes.

11 JUDGE STEINER: We may not be able
12 to ask it. Are you done now?

13 MR. VOSK: I'm going to get through
14 this.

15 The one other thing I wanted to address with
16 respect to these tests is whether or not at the time
17 the test was performed, if any of these corrections
18 had been made. I think --

19 JUDGE STEINER: Can we just get an
20 answer to that?

21 THE WITNESS: I'd have to get a look
22 at the dates on the evidential test in each case.

23 JUDGE STEINER: Anything else before
24 we start? Counsel, if you can just try to do this
25 very quickly.

1 MR. ANDERSON: Is he's just trying
2 to get dates? They're already in evidence.

3 JUDGE PHILLIPSON: We've got the
4 handy-dandy chart. We know the date of the tests, and
5 we know the dates of the corrections. That's already
6 in evidence.

7 JUDGE STEINER: All right. So you
8 have about four things there you want to inquire
9 concerning?

10 MR. VOSK: And if I go beyond that,
11 just tell me, your Honor, because I don't mean to.

12 JUDGE PHILLIPSON: We're bringing a
13 bailiff in.

14 MR. VOSK: And you were letting me
15 go a little bit into the uncertainty.

16 Q (By Mr. Vosk) The State talked a lot about the
17 inherent uncertainty in a measurement, and how every
18 measurement we have always has uncertainty?

19 A Yes.

20 Q Does that mean we can just do a measurement any way we
21 want?

22 A No.

23 Q There are scientific procedures, recognized scientific
24 procedures, in place to help us minimize the
25 uncertainty?

- 1 A Yes.
- 2 Q And its through following those proper scientific
3 procedures that we get to answers which are most
4 approximately the truth?
- 5 A Yes.
- 6 Q You indicated that in the forensics community when
7 research is done, scientists report the values of
8 their standard deviations?
- 9 A Oftentimes times, yes; typically, yes.
- 10 Q Why is that?
- 11 A So one can better interpret the result of the
12 experiment.
- 13 Q So we can better understand the value, perhaps, of
14 mean or of a measurement?
- 15 A It helps with that too, yes.
- 16 Q Is it any less important to have that understanding
17 just because we're dealing with an individual's
18 liberty?
- 19 MR. ANDERSON: Objection.
20 Argumentative.
- 21 JUDGE STEINER: Sustained. Counsel,
22 if you can just indicate in the forensic area, then
23 perhaps we can get to the same place.
- 24 Isn't that we're talking about is the difference
25 between the science and forensics?

1 MR. VOSK: Well, it's a line we keep
2 walking on. And yes, there is that difference, but
3 what I'm trying to show is that the determination we
4 make in the scientific area, when we step into the
5 forensic area, we have to make this similar type of
6 determinations. The difference being, usually in the
7 scientific area, we're worried about measuring liver
8 samples or something like that. Here the thing is an
9 individual's liberty. It's an artificial cutoff
10 point. That's what I'm trying to demonstrate to the
11 Court because what it does is --

12 JUDGE STEINER: Please try to avoid
13 the loaded questions and ask why. Try to ask, you
14 know, why should there be that difference?

15 MR. VOSK: Okay.

16 Q (By Mr. Vosk) Why should that be that difference?

17 A We do report it in the forensic area. On the QAP, we
18 report the standard deviation of the ten tests.

19 Q For the individual's breath test though on that breath
20 test ticket, is that reported?

21 A We do two breath alcohol results. They must be within
22 10 percent of the mean. That's equivalent to
23 reporting the standard deviation. It's another way to
24 evaluate or quantify precision or repeatability. We
25 could calculate standard deviation. The data is there

1 to do that. We report that they must both report
2 within 10 percent of mean. So that's another measure,
3 quantification of precision.

4 Q I asked you about that earlier. When we are reporting
5 our scientific results, are we reporting the probable
6 or likely bias?

7 A Well, it depends on objective of the experimental
8 work. Typically the bias in a published work would be
9 reported.

10 Q Where on the breath test ticket do we report the bias?

11 A The bias is not reported on the breath test ticket.

12 Q Why would there be that difference?

13 A I don't know. Historically, it's not been done. It
14 could be done.

15 Q Do you think it should be done?

16 A It's capable of being done even now and always has
17 been.

18 Q Do you think it should be done?

19 A Perhaps. I don't know. I -- it's something I think
20 several people need to think about and arrive at a
21 consensus.

22 Q If it was your breath test, would you want it to be
23 included there?

24 A I could go back and determine what it is.

25 Q You and I could?

1 A Right.

2 Q But if you were a regular person, would you want it
3 reported there?

4 A I can't speak for anyone else. I don't know. And
5 again, it depends about the concentration. If we're
6 talking about .080, that might be -- and the bias is
7 high, that might be relevant then, yes.

8 MR. VOSK: Your Honors, there was
9 one thing that I didn't bring up with you.

10 JUDGE STEINER: Are you through with
11 all of your other issues?

12 MR. VOSK: No. There's the one
13 issue, but that's just going to be one or two
14 questions.

15 In his -- on cross, Sergeant Gullberg indicated
16 that the instances where you had a 072, 073, 074 were
17 rare. You rarely see them. We've got an exhibit here
18 showing multiple instances on instruments from around
19 the state that I want to show the witness.

20 JUDGE STEINER: Any objection?

21 MR. ANDERSON: I guess we don't know
22 how many this comes from. I mean, obviously, there's
23 a whole bunch of them. But literally, there's, like
24 --

25 JUDGE STEINER: I presume --

1 MR. ANDERSON: There's 60,000 tests
2 a year. I don't know --

3 MR. VOSK: If the State wants to
4 stipulate it into evidence, I don't need to ask any
5 questions.

6 MR. ANDERSON: The problem is this
7 is a portion of the database.

8 JUDGE STEINER: I'm presuming that
9 Mr. Gullberg could look at that pretty quickly and
10 have an idea whether or not that is a representative
11 sample. If he doesn't know, he'll tell us, and the
12 State's objection will be noted.

13 Q (By Mr. Vosk) Sergeant Gullberg, I'm going to hand
14 you what's been labeled Exhibit 70. They are excerpts
15 from the database with the machine listed on the
16 left-hand side, the date of test, and representative
17 external standard readings for each test.

18 Can you just look through there and tell me
19 whether or not that looks like an unreasonable
20 representation of the number 072s, 073s, 074s that
21 would be found in those databases?

22 A It would -- it represents those measurement results,
23 but that doesn't tell us the proportion that these are
24 of all the tests done on that instrument.

25 Q Right.

1 A So we've only selected out a certain value to look at,
2 and that's what's reported here. And all the others
3 have been excluded. You haven't shown the whole --

4 Q Exactly. That's exactly what I'm trying to represent
5 are just the ones that are 72s to 74s.

6 A Right.

7 Q And so these are values that are on the edge, where if
8 we have had a change of .001 based on whether it's an
9 arithmetic mean or some other -- or one of these other
10 errors or an error like here in 6028, where it gets up
11 to a 0015, which depending could round up to a 002,
12 could knock these things out of the 072 to 088;
13 correct.

14 MR. ANDERSON: And, your Honors, I'm
15 going to object. First of all, that was a lot of
16 testimony, and secondly, this hasn't been exemplified --
17 this has not been established as a representative
18 sampling. I just don't -- I mean, I don't know how
19 many cases --

20 JUDGE STEINER: Are you moving to
21 admit?

22 MR. VOSK: I'm simply moving to
23 admit it, yes, your Honor, as an example of tests on
24 that are right there on that limit. They made it
25 sound as if they were almost nonexistent.

1 JUDGE STEINER: If the Court does
2 accept this as an exhibit, it would not be a
3 representative sampling. It would be an indication
4 that they exist, that is, 073 readings exist. For
5 that purpose only, any objection on behalf of the
6 State?

7 MR. ANDERSON: I understand what the
8 Court would like to do. The State respectfully
9 objects just because there is no context.

10 JUDGE STEINER: So for the limited
11 purpose of knowing 073s are out there, the exhibits
12 are be admitted.

13 (Exhibit admitted.)

14 MR. VOSK: Thank you. And that's
15 Exhibit No. 70.

16 Q (By Mr. Vosk) Last question, when we were out in the
17 hallway, we were talking. You made a statement. Did
18 you indicate -- did you tell me that all of those
19 problems, the lab, the corrections that they've made
20 here with this latest protocol, all should have been
21 made long ago?

22 A I generally agree with that. This whole process has
23 revealed several shortcomings or problems. None of
24 which, in my opinion, were bad faith or intentional,
25 but just lack of care to detail.

1 These have been now corrected and addressed, but
2 ideally, it would have been earlier, yes.

3 MR. VOSK: No further questions,
4 your Honor.

5 JUDGE STEINER: Mr. Anderson.

6 RE CROSS-EXAMINATION

7 BY MR. ANDERSON:

8 Q Do you believe that the procedures employed present
9 and -- or result -- by the State crime lab, the
10 technicians, the troopers who employ the breath tests,
11 do you believe those procedures constitute or have an
12 acceptable level of reliability for use of a breath
13 test?

14 A Yes.

15 Q And that's for tests that are currently being done?

16 A Yes, yes.

17 Q And assuming that the information regarding whether or
18 not there were actual scrivener's errors, the other
19 types of mistakes we've talked about, presuming that
20 that information is made available to the State and to
21 the defense, so they can ask questions of you and
22 other techs, do you believe that past tech's tests are
23 sufficiently reliable?

24 A Yes.

25 MR. ANDERSON: Thank you.

1 JUDGE STEINER: Based upon that
2 series of three, I believe, questions. Anything?

3 MR. VOSK: Co-counsel has told me I
4 have no further questions, your Honor.

5 EXAMINATION

6 BY JUDGE STEINER:

7 Q All right. So I do have a question, and this is just
8 by way of clarification. We have heard testimony that
9 there is an innate bias in -- potentially in a BAC
10 reading, in the machine?

11 A Yes.

12 Q The machine carries with it a bias, and that bias is
13 generally in the 2 percent area?

14 A Yes.

15 Q Plus or minus?

16 A Yes.

17 Q But the majority of them will fall within the 5
18 percent area, but there could be biases -- the bias
19 could be much greater?

20 A Possibly, rarely.

21 Q Rarely but possibly.

22 A Yes.

23 Q Then we know that there is the plus or minus 10
24 percent ratio or zone, I should say, for the simulator
25 solution. And that 10 percent can carryover into the

1 reading.

2 A No.

3 Q Okay. So I need to know that.

4 A That plus or minus 10 percent, 072 to 088, is just a
5 range within which this instrument must measure this
6 simulator standard.

7 But now if we want -- from that alone it's in
8 there or not is simply a yes/no criteria. That tells
9 me nothing about quantifying bias.

10 Q Right. And I'm not talking about bias here.

11 A Okay.

12 Q My question is: It was -- I'll just indicate my
13 ignorance. It was my understanding -- or may be
14 knowledge.

15 It was my understanding before that if the
16 simulator solution was within the acceptable range, it
17 would have no effect on the ultimate reading?

18 A No. It's not saying that. It's saying that this
19 instrument has measured a standard and hit the target
20 sufficiently close. Here's the range.

21 But now if you want to know to what extent does
22 this instrument have a bias, plus or minus, that
23 requires evaluation of several simulator results on
24 that instrument from which I would calculate a mean.
25 I would look at the tox lab value for that standard,

1 and determine, is this instrument reading high or low?
2 What is it? Then I would need to adjust that person's
3 results accordingly.

4 But simply the 072 to 088 is: "I hit the target."
5 It's really a binary, yes/no, criteria was met.

6 Q Is the simulator solution value one of the values that
7 you consider in determining an individual machine's
8 bias?

9 A Yes. That -- that -- it may not be the result at the
10 time of the person's test because they might be the
11 30th sample on that solution over which time, there's
12 slight depletion.

13 I would go back to when that solution was
14 installed on that instrument prior to the defendant's
15 test. It might have been 1, 2, 3, 4 weeks earlier. I
16 would take -- that's a fresh solution, undepleted. I
17 would take the first ten of those measurements on that
18 instrument in that solution. That would be my mean.

19 I would then compare that to the reference value
20 for that and say, This instrument's reading high or
21 low. That's what would I would apply that to the
22 defendant's test.

23 Q But the difference could actually be greater because
24 now we're at the 30th?

25 A Oh, yeah. Yeah. Because of depletion, the 30th test,

1 that's why I wouldn't include that, that could be
2 drifting low, as they do over time, just with use and
3 depletion. So that's less of a reliable estimate of
4 bias. So go back to when it's a new solution,
5 undepleted, ten tests on this instrument.

6 Q So my question really, and I think you understand my
7 question, really was that we have the bias
8 potentially --

9 A Yes, yes.

10 Q -- in the machine. We would never add to that plus or
11 minus 10 percent?

12 A No. That's independent measurement of the subject's
13 breath. They're two independent results. No, that
14 does not add or subtract from the subject's results.

15 JUDGE STEINER: Does anyone have any
16 questions based upon what I have just asked?

17 MR. VOSK: I have a couple of brief
18 follow-ups.

19 JUDGE STEINER: Okay.

20 FURTHER DIRECT EXAMINATION

21 BY MR. VOSK:

22 Q You've indicated you've used the external standard out
23 in the field when you're trying to determine the bias?

24 A For people near .08. If they're .18, no, I'd used the
25 QAP then.

- 1 Q Then the QAP would be a good measure of bias; right?
- 2 A The 15 QAP is the best estimate for people above 15,
3 in my opinion. That's what I would use.
- 4 Q Now, out in the field, the solutions, the value that
5 will be measured by the machine is affected by many
6 things, maybe the temperature within the testing
7 facility, a number of other things?
- 8 A Yes.
- 9 Q And the QAP is done under controlled lab conditions?
- 10 A Yes.
- 11 Q So the bias determined during the QAP under controlled
12 lab conditions, at least at that point in time --
- 13 A Yes.
- 14 Q -- is going to be a more accurate determination of the
15 bias of the instrument?
- 16 A Only at that point in time. But the next day when
17 it's used in the field under real world conditions,
18 things change.
- 19 Q But that's the question. That's the question I want
20 to get to right there, because you want to take into
21 account these real world conditions?
- 22 A Yes.
- 23 Q But in order to understand which are real world
24 conditions and which are conditions based on the
25 instrument, isn't the whole reason we do the QAP, so

1 we can understand the instrument before we put it out
2 in the real world?

3 A To some extent. But the instrument, when being used
4 in the field day-to-day is measuring people's breath
5 under real world conditions. And that's why I think
6 using the field simulator solution, measured under the
7 same day-to-day sources of variations is a better
8 estimate of that instrument's bias in the field at
9 that time, not the QAP, at the 08 level.

10 Q Let me ask you a question on that then: Out in the
11 field when we're doing a breath test, this is a whole
12 process; correct?

13 A Yes, it is.

14 Q And so when we've got -- when you're taking a look
15 there at the breath test, you're trying to take a look
16 and measure the whole process, including the
17 individual that's submitting to the test?

18 A Yes. It's a process, yes.

19 Q In the lab you're focused on the instrument?

20 A Yes, that's right.

21 Q And so the lab data gives you the specific information
22 on the instrument?

23 A At that time, yes.

24 Q Now, you've done, in cases for me, calculations of
25 bias?

1 A Yes.

2 Q And you've looked at both the QAP and the field
3 solutions?

4 A I have, yes.

5 Q And then you chose the one that was most beneficial to
6 my client, didn't you?

7 A I frequently do, yes.

8 Q Now, is that because both values could be correct, but
9 we can't be sure which is correct?

10 A It's more because of giving the benefit to the
11 defendant.

12 Q And we give the benefit because there is the doubt as
13 to which is the more correct?

14 A Well, I think that there is sound reason for using one
15 batch over another for assessing bias. Either it's
16 closer in concentration or closer in time.

17 JUDGE STEINER: I'm going to stop
18 here.

19 MR. VOSK: Thank you, your Honor.

20 JUDGE STEINER: I think this area
21 has been plumbed sufficiently. Is this witness going
22 to be necessary tomorrow, or is this witness excused?

23 MR. VOSK: I would only ask that the
24 witness remain available for rebuttal, but not to show
25 up, but we'll call him if we need him.

1 MR. ANDERSON: The State has no
2 objection to excusing, but I understand.

3 JUDGE STEINER: Okay. At this point
4 then, I'm going to excuse this witness. If either
5 party wishes to call the witness, then they're to
6 indicate to the Court that they wish to do so.

7 I suppose if the witness is still under subpoena,
8 you call in the subpoena and ask the witness to come
9 in. Okay. So tomorrow --

10 THE WITNESS: Thank you.

11 JUDGE STEINER: Tomorrow we're going
12 to begin with Trooper Denton, and how long do you
13 anticipate Trooper Denton's testimony?

14 MR. VOSK: I don't think I would
15 have more than 15 to 20 minutes.

16 JUDGE STEINER: That would be
17 amazing.

18 MR. ANDERSON: I'll have Trooper
19 Denton longer. He's not our rod, but we'll need some
20 significant time from him.

21 JUDGE STEINER: After Trooper
22 Denton?

23 MR. VOSK: We'll call Dr. Emery. I
24 expect maybe two hours, and then we would go to
25 Dr. Logan, and that could go -- that could be quick or

1 long depending on the answers I get.

2 JUDGE STEINER: That seems to get us
3 sufficiently through the day tomorrow, and then we
4 have a problem.

5 JUDGE PHILLIPSON: The State hasn't
6 been heard from.

7 MR. ANDERSON: To the extent that --
8 I know that Mr. Louis's -- there's one rebuttal
9 witness we've become aware of. I know he's gone at
10 2:00 tomorrow, and ask if there's any chance of
11 getting through this by Friday, I'm going to ask to
12 call him out of order in the morning. Especially
13 since he's gone by 2:00, he's not going to be a long
14 witness.

15 (Judges conferring.)

16 JUDGE STEINER: We will see if we
17 can get ourselves another day. It will not be here.
18 I don't know where it will be. It may not be Monday
19 and so -- it looks like it would be reasonable at this
20 point -- unreasonable at this point to try to conclude
21 tomorrow. To get halfway done and say that's good
22 enough is not good. A third day would be halfway but
23 we will not be as far as we need to go.

24 So we will let you know tomorrow. I don't think
25 that we're going to know before later in the morning,

1 how we'll get -- if we can get, and how we will get
2 our fourth day.

3 MR. ANDERSON: I will have witness'
4 schedules available.

5 JUDGE STEINER: And tomorrow we have
6 the bar, I can't remember which bar, a subcommittee of
7 the bar here from noon to 1:30. So we'll see everyone
8 tomorrow at about 8:30.

9 THE CLERK: Please rise.

10 (Proceedings concluded at
11 4:09 p.m.)

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1 STATE OF WASHINGTON) I, Kristin M. Vickery, CCR,
 2) ss CCR #3125, a duly authorized
 3 County of King) Notary Public in and for the State
 4 of Washington, residing at
 5 Renton, do hereby certify:

6 That the foregoing transcript hereto annexed was
 7 given before me and stenographically recorded at the time
 8 and place indicated in said transcript;

9 That the foregoing transcript contains, to the
 10 best of my knowledge and belief, a full, true, and accurate
 11 record of all the testimony and of the proceedings given
 12 before me;

13 That I am not a relative, employee, attorney or
 14 counsel of any party to this action or relative or employee
 15 of any such attorney or counsel and that I am not
 16 financially interested in the said action or the outcome
 17 thereof;

18 Dated at Renton, Washington day of , 2008.

19
 20
 21 _____
 22 Kristin M. Vickery, CCR
 23 Notary Public in and for the State
 24 of Washington, residing at
 25 Renton.
 26