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COMMITTEE ON ENERGY AND COMMERCE,
U.S. HOUSE OF REPRESENTATIVES,
WASHINGTON, D.C.

INTERVIEW OF: SHUKRI SOURI

Wednesday, May 12, 2010

Washington, D.C.

The interview in the above matter was held at 316 Ford
House Office Building, commencing at 3:05 p.m.

1 Appearances:

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5 For the COMMITTEE ON ENERGY AND COMMERCE:

6

7 DAVID J. LEVISS, Chief Oversight Counsel

8 BRIAN A. COHEN, Senior Investigator and Policy Advisor

9 ANNE HARDEN TINDALL, Counsel

10 MOLLY GULLAND GASTON, Counsel

11 ALISON L. CASSADY, Professional Staff Member

12 KAREN E. CHRISTIAN, Minority Counsel

13 MELISSA BARTLETT, Minority Counsel

14 KEVIN M. KOHL, Minority Professional Staff Member

15

16 For EXPONENT:

17

18 JAMES J. FICENEC

19 Sellar Hazard Manning Ficene & Lai

20 1800 Sutter Street, Suite 460

21 Concord, California 94520

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1 Ms. Gaston. Good afternoon.

2 On behalf of the Committee on Energy and Commerce I
3 thank everyone for joining us today.

4 This is a transcribed interview of Shukri Souri. The
5 chairman of the committee has sought this transcribed
6 interview as part of the committee's investigation into
7 instances of sudden unintended acceleration in Toyota made
8 vehicles.

9 Dr. Souri, would you please state your full name for the
10 record?

11 Mr. Souri. Shukri Souri. Shukri is spelled
12 S-H-U-K-R-I; last name is S-O-U-R-I.

13 Ms. Gaston. My name is Molly Gaston, and I am counsel
14 for the Energy and Commerce Committee. Let's have other
15 people in the room identify themselves.

16 Mr. Ficenec. James Ficenec, counsel for Exponent.

17 Ms. Cassady. Alison Cassady, professional staff with
18 the committee.

19 Ms. Tindall. Anne Tindall, counsel of the committee.

20 Mr. Leviss. I am David Leviss. I am the chief
21 oversight counsel to the committee.

22 Mr. Cohen. I'm Brian Cohen. My title is senior
23 investigator and policy advisor. I'm one of the few
24 noncounsels here. I'm an engineer with the committee.

25 Mr. Kohl. Kevin Kohl, professional staff member for the

1 minority staff.

2 Ms. Christian. Karen Christian, counsel to the minority
3 staff.

4 Ms. Bartlett. Melissa Bartlett, counsel, minority
5 staff.

6 Ms. Gaston. Before beginning with the questioning, I
7 would like to go over some standard instructions and
8 explanations regarding the interview.

9 Under committee guidelines for transcribed interviews,
10 you are permitted if you choose to have personal counsel
11 attend the interview. Do you understand that?

12 Mr. Souri. Yes.

13 Ms. Gaston. Have you chosen to have personal counsel
14 attend for this interview?

15 Mr. Souri. Yes.

16 Ms. Gaston. An official reporter is taking everything
17 we say to create an official record of this interview.

18 To assist the reporter in making a clear record, please
19 wait until I finish my questions before you begin your
20 answers.

21 You're required by law to answer questions from Congress
22 truthfully, and knowingly making a false statement or
23 withholding information from Congress could subject you to
24 criminal prosecution. Do you understand that?

25 Mr. Souri. Yes.

1 Ms. Gaston. Is there anything that would prevent you
2 from answering questions truthfully today?

3 Mr. Souri. No.

4 Ms. Gaston. I will begin by asking you questions on
5 behalf of the committee, and after about an hour, we will
6 take a break. At that point, staff with the minority may
7 begin to ask questions, or it may make sense for me to
8 continue. We will make every effort not to take up any more
9 of your time than we need to collect the information we need
10 for our investigation.

11 Do you have any questions before we begin?

12 Mr. Souri. No.

13 Ms. Gaston. And just to clarify, Mr. Ficenec represents
14 Exponent or you personally?

15 Mr. Souri. Exponent.

16 Ms. Gaston. Exponent. And are you comfortable with
17 having counsel for Exponent representing you here today?

18 Mr. Souri. Yes.

19 EXAMINATION

20 BY MS. GASTON:

21 Q I would like to ask just a few questions about your
22 background. How long have you been employed by Exponent?

23 A I think it's coming close to 8 years. I joined in
24 November of 2002.

25 Q And what is your current title?

1 A Currently, I am a principal and the director of the
2 New York office at Exponent.

3 Q And what are your current responsibilities?

4 A As a principal, I am a technical leader in the
5 electrical practice. And my responsibilities include
6 inspections and investigations and failure analyses with
7 respect to electronic systems in general, integrated
8 circuits, semi-conductor processes and so on.

9 As a director of the New York office, my
10 responsibilities are more administrative in nature, so making
11 sure that the environment for the members of the office are
12 congenial and collegial and so on.

13 Q And how long have you been in your current
14 position?

15 A I moved to the New York office about 4 years ago.
16 I became a principal around that time, maybe 3 or 4 years
17 ago. As a director of the New York office, I have held this
18 position for approximately a year.

19 Q And as regards the project for Toyota, have you
20 been in New York or in California?

21 A I've been really back and forth. Mainly I'm based
22 out of the New York office. But whenever there is a need for
23 me to be in the California office, I have gone back
24 frequently.

25 Q And who do you report to?

1 A I report to John Moalli. He's one of the vice
2 presidents at Exponent.

3 Q And have you held other positions at Exponent?

4 A Yes. Before becoming a principal, I was a senior
5 managing engineer at Exponent, and I held that position for
6 approximately 2 years. And before a senior manager, I was a
7 managing engineer.

8 Q And what were your responsibilities in the
9 positions that you just described?

10 A The level of engineering positions that we have,
11 including manager, senior manager and principal, refer to the
12 responsibilities that as technical managers we take on in
13 leading a project or contributing to work on a project. So,
14 for example, a manager would have sufficient experience with
15 daily analysis in a particular technical field, demonstrates
16 a degree of leadership, and has a reputation of being a known
17 contributor in that field. As that level of experience
18 increases, the level of responsibility increases.

19 So as a senior manager, often we have technical
20 expertise in more than just one area. We have contributed to
21 new technology in one area or more.

22 And principals, of course, are people who are well
23 renowned in their field of technology and may even be leaders
24 in more than one field of technology.

25 Ms. Gaston. We're trying to get a sense of the scope of

1 Exponent's work for Toyota in terms of what Toyota has
2 requested and what Exponent has planned. And I would like to
3 ask the court reporter to mark as Exhibit 1 Exponent's
4 retention letter.

5 [Souri Exhibit No. 1

6 was marked for identification.]

7 Ms. Gaston. I have marked as Exhibit 1 a retention
8 letter provided by Exponent in its response to our document
9 request. This letter states that Exponent plans to provide
10 "engineering consulting services related to class actions
11 filed against Toyota."

12 BY MS. GASTON:

13 Q To whom is this letter addressed?

14 A This letter is addressed to Mr. Joel Smith, an
15 attorney at Bowman & Brooke.

16 Q And what is Bowman & Brooke?

17 A I understand Bowman & Brooke are the counsel for
18 Toyota.

19 Q Does Bowman & Brooke pay Exponent's fees and
20 expenses related to work associated with Toyota?

21 A That question -- the answer is, I don't know
22 exactly if the fees are paid by counsel. I would suspect, as
23 I'm really not involved on the administrative side of the
24 project, I would suspect Toyota pays, but I'm not completely
25 certain on that.

1 Q Do you know how much Exponent has charged Bowman &
2 Brooke for services or Toyota for services related to Toyota
3 in 2010?

4 A No, I do not. That would be speculative on my end
5 as to what that is.

6 Q Does Exponent communicate directly with Toyota
7 about its work on this contract, or are all communications
8 with Bowman & Brooke?

9 A I believe that communications with Toyota have
10 counsel present. There are some cases where, for instance, I
11 visited Japan as a member of a team from Exponent. And I
12 believe there was Toyota counsel there. I wasn't exactly
13 sure where he worked, but I understand that there was a
14 Toyota counsel there.

15 Q And was Bowman & Brooke counsel present at that?

16 A That's why I kind of couched my answer, because I'm
17 not certain. I understand there was Toyota counsel, but I
18 wouldn't be able to tell you exactly whether it was Bowman &
19 Brooke.

20 Q Okay.

21 A I just want to make sure I --

22 Q Sure.

23 Now, that was an instance of an in-person communication.
24 Do you know in terms of e-mails or phone conversations who
25 those communications are with?

1 A No, I can't tell you that I know exactly. I think
2 -- you know, I personally communicate with Toyota sometimes
3 on the phone during phone conferences where there are a
4 number of Exponent people on the phone and a number of Toyota
5 people on the phone, and I understand counsel is also on the
6 phone.

7 The other ways that I communicate with Toyota are
8 through, for instance, the visit that we had with Toyota in
9 Japan. And they also came and visited us at Exponent. So
10 there are a lot of communications that occur that way.
11 E-mails, I do not communicate by e-mails with Toyota.

12 Q When you say "with Toyota," do you mean Toyota
13 itself, or does that include Bowman & Brooke?

14 A Either. And just to make sure, to the extent that
15 there may be other communications, I'm just answering based
16 on my personal knowledge.

17 Q Certainly. And do you ever communicate with Toyota
18 without Bowman & Brooke's presence on the phone, in person?

19 A Again, as I had answered previously, the phone
20 calls are usually part of a conference call where there are a
21 number of team members from Exponent, as well as from Toyota.
22 And I understand that Toyota counsel is on the phone. Would
23 I be able to identify if it were Bowman & Brooke? I imagine
24 that is the case, but that would be purely speculative. I
25 understand that there is Toyota counsel on the phone.

1 Q Okay. So when they identified themselves in this
2 phone setting, they identified themselves as Toyota counsel?

3 A By name, I believe. I don't know if they say which
4 law firm they identify themselves at. And there are some
5 calls where I'm not on, for instance, and they may identify
6 themselves then as from Bowman & Brooke. Usually we're on a
7 first-name basis.

8 Q If you had a question about your work on this
9 matter or needed guidance with next steps, who would you
10 call?

11 A Well, what we do, just to kind of explain the
12 process a little better for you, I mean, we have meetings
13 regularly within Exponent. And the project is led by several
14 key members at Exponent. For instance, on the software and
15 the hardware side, that would be myself. With respect to the
16 electronic control systems, there are people from the
17 mechanical engineering practice. There are people from the
18 vehicle engineering practices, human factors, data analysis,
19 and so on.

20 So we get together very regularly, and we communicate
21 our work. We communicate future work, the ideas, the
22 interactions of the different systems. And whenever there
23 are a set of questions that arise from those communications,
24 they are usually communicated to Toyota through these
25 conference calls that we have or through, possibly, through

1 e-mails but not from me personally.

2 Q And are minutes or notes kept of these calls that
3 you've discussed?

4 A Not to my knowledge.

5 EXAMINATION

6 BY MR. LEVISS:

7 Q Is there somebody else at Exponent who would know?

8 A I'm sorry?

9 Q Is there somebody else at Exponent who would know
10 the answer to that question?

11 A Well, you know I think that -- I don't know if
12 anybody at Exponent would know more. I mean, I think I've
13 given you the answer as I know it. I think that that is a
14 fair characterization of how we communicate with Toyota at
15 Exponent as a whole. I don't know if anybody else at
16 Exponent would know more than I or, for instance, know that
17 minutes are being kept of conversations, because I would know
18 that. And to the best of my knowledge, there isn't any that
19 I can offer.

20 Q Does Exponent keep notes or minutes of these
21 conversations, these conference calls?

22 A I don't believe so.

23 Q You don't believe so. What would you need to do to
24 confirm that?

25 A I would need to talk to each and every member of

1 the team to confirm that.

2 Q So there's no Exponent policy about whether or not
3 to keep notes or minutes from these conference calls?

4 A No. I mean, we work together as a team. I mean,
5 we, as I mentioned, we are always interacting with each
6 other. We are exploring different ideas. We update each
7 other as to the work that has been done and what new ideas we
8 want to explore, what possible interactions are between the
9 different subsystems in the vehicle. And if we have any
10 ideas or any questions that we need answers to, then we
11 communicate them to Toyota through e-mails or through the
12 conference calls. And we get the responses back in the form
13 of documents, materials that they provide us, or specific
14 expertise from their teams that they have worked on this. Is
15 that responsive?

16 Q I'm not sure. I mean, I think Molly has tried to
17 ask you whether you or you speaking for Exponent ever
18 communicate directly with Toyota --

19 A Yes.

20 Q -- without Bowman & Brooke being part of that
21 communication?

22 A Right.

23 Q And what's the answer to that question?

24 A Without Bowman -- I think my response was that, as
25 far as I know, there's always Toyota counsel. And I just

1 made sure that I answered that way because whether or not
2 counsel has identified themselves from Bowman & Brooke is, I
3 imagine that that is the case, but I just want to make sure
4 that I am accurate on the record.

5 BY MS. GASTON:

6 Q Can you give us the names of the counsel who have
7 been party of these communications?

8 A Sure. I can't tell you right now, but I will be
9 more than happy to get their names and provide them to you.

10 BY MR. LEVISS:

11 Q Do you ever have occasion to e-mail a contact at
12 Toyota as part of your work for Toyota, you personally?

13 A No. I make sure that whatever it is that I need
14 that I discuss it with our team and make sure that there's no
15 other input that needs to be accumulated to formulate the
16 question properly or to formulate the question more
17 completely, and then that gets communicated to Toyota. But
18 personally I do not communicate to Toyota by e-mail.

19 Q And who communicates back to Toyota?

20 A I imagine Dr. Subbaiah Malladi communicates with
21 Toyota directly.

22 Q You say "I imagine" because you don't know?

23 A Well, Subbaiah, I mean, number one, as you probably
24 have noticed is, you know, he is the person who signed the
25 retention letter, and so he's responsible for the

1 administrative aspects of the project. And so if there's
2 anything to do with communications, then Subbaiah would be
3 the person.

4 Q I mean, the chairman asked Exponent to provide a
5 witness who could testify on behalf of Exponent about all of
6 its work for Toyota, and Exponent presented you as that
7 witness. So I hope that we're going to be able to get
8 answers from you about what Exponent does and --

9 A I thought, having read the letter, that you wanted
10 to know details about our work on the electronic throttle
11 control system, about our work on the Dr. Gilbert scenario,
12 our work with respect to unintended acceleration, and I'm
13 more than happy. I am the person who is in charge of the
14 software and hardware development analysis teams. So if
15 there are any questions that you have in that regard that
16 would help you understand issues related to sudden unintended
17 acceleration from a technical perspective, I am certainly the
18 man who knows the most about that. I mean, that was my
19 understanding from the letter.

20 BY MS. GASTON:

21 Q And back to Exhibit 1. This letter describes
22 Exponent's scope of services as engineering consulting
23 services related to class actions filed against Toyota. Are
24 you aware of any other documents outlining the scope of
25 Exponent's work related to Toyota?

1 will make those findings publicly available. And I think
2 Toyota has made the comment publicly that whatever our
3 findings are they would be open to scrutiny from the
4 scientific and engineering community. And we are more than
5 happy to have that. Because it is -- I mean, we're --

6 Q You answered the question.

7 A Okay.

8 Q And we can get back to this later.

9 A Okay.

10 BY MS. GASTON:

11 Q So this letter is the only written document
12 describing Exponent's scope for this matter? The only other
13 direction that you are aware of are Toyota's public
14 statements that you have no limitations on what you can
15 pursue?

16 A Well, perhaps I didn't completely give you
17 everything. I mean, not only the public statements, but even
18 communications that we've had with Toyota over conference
19 calls or meeting them in person, certainly the directive has
20 been, look, if there's anything, we want you to find out
21 because we want to fix it if there's something at issue. And
22 so all my experiences, whether it's internal to Exponent or
23 interacting with Toyota or public statements, have confirmed
24 that and support that.

25 In terms of the documents, am I aware of any other

1 documents? Sitting here right now I don't remember anything
2 else. There may be, but sitting here right now, this is the
3 only document that I remember.

4 Q So how do you know what to work on and how do you
5 know what Toyota needs you to look into in terms of sudden
6 unintended acceleration?

7 A That's a very good question. So that brings me to
8 the technical side of the discussion. And, look, I mean,
9 Toyota does not tell us where to look or what to look for.
10 And the way that we are approaching it at Exponent is we want
11 to understand any set of conditions that can result in
12 acceleration in general, let alone whether it's intended or
13 unintended, sudden or not sudden; we want to know all the
14 parameters that can result in acceleration.

15 And we have divided up the team to look at the different
16 aspects of the electronic throttle control, so the software
17 involved. We are looking at the hardware, so the engine
18 control module and the different processors that are in
19 there. We are looking at the mechanical aspects. So, for
20 instance, one way of getting acceleration is pushing on the
21 pedal, and that would increase the demand for throttle
22 opening. Cruise control is another mechanism. So we are
23 looking at all the different parameters that could possibly
24 result in acceleration in general.

25 Then the next step down from that would be to

1 understand, well, what are the possible problems, faults,
2 that could occur that could result in an unintended
3 acceleration, an acceleration that is not in response to a
4 driver input, driver demand, or driver behavior? When we get
5 to that, then the question is, okay, well, let's understand
6 the problem more concretely. Is it a fault that has to occur
7 in a specific time or in a specific sequence? Are there
8 interactions with the environment around it? We're talking
9 about temperature, humidity, electromagnetic interference, if
10 there are defects in the hardware.

11 So we look at all these different specific issues,
12 understand their interaction with the software, perform tests
13 to understand the effects and to see what levels of
14 redundancy, what levels of system safeguards and fail safes
15 that are in the electronic throttle control system that would
16 protect against that, or if not.

17 Q Is what you just described written down anywhere?

18 A What I just described -- I mean, you have to
19 remember that Exponent is -- I mean, we are, what, 43 years
20 old. Our entire business is built on failure analysis. Our
21 entire company structure is based on a failure analysis
22 process where we have different practices. I'm in the
23 electrical practice responsible for electrical defects,
24 electronic issues, software issues. We have a mechanical
25 engineering practice responsible for lever mechanisms,

1 fractured materials. We have a material practice that is
2 responsible for polymers, for ceramics, for metals.

3 The way that we are structured as a firm is pretty much
4 the way that you would perform a failure analysis on any
5 product. Now, normally, when you get a failure from the
6 field, you've got visible signs, right, marks that are
7 observed, that tell you, okay, well, here is the failure;
8 you've got a device that broke down, or you've got a printed
9 circuit board that has left some heat marks behind. Those
10 would make the process extremely simple. You perform a
11 nondestructive evaluation through x-rays or SCMs or optical
12 microscopy. You develop a hypothesis that would explain what
13 you just observed. You would then take exemplars and perform
14 your hypothesis, test the exemplars, see if you're able to
15 reproduce that fault. If not, revise it. I mean, it's a
16 typical hypothetical deductive process that we go through,
17 which is a scientific method.

18 Now, when you're faced with a problem or with an issue
19 where nothing is left behind, it certainly complicates the
20 effort of identifying any potential root causes. In the
21 reported complaints of sudden unintended acceleration I have
22 not seen, nor has anyone seen, anybody reproduce that effect.
23 And I have not seen any observations of any leftover signs
24 that such an event occurred. So that complicates the process
25 of failure analysis significantly. So the way we would have

1 to do it is, again, I mean, I just described to you the
2 process where each one of us is responsible for a different
3 part of the vehicle system, and we communicate ideas; we
4 perform tests based on what could possibly go wrong.

5 Mr. Ficenec. I think she's asking, is there some
6 written procedure for that?

7 BY MS. GASTON:

8 Q Right. Has anyone directed these particular teams
9 on what to do or even what they are going to be working on?
10 We've received no failure analyses from Exponent. We've
11 received no planning of what -- we've received no documents
12 related to Exponent's planning or its failure analyses, and
13 we're wondering where those are.

14 A But I would actually perhaps point that we have
15 sent data. We've sent results of our testing. For instance,
16 you will see a lot of results on the electromagnetic
17 interference tests, so that is part of our failure analysis
18 testing process.

19 In terms of a document that describes all these details,
20 I think that -- you know, we don't have one that I can give
21 it to you, but if I were to put one together, it would --

22 Q Let me ask this in a different way. Some of the
23 materials you've provided us with are, for instance, test
24 results from a Chrysler lab, correct?

25 A Yes.

1 Q So in what tests was this lab directed to perform?
2 How was it directed to perform those? In what larger scheme
3 were these tests performed? Are there plans, essentially?

4 A I see, I see. I understand now. The answer is
5 yes, and I can talk to that. As a matter of fact, maybe I
6 can put together a spreadsheet for you and send it to you
7 that describes exactly why we did what we did on the EMI
8 tests. So with respect to the -- can I describe a little in
9 detail about the EMI tests?

10 Q Sure. Before you do that, can I ask something?

11 A Yes.

12 Q Because I'm not interested in getting into the
13 depth of the EMI tests right now. What I am asking is, you
14 say you could put together a spreadsheet?

15 A Yeah.

16 Q Has there not been a document already put together
17 planning out, for instance, the EMI testing that you're going
18 to do? You before described forming hypotheses.

19 A Yes.

20 Q Are those hypotheses written down anywhere?

21 A EMI is not a hypothesis that I would have to write
22 down. I mean, we're talking about electromagnetic
23 interference.

24 BY MR. COHEN:

25 Q Let me try to restate this here or let me just ask

1 flat out, do you, for example, in conducting a fault analysis
2 with Toyota in particular, have you constructed a specific
3 fault tree analysis for Toyota and the acceleration problem?

4 A Yeah.

5 Q Yes?

6 A I understand. The answer is, we haven't done that.

7 Q You have not done that. Thank you.

8 A But there's a reason.

9 Q Thanks. You have not done that. In the
10 discussions you have with your colleagues that you've
11 mentioned to us and discussed, when you discuss possible
12 scenarios, do you write down what those possible scenarios
13 are?

14 A We perform the tests.

15 Q Do you write down what the scenarios are?

16 A We, as part of our report writing process, all of
17 these --

18 Q Before you write the report, before you conduct an
19 analysis, do you sit with your colleagues and do you discuss
20 what scenarios are that you should test, and do you write
21 those scenarios down?

22 A I don't think that there is a specific process.

23 Q Can I suggest that yes or no answers can work here?
24 These aren't difficult questions.

25 A No, I understand. I just want to be as helpful as

1 I can and give you --

2 Q I understand. I think the best way you can be
3 helpful is to give us some yes or no answers. I'm not trying
4 to be difficult. I'm not trying to bully you. I'm just
5 trying to figure out your process here.

6 BY MR. LEVISS:

7 Q And we know you have a limited schedule, and we're
8 trying to make efficient use of your time.

9 A I appreciate that. Thank you.

10 BY MR. COHEN:

11 Q Yes or no, do you write down different scenarios
12 for faults in this Toyota that would cause unintended
13 acceleration in Toyota vehicles?

14 A You know, I haven't, no.

15 Q No.

16 Has Exponent at any point created a list of possible
17 scenarios that could lead to unintended acceleration in
18 Toyota vehicles?

19 A You know, I haven't seen such a list.

20 Q Okay.

21 A But I can tell you that list right now.

22 Q But to clarify, you're the individual who is
23 responsible for the majority of the Toyota technical -- for
24 the technical aspects of the Toyota investigation?

25 A For the electronic throttle control side of it. I

1 wouldn't say that that is the --

2 Q And you have not seen a list that Exponent has
3 created of possible scenarios for faults that would cause
4 sudden unintended acceleration?

5 A Look, that list is very simple. I mean, I can tell
6 it to you right now. I mean, I know that list.

7 Q That's fine. We can get to that later. But you
8 don't have a written list? You have not created a written
9 list of scenarios to test and go through? That's my
10 understanding; is that correct?

11 A I haven't created that list. That list may have
12 been created.

13 BY MS. GASTON:

14 Q Have you seen that list?

15 A I haven't seen that list.

16 Q How will you know when your work for Toyota is
17 done?

18 A How will we know when it's done?

19 Q Yes.

20 A Well, if we find any potential root cause for
21 sudden unintended acceleration, I think then we would have
22 understood a potential root cause, and that would be it. We
23 would have solved a problem if one exists.

24 Q And if one doesn't exist and you don't find one?

25 A That's a tough question. But I would say that we

1 will continue to explore all reasonably possible avenues that
2 might lead to sudden unintended acceleration. And each
3 avenue we will explore it to the end and understand it in
4 detail. If it turns out that that is not something that can
5 produce sudden unintended acceleration, it will be in our
6 report. But I think the answer is that we will explore every
7 reasonably possible avenue that could lead to sudden
8 unintended acceleration.

9 Q Could there be more than one?

10 A I imagine there could be, yes.

11 Q So if you stopped after finding one -- you said you
12 would know you were done.

13 A When you said one, I thought you meant avenues of
14 possible --

15 Q Oh, sure, no.

16 A Could there be more than one potential root cause
17 to some unintended acceleration? No, I think my answer was
18 potential causes, so I'm not limiting it to just one. I
19 mean, certainly we would explore whatever could cause it.

20 Q And how does Toyota evaluate whether Exponent has
21 done the job that it is supposed to do?

22 A I don't know if Toyota really has any limitations
23 on whether or not we've done our work or finished it. I
24 mean, we are scientists and engineers. We will do the work
25 that we can do that will either identify something, a set of

1 root causes, a set of potential conditions, or we've explored
2 all reasonably possible paths. And that would be the
3 findings, the set of conclusions, the analysis that we would
4 write in the report.

5 BY MR. LEVISS:

6 Q So your work with Toyota is not dependent on the
7 existence of class action lawsuits against Toyota?

8 A The answer is, you're right; it is not dependent on
9 that. Although the -- and that's something -- actually, the
10 retention letter specifies class actions. My understanding
11 is that, since the retention letter, it's not just a matter
12 of class actions.

13 Look, let me put it to you this way. Exponent is
14 involved in trying to understand if there are any potential
15 root causes, but we're not the only ones involved in this.
16 NITSA is performing its own investigations. NASA is
17 performing its own investigations. I mean, the brightest
18 minds on the planet are trying to understand if there are any
19 potential root causes for SUA, for sudden unintended
20 acceleration.

21 It is in my interest. It is in Exponent's interest, to
22 be the first people to identify it. If we're not, then
23 there's really no one else to blame but ourselves. I would
24 much rather be the first person to identify such a set of
25 root causes should such a set of root causes exist, because

1 nothing would make us look any better. And the ultimate idea
2 as engineers and scientists and technologists guided by our
3 social contract of ethics and ethical code, I want this to be
4 something that is addressed, and if there is a problem, for
5 it to be solved.

6 Q Okay, but going from your social contract to your
7 actual contract, where is the evidence that Exponent's work
8 for Toyota has gone beyond consulting work related to class
9 actions?

10 A Well, for instance, I'm not involved in any class
11 action lawsuits. I'm purely investigating the system,
12 independent of any class actions.

13 Q Then why are you on the agreement?

14 A No, I understand I'm on the agreement. But I'm
15 describing to you, currently, my work is not related to a
16 particular class action. I mean, I'm working to understand
17 if there is a problem and identify a potential set of root
18 causes, should they exist.

19 Q And I guess what I'm struggling to understand is
20 when did your work -- where is the evidence that your work
21 expanded from the way it's described in Exhibit 1, the scope
22 of services, to this broader inquiry that you've described to
23 us?

24 A And me sitting here describing to you -- I mean,
25 what I'm trying to do is explain to you that I am not aware

1 of any particular class actions, and that I'm working as an
2 engineer with our team to understand in the broader context
3 if there are any potential conditions that could lead to SUA.
4 I mean, that's my work. My job is to find it if it's there.

5 Q So it sounds like Exponent can define what it needs
6 to do for Toyota under this agreement, is that correct?

7 A Under my understanding, Exponent is pretty much
8 unconstrained to go and find something if it's there. That
9 is certainly the work that I'm performing. That is what's
10 guiding my efforts, my team's effort, and, as I understand,
11 it Exponent's effort.

12 Q And when you say "something," what do you mean?

13 A That is related to sudden unintended acceleration.

14 Q And how does sudden unintended acceleration enter
15 into Exponent's agreement with Bowman & Brooke?

16 A You know, that might be more of an administrative
17 question, but you know, I'm just responding from the
18 perspective of a technologist and engineer. I'm given a task
19 to look at the electronic throttle control system with
20 intelligence in the vehicle and to identify any potential set
21 of root causes that could result in SUA. That is my task.

22 Q That's an instruction you've been given?

23 A Go find it.

24 Q And who gave you that instruction?

25 A As I understand it, it came directly from Toyota.

1 Q And what gives you that understanding?

2 A As communicated to me by the members of the team.

3 Q Someone told you?

4 A Absolutely, someone told me, go find it.

5 Q Somebody told you this came from Toyota?

6 A Yes.

7 Q Who is that someone?

8 A Subbaiah.

9 BY MS. GASTON:

10 Q Has Toyota set any performance benchmarks for
11 Exponent's work or asked for any, not particular
12 deliverables, but asked for reports at certain intervals or
13 asked for any sort of tracking that you know of, anything
14 like that?

15 A I only know of the preliminary report that was
16 requested of us very early on. I can't remember the time
17 frame. But there was that one instance when that did happen,
18 yes.

19 Q So, in that instance, Toyota asked Exponent to
20 perform that particular task?

21 A No. Maybe I misunderstood the question. At that
22 time -- and I can't remember the time frame, if you have the
23 report, but it might have been February time frame -- but we
24 were asked to provide an interim report, a progress update,
25 by Toyota of our work at that point.

1 Q So just -- we'll talk more about that report in
2 detail in a moment, but just to clarify, Exponent was engaged
3 on December 7, 2009, and then was asked to produce that
4 report, which -- let me make sure that we're discussing the
5 same report; the analysis of Toyota and Lexus vehicles?

6 A Yes.

7 Q And was asked to produce that report in -- so that
8 report was an interim report on everything that Exponent had
9 done up until that point?

10 A I wouldn't characterize it on everything that
11 Exponent had done. It was on specific issues. I wasn't one
12 of the coauthors on that report, so I'm not entirely sure. I
13 would have to remind myself again. But it wasn't on the
14 entire set of issues that we were working off.

15 Q Okay. We'll come back to that report then. Thank
16 you.

17 Now, Toyota has stated and you have reaffirmed, that
18 Toyota has placed no cost limitations on Exponent's
19 investigation?

20 A Yeah. As I understand it, it was -- constraints.
21 I'm not sure about cost limitations. But absolutely no
22 constraints as to what we can look at, what we can't look at,
23 where to look for information and so on.

24 Q Has Toyota given Exponent directions on cost
25 limitations?

1 Q Has Bowman & Brooke asked Exponent to do anything
2 specific in its investigation or provided Exponent with any
3 guidance?

4 A No.

5 Q Has Toyota?

6 A Other than telling us go find a problem if it's
7 there, no.

8 Q Is there anything that Exponent has been asked not
9 to do, either by Bowman & Brooke or by Toyota?

10 A No.

11 Ms. Gaston. And I would like to mark Exhibit 2.

12 [Souri Exhibit No. 2

13 was marked for identification.]

14 Ms. Gaston. This is an e-mail from Vincent Galvin, Jr.,
15 of Bowman & Brooke to Doug Bishop of Toyota. It's actually a
16 string of two e-mails. The first is from Subbaiah Malladi of
17 Exponent to two attorneys at the law firm of Bowman & Brooke,
18 and the second is an e-mail from the attorneys at Bowman &
19 Brooke editing and then forwarding Dr. Malladi's first
20 message.

21 Please take a moment to read this document. And for the
22 record, these are bates numbers -- this is from a Toyota
23 production, so it's TOYEC_00215950 and_TOYEC 00215951.

24 Mr. Souri. Yes.

25 BY MS. GASTON:

1 Q Dr. Sourì, could you please read the three lines
2 that the attorneys at Bowman & Brooke wrote to Doug Bishop at
3 Toyota?

4 A Yes, I have read them.

5 Q Would you mind reading them out loud?

6 A Doug, Joel and I have reviewed the statements
7 Subbaiah prepared. We agree with it, but the last sentence.
8 We do not think we need to say so much about the future. I
9 cut and pasted what we agree with in this portion of the
10 e-mail. Subbaiah's complete statement is below in his
11 e-mail.

12 Q In this e-mail, the attorneys at Bowman & Brooke
13 have edited what Dr. Malladi wrote about what future tests
14 Exponent planned to perform. Is it Exponent's practice to
15 run its work through Bowman & Brooke?

16 A Just to run it -- sorry, what's the question?

17 Q Is it Exponent's practice to run its work through
18 Bowman & Brooke?

19 A I mean, I think that as I understand, number one,
20 anything that is written, such as a report, as you will
21 recall from the retention, it was we were retained by Bowman
22 & Brooke, so anything that is written will ultimately go to
23 them.

24 Now, with respect to the e-mail itself, this is not an
25 edit that limits the work that we would do in the future. It

1 merely said about how much we would disclose about what we
2 are doing. But there's certainly no restrictions or
3 constraints as to whether this we will perform.

4 BY MR. COHEN:

5 Q Do you agree that that e-mail exchange implies a
6 constraint or an opinion from Toyota about what Exponent can
7 or should say?

8 A You know, number one, I don't think that this is
9 something that is directed to Subbaiah. I mean, unless there
10 is some other follow up that I haven't seen, that's number
11 one. Number two, no, I don't think that this is any such
12 limitation.

13 Q I didn't ask you the limitations. I asked if it
14 implied a preference or a -- well, let me state it that way.
15 Does this imply a preference from Bowman & Brooke
16 representing Toyota regarding what Exponent can or should say
17 publicly about its work for Toyota?

18 A I think it's merely suggesting not to share so much
19 about what we will be doing in the future as opposed to
20 saying anything about the work that we have already performed
21 or any opinions that we have come to. Any work that we
22 perform and any results that we come to, any reports that we
23 write will be made public.

24 Q Let me ask the question one more time. Would you
25 agree that this e-mail implies a preference from Toyota

1 and/or Toyota's counsel regarding what Exponent can or should
2 say about its present or future work for Toyota? How about a
3 yes or no?

4 A I disagree.

5 Q That's not it. Yes or no?

6 A No, I don't think it's limiting.

7 Q I didn't ask you if it was limiting. I asked if
8 you believe it indicates a preference by Toyota or by Bowman
9 & Brooke for what Exponent can or should say about its
10 present or future work for Toyota, yes or no?

11 A It may express a preference.

12 Q Thank you.

13 A But I don't think that that will influence our work
14 product.

15 BY MS. GASTON:

16 Q Why did Exponent fail to produce this e-mail in
17 response to the committee's request for, quote, all memoranda
18 or correspondence, including e-mail, concerning the scope of
19 Exponent's work for Toyota or an agent of Toyota related to
20 unintended acceleration or the electronic throttle control
21 systems?

22 Mr. Ficenec. Why did we fail to produce an e-mail from
23 Bowman to Toyota?

24 BY MS. GASTON:

25 Q The top portion I understand Exponent would not

1 produce, but the e-mail from Subbaiah to Bowman & Brooke
2 explicitly discusses the scope of Exponent's work.

3 A So as I -- you know, again, as I understand it,
4 this top e-mail was not addressed to Subbaiah.

5 Q We're not talking about the top e-mail now, I'm
6 sorry. It's my failure to be clear.

7 The e-mail from Subbaiah to Bowman & Brooke is from
8 Exponent, Subbaiah, to Bowman & Brooke?

9 A Yes.

10 Q So this is something in the possession of Exponent?

11 A Yes.

12 Q And it contains a discussion of the scope of
13 Exponent's work?

14 A I think it discusses a short write-up of our work
15 that is covered in the report, the report made public, so I'm
16 not quite sure.

17 BY MR. LEVISS:

18 Q Are you saying you were aware of this e-mail, but
19 you didn't think it was responsive to the committee's
20 request?

21 A I wasn't aware of this e-mail. It's not my e-mail.

22 BY MS. CHRISTIAN:

23 Q Have you seen this previously before today?

24 A No.

25 BY MR. LEVISS:

1 Q Do you know if Exponent searched for e-mails
2 responsive to the committee's request?

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1 RPTS COCHRAN

2 DCMN HERZFELD

3 [4 p.m.]

4 A I understand Exponent produced all the materials
5 that were responsive to the requests. As to what encompasses
6 the request or being responsive, that is unfortunately
7 outside of my area. I wasn't involved in that part of it.

8 BY MS. GASTON:

9 Q Are there other e-mails concerning the scope of
10 Exponent's work that Exponent failed to produce?

11 A Again, I wasn't involved in that process, producing
12 documents. Not to my knowledge. That is the best that I can
13 answer.

14 Q Do you know who was involved in producing the
15 documents pursuant to the committee's request?

16 A I understand Mr. Ficene was involved.

17 Mr. Ficene. I think she is asking for the universe of
18 people.

19 BY MS. GASTON:

20 Q We would like e-mails responsive to our request.
21 We would like e-mails discussing the scope of Exponent's
22 work. So we would ask those be produced, if they have not
23 been.

24 Exponent has produced to us only two written reports on
25 its work related to Toyota, one issued just before the

1 committee's February 23rd hearing and one issued in March
2 examining the work of Dr. David Gilbert, a witness at that
3 hearing. What prompted Exponent to draft these reports?

4 A Well, the first report, the February report, as I
5 explained earlier, was at the request of Toyota to produce an
6 interim report describing a progress update of our efforts at
7 that time with respect to a specific area.

8 With respect to Dr. Gilbert's work, we were asked to
9 address Dr. Gilbert's demonstration, and as I had indicated
10 previously, whenever our analysis is completed with respect
11 to a task, we will write a report, and that is exactly what
12 we have done with Dr. Gilbert's demonstration. We analyzed
13 it, and we were asked -- because we were asked to analyze it,
14 and we prepared a report that described our analysis and our
15 findings and conclusions, and we made that report public.

16 Q And who asked you to conduct these reports, to
17 create these reports?

18 A As I understand it, Toyota.

19 Q Who at Toyota? From whom did the direction come?

20 A I wouldn't be able to tell you exactly who, but
21 probably through Bowman & Brooke.

22 BY MR. LEVISS:

23 Q Is your analysis of Dr. Gilbert's work complete?

24 A Yes.

25 Q Was it complete when you issued the report?

1 A Yes.

2 Q So Exponent has no further plans to do any further
3 work on Dr. Gilbert's?

4 A Absolutely not. I think we have addressed that
5 issue completely, and all the details are in that report.

6 BY MS. GASTON:

7 Q Has Exponent had any contact with Robinson Lerer &
8 Montgomery, a communications firm employed by Toyota?

9 A No, I am not aware of any.

10 Q To date, what investigations has Exponent completed
11 related to Toyota?

12 A Dr. Gilbert's demonstration analysis. I think that
13 is complete. We certainly don't need to spend any more time
14 on that. Other than that, our investigation is ongoing on
15 all fronts with respect to identifying any potential new
16 causes for sudden unintended acceleration. And that work is
17 ongoing, so that has not been completed.

18 Q Has Exponent produced any logs, reports, e-mails,
19 memoranda or other records of its completed work?

20 A I am sorry?

21 Q Sure. I will repeat it. Has Exponent produced any
22 logs, reports, e-mails, memoranda or other records of its
23 completed work?

24 Sorry, let's hold that question for a moment. My
25 understanding is the only completed work, the only work that

1 you would classify as completed, is the Gilbert report?

2 A Addressing Gilbert's demonstration, yes.

3 Q Has Exponent produced any logs, reports, e-mails,
4 memoranda, or other records on that report, other than the
5 report itself that you provided to the committee?

6 A We might have produced videos, pictures. They may
7 be included as appendices in the report. I am not certain of
8 that. But it all has been produced with respect to
9 Dr. Gilbert's -- addressing Dr. Gilbert's analysis.

10 Everything addressing our work for Dr. Gilbert's work
11 has been produced, I guess is what I am trying to say.

12 Q As of today, what investigations are underway?

13 A Okay. So as of today, we are looking at -- we are
14 looking at various aspects that influence electronic throttle
15 control systems. One of them is software, so I can talk
16 about software. The other is hardware. The third aspect is
17 pedal. Fourth, we have environmental effects. Fifth, we
18 have the interactions between the different subsystems. So,
19 for instance, software/hardware interactions. Then we have
20 human factor issues.

21 So I am specifically involved on the electronics and the
22 software science, so I am more than happy to discuss in
23 detail hardware, software, interactions between hardware and
24 software, and EMI was the other final thing that I wanted to
25 discuss.

1 So those are the different issues. So let me talk about
2 the things that I know best and that I am responsible for.

3 On the software side, we are studying or performing a
4 flow analysis of the software that understands the logical
5 functions that are performed that would also identify a
6 logical error, if there are any. We are performing a static
7 analysis of the software. A static analysis is basically a
8 mathematical analysis that would identify any potential
9 run-time errors, any memory leaks, any buffer overflows, any
10 incomplete function flows.

11 We are also performing a dynamic analysis, also known as
12 hardware in the loop simulation, where we are basically
13 manipulating the different variables and the different inputs
14 into the software directly as it is being executed to
15 understand the relationship between all the inputs and the
16 outputs.

17 That is on the software side. We are also going through
18 the code line by line to understand exactly what it does. We
19 are looking at the software architecture, how it was
20 designed, how it was architected, what are the different
21 fail-safe mechanisms, how many levels of fail-safe
22 protections exist. We are performing what is known as an
23 FMDA on a module-by-module basis in the software, which is a
24 failure mode specs analysis, so all the failure modes are
25 possible for every software module.

1 On the hardware side --

2 BY MR. LEVISS:

3 Q Can you stop for a second? How do you do a failure
4 mode analysis if you haven't come up with all the possible
5 failure modes?

6 A I am talking about the software module-by-module
7 basis. For instance, if you take a software module, you know
8 what the inputs are, and you know what the outputs are,
9 because you know what the variables are called for by that
10 module, and you know what the variables are that are sent out
11 by that module. So you take input -- so that module, you
12 say, okay, well, this variable is supposed to be bound
13 between, say, in a zero to 84 degrees. What happens if I
14 exceed 84 degrees? How does the module handle it? So you
15 come up with all the possible issues that you can basically
16 think of in terms of varying the inputs, and you want to know
17 exactly how the software module handles those potential
18 errors. So that what I meant by a software module FMEA.

19 Q So all the things you are listing for us are not on
20 an original list anywhere?

21 A This is work in progress. I mean, just to be
22 clear, once our task is complete, once our analysis is
23 complete, we will produce a report that details all of our
24 analysis, all of our findings and our conclusions that is
25 open for peer review by anybody.

EXAMINATION

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BY MS. TINDALL:

Q But you have to write down the FMEA to know how to go through with the testing?

A I am sorry? Obviously we have to know what the variables are. We have to know what possible inputs they can take and what potential values we can consider that they can take. If you are asking do we have that written anywhere, we are in the process of writing our report. This is not something that we keep in our brains and hopefully down the road we will remember every detail. We are in the process of writing a report. We continue to update our report as we perform our analysis so that by the time we find the results, everything will be documented, written in detail.

Q So there are drafts of that report in the works right now?

A There is an existing report that is being continuously updated.

Q We did not receive any copies of that in our request for Exponent's work on this. I am wondering --

A Yes. Again, we are in the process of performing our analysis. Our analysis is ongoing. Our results are not complete. It would not be reflective of our current position if we are constantly updating our draft to reflect the current tests and experiments that we are performing.

1 BY MR. LEVISS:

2 Q That doesn't explain why you didn't give us a copy
3 of your draft.

4 A It is ongoing. It is an incomplete set of our
5 opinions and conclusions.

6 Q It is still responsive to the committee's request.

7 A All the data, as I understand, that is responsive
8 to the committee's request has been produced. Results, data,
9 analysis, everything that we are relying on is in your hands.

10 Q There is no narrative, and there is no ongoing
11 report that you have said to us is being updated.

12 A We are in the process of writing the report, and as
13 soon as that is complete, our practice is once we have that
14 report complete, once we have our findings, we will make them
15 public.

16 Q That report and all existing drafts of it is
17 plainly responsive to the chairman's request, and we would
18 like a copy of it, and if Exponent is not prepared to provide
19 it, we want to know that tomorrow.

20 Mr. Ficenec. All right. I will give you an answer
21 tomorrow.

22 Mr. Leviss. All right.

23 BY MR. COHEN:

24 Q With regard to your ongoing work, the scope of
25 work -- the contract lists six senior individuals with

1 Exponent involved in the work. In a typical week for these
2 six combined, what are the total billable hours devoted to
3 the Toyota project?

4 A I wouldn't be able to answer to the others, but I
5 can tell you about my work on this matter, if that helps. It
6 depends really on the level of commitments that I have to
7 other projects. It could be as low as 5 hours, all the way
8 up to 60 or 80 hours, depending on the intensity of the work
9 we are performing.

10 Q Can you give us an average, say, for the last 2
11 months?

12 A Maybe 15 to 20 hours a week on average.

13 Q And the individuals you -- you are responsible for
14 the electronic throttle work?

15 A Correct.

16 Q How many individuals do you have working for you on
17 that project?

18 A For the electronic throttle control system, I would
19 have to go through the list again, but we are talking about
20 approximately 10 to 15 people. It could be rising to 25
21 depending on the actual issue that is being discussed or
22 analyzed at that time.

23 Q And in an average week, how many billable hours do
24 those individuals have on this project?

25 Mr. Ficenec. For the last 2 months?

1 Mr. Souri. That would be speculative on my end to tell
2 you, but it is not something that is -- it is not something
3 that is 100 percent of the time for all of us. We pull in
4 resources --

5 Mr. Cohen. Stop there. I can tell I am not going to
6 get an answer. Why don't you get us the specific
7 information.

8 BY MS. GASTON:

9 Q You have described this continually updated report
10 which is sort of the repository for ongoing information in
11 your investigation. Do you have a work plan for the project
12 that is separate from that?

13 A No. No. I mean, the work plan is exactly as I
14 have described to you where we have this team of key
15 individuals who are communicating, who are understanding all
16 the different issues, who are going into details on each
17 particular possible concern that there may be.

18 Q And what investigations does Exponent have planned?

19 A So I just finished describing to you the software
20 and the process we are going through there. On the hardware
21 side -- maybe I will talk about EMI.

22 On the EMI side, we are basically understanding exactly
23 what or how a vehicle can be affected by electromagnetic
24 interference, and we are taking what may be considered as
25 standards in the industry, and we are understanding why it is

1 that the standards have certain values, such as frequency
2 ranges, and time that the interference is applied, and the
3 electric field strengths, and the polarization, and we are
4 extending way beyond that.

5 So as an example, electric field strengths in the
6 European standards, as I understand it, there are no FMVSSs
7 in the United States for vehicle EMI. So in the European
8 standards, electric field strengths are around 30 volts per
9 meter. We have taken vehicles to 60 volts per meter, 100
10 volts per meter, 200 volts per meter, and even exposed it to
11 radar pulses at 600 volts per meter. So that is just an
12 example of going way beyond what anybody would ever expect to
13 be able to experience.

14 We have also modified polarization on components. We
15 have increased the time that vehicles would be exposed to
16 under what would be considered European standards. We have
17 tested both with cruise control on and cruise control off.
18 We have tested with a number of components in the vehicle
19 turned on, wipers and blinking lights and so on. We have
20 done not only frontal side, which I think is called for, but
21 we have done from the side.

22 So in every case where there is a particular
23 requirement, we have exceeded that requirement, and we will
24 continue to exceed that requirement. As a matter of fact,
25 that is part of the ongoing work. In the future what we will

1 do is we will override all those issues of where that
2 electromagnetic interference is coming from, and we will
3 direct that energy directly into the wires of the vehicle.
4 So that will then deem it -- we will just basically take that
5 energy and put it directly into the electrical system of the
6 vehicle. That is on the EMI side.

7 On the hardware side, are you interested --

8 EXAMINATION

9 BY MR. KOHL:

10 Q A quick clarification. When do you this, and this
11 gets back to what they were talking about before, do you
12 write down beforehand that we are going to do 60 first, then
13 we are going to do 80, then we are going to do 100; or are
14 you just like, okay, let's try this and see if anything
15 happens. Because I don't think you have clarified to us
16 whether you have a form or some type of guideline that lets
17 either -- because I am pretty sure you have various people
18 working on this. If you come up with an idea, you have to in
19 some way relate that to your subordinates.

20 So, how do they know what steps to take when they are
21 testing these cars?

22 A I am personally intimately involved in the testing
23 that we perform on all the hardware, software and EMI tests
24 that are performed. If your question is do we fill out a
25 form that says, go do this test --

1 Q Just guidelines. What is going to happen Monday?

2 A We get together on Monday, right, and we decide
3 here are the tests we are going to perform, here are the
4 parameters we are going to vary, here is the field strength
5 we are going to go to. We fly over to the Chrysler facility,
6 or we fly to the General Motors facility, or we fly to Japan
7 where Toyota has a facility, and we will get the tests done
8 over there. But it is a lot more complicated than that,
9 because putting it on a piece of paper misses the point.

10 BY MR. LEVISS:

11 Q It doesn't need to be complicated. What happens if
12 you, Dr. Souri, decide to leave Exponent and go work for NTSA
13 because they want a good electronics engineer? Does this
14 project die?

15 A No. I will make sure that whoever takes after me
16 will know exactly what to do. This is not a project where we
17 are just haphazardly performing our analysis. We are making
18 decisions based on tests that we are performing, based on
19 meetings that we are having, based on communicating to our
20 subordinates exactly what needs to be done.

21 Q How will you convey that knowledge to this new
22 person?

23 A We will take them to the facility to perform tests,
24 hands-on tests, themselves.

25 Q So you will have to explain what it is Exponent is

1 doing. There aren't files you can give this person to
2 demonstrate what it is Exponent is doing?

3 A I would certainly give them exactly the same files
4 that we have given you. I would, in fact, tell them, you
5 know, here are the standards that we have studied with
6 respect to electromagnetic interference, and here are the
7 facilities we can go and perform the tests. This is an
8 engineering profession. This is something where we have to
9 get our hands dirty and know exactly how to perform the
10 experiment.

11 Mr. Leviss. I didn't mean to interrupt you.

12 Mr. Kohl. That is fine.

13 BY MS. GASTON:

14 Q I believe you just finished telling us about EMI.

15 A Okay. On the hardware side, the --

16 BY MR. LEVISS:

17 Q Before you go into the hardware side, how many
18 different projects or investigations related to sudden
19 unintended acceleration does Exponent have right now?

20 A You mean other than the Toyota?

21 Q No, the Toyota. You have given us a lot of
22 different categories. I don't know how Exponent
23 approaches -- you know, whether each of these is considered a
24 separate investigation or project. I don't know what your
25 methodology is. I want to get a better understanding before

1 we go into the granular details of each one of these.

2 A Okay. So if I understand your question, it is how
3 many investigations are we performing, or what different
4 parts of the investigation?

5 Q Probably you can answer it either way.

6 A Okay. So I hope I answered earlier by telling you
7 the different aspects of our investigation, it involved
8 hardware, software, EMI, and environmental and human factors,
9 and mechanical engineering and materials. So those are the
10 different aspects of that investigation. And when I say
11 "that investigation," I mean looking for potential root
12 causes of SUA.

13 Does that answer your question?

14 Q And how do you classify those different categories,
15 software, hardware, EMI, for example? What are those?

16 Mr. Ficenec. Do you want a description of what is
17 inside the category?

18 BY MR. LEVISS:

19 Q Is each one of those handled by a different team?

20 A Absolutely. Okay. So as I had earlier described,
21 as part of the electrical practice, I am personally
22 responsible for the software and the hardware and the EMI
23 testing. So these are all part of the electronic throttle
24 control system, but that doesn't mean that this is it, I am
25 living in my closed world.

1 What it means is let's take, for example, the engine
2 control module. It is an ECU, electronics processors,
3 printed circuit boards. There will be questions raised about
4 the printed circuit board. You know, are the ground planes
5 next to the power planes? What is the material in between?
6 What is the dielectric? How many through holes are
7 connecting?

8 So then we would borrow and request expertise from the
9 materials side, and I will get that resource on our team.
10 And if we don't have a particular set of expertise, then we
11 will get it from outside the firm.

12 For instance, on EMI, we got assistance from somebody
13 who actually has experience from Ford performing EMI testing.
14 On tin whisker growth, we got an expert from outside of
15 Exponent who came in and is assisting us with the tin whisker
16 experiments. So that is part of our process.

17 BY MR. COHEN:

18 Q How do you prioritize your areas of study for
19 Toyota?

20 A Prioritize as in -- so if it is an issue that we
21 believe that it has got to be dealt with immediately, then we
22 will get the resources.

23 Q How do you determine which areas you should look
24 into? How do you determine the order in which you study
25 different aspects, different potential causes of the problem?

1 If you know that -- and I honestly don't know the term, I
2 never heard the term "tin whisker growth" before, but if you
3 know that tin whisker growth is a potential problem, and you
4 know the cruise control system is a potential problem, how do
5 you determine which of those you are going to analyze first?

6 A We are pursuing both of them. And that is just two
7 examples of a number of potential issues that we are
8 pursuing.

9 Q So you are pursuing -- every single area that you
10 have identified of potential risk for unintended acceleration
11 you are pursuing at the same time?

12 A We are. If there is an area we have identified --

13 Q You have not prioritized any particular area of
14 risk above any other particular area of risk?

15 A I don't think we have taken one to the "this is
16 more likely" or "this is less likely," "it is not as
17 important." We have dedicated resources to any potential
18 issue.

19 Q To be clear again, you are attempting to determine
20 what the cause, potential causes, of sudden unintended
21 acceleration are?

22 A Yes.

23 Q And you have not determined which areas are more or
24 less likely to cause sudden unintended acceleration in Toyota
25 vehicles?

1 A I think that would be a premature determination.
2 How can you tell one is less likely and one is more likely?

3 Q The answer is no, you have not made any
4 determination of which areas are more or less likely; is that
5 correct?

6 A I think I understand your question. The
7 determination of probability would only occur after
8 identifying a root cause. You cannot know scientifically a
9 priori what the probability of occurrence is until you know
10 exactly what that root cause is.

11 BY MR. LEVISS:

12 Q Was that a no?

13 A No, we don't assign probabilities without knowing
14 the root causes.

15 BY MR. COHEN:

16 Q I am not asking -- let me back up even further.
17 Have you prioritized potential root causes? Let me give you
18 an example.

19 A Yes.

20 Q Electronics related to the electronic throttle
21 control system are more likely to be a root cause of sudden
22 unintended acceleration than a loose headrest. Would you
23 agree with that statement?

24 A Perhaps, just to take it on a hypothetical basis.
25 Okay.

1 Q So that is an extreme example. You are looking at
2 a more constrained environment, but within that constrained
3 environment there are different root causes you have
4 identified.

5 A We haven't identified any root causes. We are in
6 the process --

7 Q Different potential root causes that you have
8 identified. Yes?

9 A We are in the process of analyzing. We have not
10 identified --

11 Q You choose something to analyze because you believe
12 it to be a potential root cause; is that correct?

13 A We choose something to analyze because we believe
14 that it may lead to a potential root cause, correct.

15 Q Okay. Do you prioritize issues that may be more
16 likely to lead to a root cause relative to other issues?

17 A The answer is no.

18 Q No, you do not prioritize.

19 A No, we do not prioritize --

20 Q That is fine. You can go on. Next question.

21 A We address everything as it comes along.

22 BY MS. GASTON:

23 Q I believe you were telling us about the hardware.

24 A Right. Thank you. So on the hardware side, we
25 have got the engine control module, which has a lot of

1 electrical components in it. It has got semiconductor
2 components, which are known as active components, such as
3 microprocessors, your throttle control integrated circle; and
4 a lot of passive components, capacitors, resistors and so on,
5 not to mention the connectors and the printed circuit boards.
6 And the idea there is categorizing what are the possible
7 issues that the EC, the engine control unit, can experience.
8 So we were talking about voltage spikes. We were talking
9 about other forms of transients, such as current transients.
10 We were talking about exposure to cosmic rays. We were
11 talking about exposure to temperature, humidity, corrosion
12 effects.

13 So we are pursuing a lot of areas that could -- that
14 would allow us to understand the effects of all these
15 parameters on the performance of the ECU.

16 Q So you have mentioned software, EMI, hardware.

17 A Yes.

18 Q What other investigations does Exponent have
19 planned?

20 A I think I mentioned earlier we are also looking at
21 the mechanical aspects of it. So the pedal mechanism. We
22 are looking at environmental issues. We are looking at human
23 factor issues. But I wouldn't be able to discuss those in
24 detail as they are really outside of my area.

25 BY MS. TINDALL:

1 Q Is this list of investigations written down
2 anywhere?

3 A You mean separately as a form, here is what we are
4 doing?

5 Q We are working on potential causes of sudden
6 unintended acceleration, and we think we need teams in the
7 following areas. They are EMI, software, hardware,
8 environmental factors?

9 A No. I mean, look, the way that Exponent is
10 structured is that we are again structured as different
11 practices that interact as a team. So we will bring on board
12 the resources as needed. So if somebody says, look, we
13 really need to look at temperature excursions and its effects
14 on the integrated circuit, then we will perform temperature
15 cycles. We would identify --

16 Q The need to investigate that would be conveyed over
17 the phone or during a team meeting. It wouldn't be written
18 down?

19 A No, it couldn't be written down, because that would
20 be limiting exactly the creativity that an engineer would
21 have to perform in performing the experiment.

22 BY MS. GASTON:

23 Q Has Exponent created a timetable for accomplishing
24 its work?

25 A No.

1 Q Has Exponent conducted any failure analyses for
2 sudden unintended acceleration?

3 A As I understand -- you mean other than what I have
4 been talking about?

5 Q Right. Any written failure analyses?

6 A Completed analyses?

7 BY MS. TINDALL:

8 Q So you actually have incomplete failure analyses
9 documents as well as an incomplete report?

10 A No. Perhaps I am misunderstanding. To me a report
11 would be a report of our analyses, our findings, our
12 conclusions. There is no other failure analysis --

13 Q So do you have any documents that might be
14 considered draft form that record the failure analysis that
15 you have undertaken as you decide what potential root causes
16 to study, and within those potential root causes what faults
17 to test for? Any documents --

18 A Other than what I have described, no.

19 BY MR. COHEN:

20 Q Do you or the associates who are working with you
21 or conducting experiments prepare notes on the experiments
22 you are conducting?

23 A Prepare notes on the experiments?

24 Q Yes, on the studies you are conducting.

25 A I am unaware of any lab notes or notes that they

1 take. It is possible that they take their own notes, but
2 that is not something that I would know or ask for.

3 BY MS. GASTON:

4 Q Have you ever heard of a fault tree analysis?

5 A Yes.

6 Q Has Exponent prepared any of those?

7 A Yes.

8 Q Has it prepared any for Toyota in the course of its
9 investigation for Toyota?

10 A Yes.

11 Ms. Tindall. We would ask that you produce them.

12 Mr. Souri. We have. It is in the Gilbert --

13 BY MS. GASTON:

14 Q That is the only fault tree analysis Exponent has
15 prepared?

16 A The fault tree analysis we have prepared so far is
17 specific to Dr. Gilbert's demonstration.

18 Q That is the only fault tree analysis Exponent has
19 performed?

20 A We are in the process of performing other fault
21 tree analyses, but they are incomplete, and they are
22 dependent on the results of our continuous analysis.

23 Q Do you have pieces of fault tree analysis for your
24 ongoing experiment?

25 A I am not -- so if you mean -- so a fault tree

1 analysis you will perform after you understand exactly what
2 the different failures that would occur are, because you have
3 to assign relationships between the different potential
4 faults. I mean, it is not something that you will evolve,
5 you will have a branch, and then wait for the next data set
6 and put a branch. Once your analysis is complete, once you
7 understand what the different faults are, that is when you
8 put a fault tree together, to understand the relationship
9 between the faults that would result in a specific outcome,
10 such as an SUA.

11 BY MS. TINDALL:

12 Q And you have begun creating those documents for
13 these various investigations you have described?

14 A Not that I am aware of. I mean, we have to
15 complete our analysis to put together a fault tree.

16 BY MR. LEVISS:

17 Q So do you have fault trees in process or not,
18 besides the Gilbert one?

19 A Not that I am aware of. They may be in process in
20 the sense of being analyzed. But have we written them down
21 on paper? Not that I am aware of.

22 BY MS. GASTON:

23 Q Have you heard of a fishbone diagram?

24 A Yes.

25 Q Has Exponent performed any of these in the course

1 of its investigation for Toyota?

2 A No. But I think I know where -- what would be
3 helpful. I mean, look --

4 Mr. Ficenec. Just answer. Just let them ask.

5 Mr. Souri. The answer is no.

6 BY MS. GASTON:

7 Q Have you heard of an Ishakawa diagram?

8 A Yes. That is the same as a fishbone diagram.

9 Q Have you prepared any?

10 A No.

11 BY MR. LEVISS:

12 Q Why did you do one for the Gilbert analysis?

13 A Look, a fishbone analysis --

14 Q No, the fault tree.

15 A We did one because we --

16 Q Why did you do one for the Gilbert analysis?

17 A Because our analysis was complete. We identified
18 all the different faults that would have to occur that would
19 result in what Dr. Gilbert identified.

20 Q So you don't create a fault tree until you
21 completed your analysis; is that your approach?

22 A We will create a fault tree once we understand all
23 the potential faults that could occur, and we have data and
24 results that support that particular fault.

25 Q Any other part of the Toyota sudden unintended

1 acceleration work that you are doing that has reached the
2 point where you have created a fault tree?

3 A No. No. We are still in process of performing our
4 analysis.

5 Q So that was a no?

6 A Correct. Yes.

7 BY MR. COHEN:

8 Q You said something before about limiting the
9 creativity of your --

10 A Yes.

11 Q I am sorry, I got a little distracted. Can you
12 repeat what you said?

13 A Yes. What I was saying was we are not technicians.
14 We are not simply engineers or people where you are given a
15 set of instructions and go perform that experiment. It is an
16 interactive process where we as engineers, as members of a
17 team, perform the experiment, make sure that the results make
18 sense. It is not a situation where you are given a set of
19 instructions as a computer, and you go and perform them and
20 get the results and put them on the table. It is a much more
21 interactive process. There will be challenges along the way
22 that are encountered. These are not standard off-the-shelf
23 type of experiments that you find. This is a vehicle that is
24 sophisticatedly built, the software is very sophisticated,
25 the hardware is very sophisticated.

1 Q You believe that writing down instructions on how
2 to conduct experiments and studies would interfere with the
3 ability to do those experiments and studies?

4 A I mean, perhaps that was a harsh characterization.
5 I would just say, from my perspective, I think it is more
6 useful to have a much more interactive approach with
7 engineers.

8 Q It is more useful, you are saying, it is more
9 useful to not have a specific written approach to conducting
10 an experiment than it is to have a written structured
11 approach to conducting an experiment?

12 A No, no, no. We are having a very structured
13 approach to performing experiments. What I am saying is
14 limiting the experiments to a specific set of instructions,
15 that is what is not helpful --

16 Q That is what I am saying. You are suggesting it is
17 not helpful to use written instructions to conduct your
18 experiments?

19 A No, no. I don't think I said that. I apologize if
20 that is kind of the implication. What I really wanted to say
21 is that boiling down what it is that needs to be done to
22 steps A, B and C that are very specific is, I think, missing
23 the picture.

24 Q That is fine. Thanks.

25 And just to clarify, you don't require -- you or the

1 individuals who conduct the studies for you and the
2 experiments for you, you don't require them to take notes of
3 their findings and results?

4 A We certainly require them to note down their
5 results. We certainly require them to report exactly how it
6 was done, and that is why our analysis is ongoing, our report
7 is ongoing.

8 Q So there are written reports or written lab notes
9 of studies kept by your employees?

10 A As I have said earlier, we are in the process of
11 writing our report.

12 Q I am not asking about the report. I am asking as
13 you conduct an experiment, you or the individuals who are
14 working for Exponent, they write down their results and their
15 observations; is that correct?

16 A Everything is in that report.

17 Q I am not asking about the report. I am not asking
18 about the report.

19 A Okay.

20 Q Please stop telling me about the report. I am
21 asking about when you or your associates conduct an
22 experiment, do you write down the results of that experiment
23 and your observations?

24 A Yes.

25 Q Thank you.

EXAMINATION

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BY MS. CASSADY:

Q Can I just have a quick question? In terms of you were describing how Exponent has an interactive process and this helps foster creativity amongst the engineers, would you describe Exponent as unique in this regard in comparison with its peers, other engineering consulting firms? Does it have a unique approach?

A No, not at all. I think our approach is consistent with the scientific method. I think it reflects what would be expected of an engineering institution. And as I said, everything that we are doing and what we will do and what we have done will be extremely detailed in our report.

BY MR. KOHL:

Q I just have a quick question. You were talking about outside experts.

A Yes.

Q I haven't been through the whole production, but did you produce all contracts with outside experts? Would it be similar to a retention letter, you retained that expert to work for Exponent for a certain test and/or --

A Probably. I don't know.

Mr. Ficenec. I know the answer is no.

BY MS. GASTON:

Q Does testing for rare or intermittent faults

1 present any particular difficulties?

2 A Yes.

3 Q Can you describe them? We want more than a yes
4 answer to this one.

5 A Okay. Look, I think this goes back to what I was
6 saying originally, which is if there is an incident or a
7 failure that leaves behind evidence or observations, then it
8 is a pretty straightforward process to understand the root
9 cause.

10 When something is rare or something is intermittent that
11 leaves no evidence or observation behind, it is particularly
12 challenging, which is why I think it is much more important
13 to understand exactly how the entire system is behaving
14 before starting to test thousands and thousands of devices
15 that would shed very little light as to the potential root
16 causes.

17 Q Is the necessary sample size affected by the rare
18 or intermittent nature of a fault?

19 A Not if you understand exactly what the problem is,
20 no. I mean, if you identify the root cause, and you control
21 it so you are able to reproduce it every time, your sample
22 size could be one, because you have understood the physics
23 that resulted in that particular failure, and you can
24 reproduce it consistently.

25 BY MS. TINDALL:

1 Q But to get to the root cause, if you know that the
2 event is rare or intermittent, to reach a conclusion about a
3 root cause, would you need to look at more -- at a broader
4 sample size to find it?

5 A To find it, you know, I am not sure. It depends on
6 the issue that we are talking about. I mean, if you are
7 saying that there is defect that is consistent amongst a
8 large population of devices, hypothetically, then analyzing a
9 system and how it is designed and understanding interactions
10 could lead to you that root cause regardless of the size of
11 the sample. But if you are saying that this is a problem
12 that actually only appears -- in other words, only is
13 manifested physically in 1 device out of 10 or 100 million,
14 then performing your analysis on an exemplary device is
15 really not going to be very helpful, right?

16 So the issue is, how can you understand the defects in
17 the system? And here, you know, I have been talking
18 hypothetically. If we specifically talked about the vehicle,
19 about the electronic throttle control, the first task to
20 understand is how is the system built, what are the
21 safeguards, because then, regardless of what defect I have,
22 right, I should be able to simulate it. If I identify a
23 weakness in the way that the system is built, if I identify
24 an area where there is no fail-safe, where the system
25 safeguards are not in place, the same thing for the hardware,

1 then it doesn't matter getting a vehicle that has a defect.
2 I can simulate that defect and take advantage of such a flaw.

3 Does that make sense?

4 BY MS. GASTON:

5 Q Is the duration of testing affected by the rare and
6 intermittent nature of a fault?

7 A Is it -- the duration of the testing as in the
8 number of --

9 BY MS. TINDALL:

10 Q Cycles.

11 A Yes. That is something again very similar to the
12 sample size question.

13 Q Do you consider sudden unintended acceleration to
14 be a rare or intermittent event?

15 A Well, I mean, I think that based on the complaints
16 that I have seen, it is something, statistically speaking,
17 based on the data analysis that has been done, that appears
18 to be very rare. But I am not sure yet. We have not reached
19 any conclusion or findings that would reproduce the reported
20 SUAs. So to speak of them without any data that supports
21 them, it would be kind of an exercise of an unscientific
22 method.

23 Q So far the rarity of sudden unintended acceleration
24 as an event hasn't affected the way you have designed your
25 testing. Is that what you are saying?

1 A Yes. It has not affected our approach. I mean,
2 our approach is based on the fact that, okay, if this is
3 rare -- I mean, by definition, we don't have any -- nobody
4 has reproduced the event. We don't have any observable
5 evidence that leaves marks behind at the event. So by
6 definition, it is something if it exists is extremely rare.
7 So that defines exactly how to perform our analysis.

8 Ms. Tindall. Okay.

9 BY MS. GASTON:

10 Q What has Exponent identified as the potential
11 causes of sudden unintended acceleration?

12 A As I mentioned earlier, we have not as of yet
13 identified any potential causes of sudden unintended
14 acceleration. We are studying different areas that may lead
15 to such potential causes, but we have not identified any.

16 Q Okay.

17 BY MR. LEVISS:

18 Q Are those areas what you listed earlier?

19 A Yes, what I listed earlier. We are looking at
20 magnetic interference. We are looking at what potential
21 hardware defects can occur and what their effect is on the
22 system, potential software errors and what their effect on
23 the system is, simulating interactions between hardware and
24 software errors and what their effect on the system is, and
25 so on and so forth.

1 Q Are there any others?

2 A I think I listed them. Environmental factors,
3 temperature cycling, humidity, vibration, cosmic rays,
4 latch-up in the semiconductor devices, electrostatic
5 discharges, overvoltages, overcurrents. That is just to list
6 my area.

7 BY MS. TINDALL:

8 Q Because we have no document that lists what exactly
9 it is Exponent is studying, it is helpful for you to walk
10 through exhaustively the list of things that Exponent is
11 studying.

12 A Yes. I think I have. To the extent that there may
13 be a few that I can't remember sitting here right now, I will
14 be sure to let you know, but I think I have gone through
15 exhaustively the list on the electronics, software side and
16 the hardware side, just to be clear.

17 Q What are the others?

18 A As I mentioned, there are other areas such as in
19 the mechanical engineering side of the pedal, the floor mat
20 issue, the pedal sticking issue, the human factor issues.
21 Those are areas I am not as involved in.

22 BY MR. LEVISS:

23 Q Those are areas that Exponent is also studying?

24 A Absolutely.

25 Q To determine whether they are causes of sudden

1 unintended acceleration?

2 A Yes, absolutely. We are studying them.

3 BY MS. GASTON:

4 Q So are there any other areas that Exponent is
5 studying, other than the list you gave us here today?

6 A There may very well be, but as I said, my knowledge
7 is much more detailed on the electronic throttle control
8 side.

9 BY MR. LEVISS:

10 Q Who can speak to the other areas?

11 A You know, if I had known that you wanted that
12 information, I could have happily prepared for it and given
13 you those answers myself. I can certainly go back and
14 understand more about the rest of the team's work and offer
15 you those answers.

16 Q What part of the letter didn't you understand to
17 ask for that?

18 A I thought it was electronic throttle control. I
19 thought that is what you wanted to know about.

20 BY MS. TINDALL:

21 Q We asked about causes of sudden unintended
22 acceleration and electronic throttle control.

23 A Yes. I hope I am giving you all the different
24 areas that I am working on with respect to the electronics
25 and the software side, and with respect to the pedal side of

1 it, I think it is common knowledge about the pedal side, the
2 mechanical aspects of it. There are some instances where the
3 pedal can stick. There are instances where the floor mat can
4 interfere with the pedal mechanism. I can get you more
5 information on that.

6 Mr. Leviss. I think we will need some more clarity
7 about who can speak for Exponent for all the other areas
8 where they are studying sudden unintended acceleration in
9 Toyotas, and the committee will then make a decision about
10 whether we need to conduct a second interview.

11 Ms. Gaston. I think we will take a break now. Five
12 minutes, please.

13 [Recess.]
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1 RPTS MERCHANT

2 DCMN HERZFELD

3 [5 p.m.]

4 BY MS. GASTON:

5 Q We would propose ending at 6:00 tonight on the
6 condition that we could start back up again at 9:30 tomorrow
7 morning and understanding that you have to leave by noon
8 tomorrow?

9 A Yes. Thank you.

10 BY MS. CHRISTIAN:

11 Q I have some real quick follow-up questions on stuff
12 that you talked about before. Have you worked previously on
13 any automotive projects for Toyota?

14 A For Toyota, I don't remember for Toyota
15 specifically, but I have worked on other automotive projects.

16 Q Were any of them related to unintended
17 acceleration?

18 A Not that I recall.

19 Q And I know we've gone around in circles about
20 writing things down on work plans, but does Exponent
21 typically draft any kind of work plan or outline or
22 assignment sheet for other clients, or is this unique to
23 Toyota?

24 A No, no, it's not unique to Toyota. It is part of
25 our work that we have our report that is continuously updated

1 that is reflecting our progress.

2 Q And with this draft report that you update as
3 things go on, has this been shared with Toyota yet?

4 A No.

5 Q And I have a few questions about this e-mail that
6 was Exhibit 2. You said earlier that you had not seen this
7 e-mail previously. Do you know the purpose? The subject
8 says "Short Write-Up." Do you know what this was used for?

9 A The answer is no, I don't. I mean, it sounds like
10 it's just a small -- a short description of the overall
11 report that we produced, but not exactly what the purpose is,
12 no.

13 Q And did you know after this e-mail went out -- so
14 this is February 9th. Did anything change regarding your
15 instructions for your work?

16 A Absolutely not, no.

17 Q And you mentioned -- let me circle back, I'm sorry,
18 I'm jumping all over the place -- that you have not shared
19 any of this continuously updating draft that Toyota has has
20 been shared with Bowman & Brooke?

21 A No, not to my knowledge, no.

22 Q And one last question. Mr. Malladi, how does he
23 relate to you? You are a principal and a director. It says
24 "chief technology officer."

25 A Yes, his title is chief technical officer.

1 Q Do you report to him? Is he above you?

2 A He is above me, but I don't report to him, correct.

3 Q So what does his job as chief technical officer
4 involve?

5 A I think he's one of the, I suppose you can call
6 them vice president levels, perhaps in that area. But I
7 don't know what specific responsibilities as a chief
8 technical officer he has. I treat him as if he's a
9 principal.

10 BY MR. KOHL:

11 Q So you're on the same level?

12 A On the technical level, as far as I know, yes.
13 Subbaiah may disagree with me. He may have more
14 administrative responsibilities, but on a technical level.

15 Q So how do you justify, or how do they deem billable
16 hours?

17 A Billable hours?

18 Q Yes, your rate.

19 A Oh, billable rate.

20 Q Because it seems that you make more.

21 A I doubt that I --

22 Q Like Karen, she makes more, and she's above me, so
23 I'm just wondering how that works.

24 A That works based on the economics of it, supply and
25 demand. I just happen to be in demand a lot.

1 Q Got you. All right. Thank you.

2 Ms. Christian. Okay. I'm done. Go ahead, Molly.

3 BY MS. GASTON:

4 Q I would like to take a moment to discuss a document
5 produced to this committee by Toyota. I would like to mark
6 this Exhibit 3.

7 [Souri Exhibit No. 3

8 was marked for identification.]

9 BY MS. GASTON:

10 Q This is a document titled "Questions Raised by TMS
11 on the Testing Exponent has Reported," and it's Bates number
12 TOYEC_00218827 through TOYEC_00218829.

13 Dr. Souri, please take a moment to look at this
14 document.

15 A Yes.

16 Q Have you seen it before?

17 A I have seen parts of this write-up, not in this
18 particular format, but I have seen parts of this write-up,
19 yes.

20 Q And when you say you've seen parts of this
21 write-up, in what form have you seen it?

22 A As part of -- I believe as part of an e-mail. I'm
23 not exactly sure, but it could be part of an e-mail.

24 Q Okay. So you receive e-mails even though you don't
25 send e-mails?

1 A No, no. What I'm saying is that this is -- I have
2 seen part of this e-mail as perhaps -- or part of this
3 document in perhaps an e-mail. The parts that relate to the
4 electrical side, I recall seeing that, and I believe it's in
5 the form of an e-mail.

6 Q Okay. So some of this information was circulated
7 in an e-mail?

8 A Again, as best as I recall.

9 Q So you think some of this information was
10 circulated in an e-mail?

11 A Yes.

12 Q So I'm sorry to come back to this, but -- okay.
13 Well, this appears to be a memorandum from Exponent
14 representing some questions that Toyota had about its
15 testing; is that correct?

16 A Possibly. I mean, I haven't seen the entire thing.
17 I haven't read all of it, but it could be.

18 Q Can you identify which parts you have seen before?

19 A Changes in the motor circuit resistance looking at
20 basically internal failure modes of the motor itself I have
21 seen. The simultaneous faults within the two sensors in the
22 ETCS-i system, that is a part that I have seen. That's about
23 it actually.

24 Q So in what -- you think that you saw this in an
25 e-mail. In what situation would an e-mail have been sent

1 with this information in it?

2 A I don't exactly remember. I mean, it could be just
3 kind of an asking of a description of a particular issue such
4 as the internal faults in a motor and what are the possible
5 internal faults in a motor.

6 Q I'm sorry to come back to this. So e-mails are
7 sent from team members to other team members on ongoing
8 research at Exponent?

9 A The answer is yes. I mean, there are some e-mails
10 that are ongoing. I mean, as far as I remember, this wasn't
11 an e-mail, but I don't recall exactly if it was in the form
12 of an e-mail. It could be as part of putting this document
13 together that I sent to Subbaiah. I don't exactly remember.

14 Q Okay. Well, we would find responsive to the
15 committee's request e-mails that contain information like
16 this and would request that they be produced. Do you know
17 why Exponent failed to produce this document in response to
18 the committee's request for, quote, "any documents, including
19 reports, analyses or other communications, describing the
20 results of Exponent's work for Toyota related to unintended
21 acceleration or electronic throttle control systems," end
22 quote?

23 A Again, I wasn't involved in that production.

24 Ms. Gaston. We would request that this and other
25 responsive documents be produced to the committee.

1 Mr. Leviss. We're going to have to have a conversation
2 about Exponent's production, because we've now seen several
3 examples of plainly responsive documents that were not
4 produced. It's probably best to do that outside of
5 Dr. Souris's interview, but this is not a satisfactory
6 production.

7 BY MS. GASTON:

8 Q Do you recall approximately when you would have
9 seen this information in an e-mail?

10 A No, I do not. I'm sorry.

11 Q And if you would turn to the second page of this
12 document, which is Bates TOYEC_00218828, did you write any of
13 this?

14 A No, I don't believe so.

15 Q Do you know who did?

16 A No.

17 BY MR. KOHL:

18 Q Real quick to clarify. You said this might have
19 come in an e-mail to you from Subbaiah?

20 A No, no. I thought I said, you know, to me to
21 review to send to Subbaiah.

22 Q Right. So you would know who wrote the document?

23 A But like I said, I don't remember if it was in the
24 form of an e-mail or not. I would have to go back and check.

25 BY MS. GASTON:

1 Q Okay. If it wasn't in the form of an e-mail, what
2 other form would it have been in?

3 A It could have been an e-mail from Subbaiah asking
4 me to review it and sending it back to him, or it could have
5 been something that, you know, that was written on paper. I
6 don't exactly remember.

7 BY MS. CHRISTIAN:

8 Q Do you have the time frame?

9 A No, no.

10 BY MS. GASTON:

11 Q I'm sorry, as I indicated, the second page of this
12 document, which is Bates number TOYEC_00218828, and you have
13 indicated that this first block paragraph is something that
14 you have seen before?

15 A I recall, yes.

16 Q And I would like you to read from the beginning of
17 this, please.

18 A Actually, it's just the first sentence with the
19 four bullet points underneath it. And I'll happy to read
20 that.

21 Q That is all you recall having seen?

22 A Yes.

23 Q Could you please read that?

24 A "Simultaneous faults within two sensors in the
25 ETCS-i system would be a problem if: a) both sensors were in

1 the same component (e.g. accelerator), and b) the faults
2 caused similar voltage changes to both sensors, and c) the
3 voltage changes did not drive one of the sensors out of
4 range, and d) the difference in voltage between the two
5 sensors was within an allowable range."

6 Q So that is the portion that you recall having seen?

7 A Yes.

8 Q Would you mind reading the next two sentences of
9 this document?

10 A Again, into the record?

11 Q Yes, please.

12 A "In this case, the ECM would not be able to
13 determine that the interpreted position it calculated was
14 offset from the actual position. This has been confirmed in
15 other testing that was not listed in the report. The system
16 is more sensitive to this type of a double fault for throttle
17 position than for accelerator position. For throttle
18 position" --

19 Q You don't have to keep going. Thank you.

20 In the section that you just read, Exponent describes
21 that it is possible in the case of simultaneous faults in
22 separate sensors in the ETCS-i system for there to be a fault
23 without an error code; is that correct?

24 A I'm sorry, where does it say "without an error
25 code"?

1 Q What does Exponent mean by "the ECM would not be
2 able to determine that the interpreted position it calculated
3 was offset from the actual position"?

4 A I don't know.

5 BY MR. LEVISS:

6 Q That phrase doesn't mean anything to you?

7 A No. I mean, in the context of two sensors -- I
8 don't think it's talking about error codes. I think it's
9 just talking about the position that the sensors would send
10 to the ECM.

11 BY MS. CASSADY:

12 Q Is it talking about the accuracy of the ECM's
13 reading of those sensor positions?

14 A I think it's talking about -- again, this would be
15 really -- I'm trying to interpret something based on just a
16 few lines here. I would have to look exactly what this meant
17 and let you know. Otherwise I would be just speculating.

18 BY MS. GASTON:

19 Q If you want to take some time and read more of it
20 and let us know if that helps, please go ahead.

21 A I think what it's talking about is that in the
22 event there are two simultaneous faults or simultaneous
23 faults within the two sensors, and it sounds like they're
24 talking about position sensors, then the ECM would be
25 receiving those signals from the position sensors, and

1 because of the faults, the signals coming in from the
2 position sensors would not be an accurate description of the
3 actual position, and so the ECM would not be able, therefore,
4 to determine that the interpreted position was offset from
5 the actual position. So if there is an offset, because of
6 the simultaneous faults, it may not be able to tell that
7 there is that offset.

8 BY MS. CASSADY:

9 Q My understanding of the Toyota system is that
10 interpreting that offset is what triggers the fail-safe?

11 A It's one of the -- so if we're talking about the
12 pedal of position sensors, there are several mechanisms that
13 would trigger an error code. There is the offset, there is
14 the absolute values, and the relative values of the two
15 sensors with each other.

16 Q So in a double fault that affected the two sensors
17 in this way, the ECM would not be able to pick up on the
18 difference in position?

19 A Under the conditions that, you know, you had both
20 sensors on the same component, that you had the fault caused
21 similar voltage changes to both sensors, that the voltage
22 changes did not drive one of the sensors out of range, and
23 that the difference in the voltage within the two sensors was
24 within an allowable range.

25 BY MR. KOHL:

1 Q So this is a scenario where there is the
2 possibility that the actual position could cause an error
3 code, but the interpreted position would not? There is a
4 possibility that could happen?

5 A There's a possibility that could happen. I mean,
6 that's what the Gilbert demonstration was all about.

7 BY MS. GASTON:

8 Q And then as you read, it goes on to say that,
9 quote, "this has been confirmed in other testing that was not
10 listed in the report," end quote. To what report is this
11 referring?

12 A I'm not sure.

13 Q Do you know why the testing was not included in
14 that report?

15 A No, I don't. Maybe it was incomplete.

16 Q Has Exponent tested any vehicles that it hasn't
17 included in the two written reports that we're aware of?

18 A I'm sorry, has Exponent --

19 Q Tested any vehicles that weren't included in the
20 two written reports of which we're aware?

21 Mr. Ficenec. So other than Gilbert?

22 BY MS. GASTON:

23 Q Other than Gilbert, other than the Toyota or Lexus?

24 A Not in the time that we produced the reports, but
25 since then we have tested more vehicles, yes.

1 Q Can you describe what vehicles you've tested since
2 then?

3 A On the EMI side we've tested -- I can't remember
4 the exact numbers, but we're talking something in the order
5 of 20 vehicles or so altogether between Toyota and other
6 makes than Toyota on the EMI side. We've also tested -- we
7 are in the process of testing fail-safes on both Toyota and
8 on other vehicles as well. I can't remember the exact
9 number, but it's certainly more than since we have written
10 and produced the reports.

11 BY MR. LEVISS:

12 Q Who keeps track of those numbers?

13 A I'm sorry?

14 Q Who keeps track of the number of vehicles and the
15 particular vehicles that you've tested?

16 A Like I said, we're continuously updating.

17 Q No, no, not continuously. Who at Exponent keeps
18 track of which vehicles you've tested and what you've done to
19 them?

20 A There are different members of the team that are
21 responsible for the different aspects of it. So there will
22 be people on the team who are responsible for tracking the
23 number of vehicles, which vehicles, what tests are being
24 performed and so on. So it is a team effort.

25 Q But there isn't one person at Exponent who is aware

1 of all the vehicles that you've tested as part of your work
2 on sudden unintended acceleration?

3 A I doubt that there is one person who would know it
4 all.

5 BY MR. KOHL:

6 Q Would someone in accounting know this, that may
7 keep track of what vehicles you're purchasing?

8 A There may be some purchase records of the vehicles
9 that we purchased.

10 Q Maybe that would be helpful.

11 A But it wouldn't be like one accounting person. But
12 it could be records of purchases of such vehicles.

13 BY MR. LEVISS:

14 Q Who makes sure that you don't test five Highlanders
15 instead of doing a couple of different models?

16 A I'm sorry, test five --

17 Q Toyota. Have you heard of the Highlander?

18 A Yes. Oh, you mean like five of the same vehicle?

19 Q Right.

20 A Look, when we make a decision of which ones to
21 acquire, it's not like people are randomly doing purchasing
22 and acquiring vehicles. I mean, these are decisions that are
23 made as a team.

24 BY MR. COHEN:

25 Q To the extent that you are testing Toyota vehicles

1 to determine potential causes of sudden unintended
2 acceleration, why do you also purchase and test cars from
3 other manufacturers?

4 A I mean, I think that is part of the scientific
5 method that we're pursuing. I mean, if it's something that
6 results in an issue, or if we are interested in pursuing a
7 specific set of conditions, then it would make sense then to
8 perform tests on other vehicles.

9 I mean, we're not just constrained to performing it on
10 Toyota vehicles. We want to understand how other
11 manufacturers design their systems as well and how their
12 vehicles respond. I mean, you know, our conclusions would be
13 incomplete if we were to just say these results are specific
14 to Toyota, because then we wouldn't have -- the data would
15 not support that, because to support our conclusions that it
16 would be Toyota-specific, then we would have to go outside of
17 just testing Toyota vehicles. Does that make sense?

18 Q It does, but what does Toyota-specific versus not
19 Toyota-specific have to do with determining potential causes
20 of sudden unintended acceleration in Toyota vehicles?

21 A Well --

22 Q Because you're searching for a problem in a Toyota
23 vehicle and trying to determine indeed if that problem
24 exists.

25 A Right.

1 Q What's the -- you know, I can see perhaps the
2 social value in determining if this is a problem in other
3 cars. I certainly would want to know as a citizen and as a
4 driver.

5 A Yes.

6 Q But from your perspective as a company that has a
7 contract with Toyota to determine the cause of sudden
8 unintended acceleration in Toyota vehicles, I'm a little
9 mystified about what value there is in looking at other
10 vehicles besides Toyotas.

11 A Well, I mean, the answer is I think it would
12 complete our understanding of how you see us, as designed
13 today by the industry, responds to the specific tests that we
14 perform on these vehicles as opposed to just kind of doing it
15 on Toyota vehicles. So I think it is completing our
16 understanding, whether Toyota or non-Toyota.

17 And then the other issue is that it would assist us in
18 coming to a much more scientific conclusion. If I may
19 illustrate with a 1-minute example.

20 In Dr. Gilbert's illustration he performed his
21 demonstration on Toyota vehicles. And then I think one of
22 the conclusions he came out with is that, oh, this is a
23 potential design flaw or hazardous -- or alarming hazard or
24 some term that is specific to Toyota. As an engineer, when I
25 hear that kind of conclusion, the first question I ask, well,

1 if he's making that kind of conclusion, has he tested non-
2 Toyota vehicles that support that conclusion? And the answer
3 is, no, he didn't. So we didn't. So that just gives you an
4 example of why it is important to perform it on not just
5 Toyota vehicles.

6 BY MS. GASTON:

7 Q How did you choose which vehicles to purchase and
8 test?

9 A We are looking at vehicles where we understand that
10 there is a higher rate of complaints with respect to sudden
11 unintended acceleration. But we're not just constrained with
12 that. I mean, we understand that the electronic throttle
13 control system is in a lot of Toyota vehicles, so we have
14 purchased Corollas, Tundras, Camrys, Lexuses. We have
15 purchased Scion. So, I mean, it goes across the board. It's
16 not just limited to a particular set of models. And with the
17 non-Toyota vehicles, again, the same thing applies.

18 Q What technical data had you requested from Toyota
19 for purposes of your investigation?

20 A We have requested source code, we have requested
21 circuit schematics, we have requested technical design
22 manuals, we have requested all of the fishbone diagrams,
23 Ishikawa diagrams, the FMEAs.

24 BY MS. CASSADY:

25 Q Have you received fishbone or Ishikawa diagrams

1 from Toyota related to the electronic throttle control
2 system?

3 A I haven't seen any yet. This is all in the
4 process.

5 Q Would you expect Toyota to have something like
6 that?

7 A There will be some documents. And I have seen some
8 documents when I was in Japan. I mean, it doesn't have to
9 look like a fishbone diagram. I mean, it could be a set of
10 documents that relate to possible failures or possible
11 defects or faults that would be detected, and associated with
12 them would be the detailed documents.

13 So to answer your questions, I have seen such materials,
14 and I believe we have received some of them, but it is in the
15 process. And I, again, will just take 30 seconds. I mean,
16 the value of these documents, whether they are FMEAs or
17 Ishikawa diagrams, are very valuable in the process of
18 designing a product. When you're designing a product, you
19 have to design against such potential failure modes. But
20 when you're in a failure analysis process, I mean, it's
21 really -- again, I'm not sure if that's going to be the most
22 helpful thing to do.

23 I mean, one can say, well, here's a fishbone diagram
24 that says EMI, solar wind, and I don't know what else. I
25 mean, that's really not a very helpful thing for me as an

1 engineer to perform my analysis. What I need to do is just
2 take that concept and understand how it interacts with the
3 hardware and the software. That is what determines our
4 analysis, not the fact that there's a sheet with a fishbone
5 diagram.

6 Sorry, that was more than 30 seconds.

7 Q And actually you said source code, circuits,
8 schematics, fishbone diagrams. Anything else?

9 A FMEAs. Both component FMEAs and system FMEAs, bill
10 of materials, design review process documents. We've also
11 asked for the hardware and loop simulator, which they've
12 given us access to. So there's a lot of material that we've
13 requested and received.

14 Q So you've requested these. Of what you've
15 requested, have you received so far everything?

16 A We've received almost everything. I mean, we're
17 still in the process of it. If there's something that we
18 identify along the way that we want more information, then we
19 would request that from Toyota. So, for example, we also
20 have all the chip manuals, the microprocessor manuals and
21 technical manuals.

22 Q And outside of these things that you requested, did
23 Toyota give you anything that you did not request, offer you
24 anything?

25 A Yeah, they did. They've offered us -- I mean, they

1 came in person and they offered us an opportunity to meet
2 with their design engineers and their manufacturing engineers
3 and software engineers, and it gave us an opportunity to
4 understand more than just what their documentation said. It
5 gave us an opportunity to understand the design methodology,
6 design philosophy, and how they go about designing,
7 manufacturing, testing, qualifying. It gave us an insight
8 into their mentality in terms of awareness with respect to
9 robustness and fail-safe modes. So, yes, I mean, I think
10 there's a lot more than just documents.

11 Q So have you conducted interviews of Toyota
12 employees?

13 A Again, I wouldn't say interviews; I would say more
14 interactions. We've had a number of discussions with Toyota
15 individuals.

16 Q And who exactly did you --

17 A I couldn't pronounce their names properly for you.
18 I would be more than happy to provide you a list.

19 Q That would be great.

20 And was that in California or Japan?

21 A In California and Japan.

22 Q And have you conducted interviews with Toyota or
23 conversations with Toyota's suppliers?

24 A Yes.

25 Q Who?

1 Q Do you know the name of the person who asked for
2 this report?

3 A No, I do not.

4 Q How did you become aware that this report had been
5 asked for?

6 A Through discussions with our team at Exponent.

7 Q Please describe the methodology Exponent employed
8 in designing and conducting the experiments described in this
9 report.

10 A Again, I think that -- I think a good place to
11 start would be at the introduction. And it tells you what
12 the vehicles and the components that were obtained for the
13 study. Then there's a description, a section that describes
14 the studies and the measurements of the components, and then
15 the test procedures following that, and the results from the
16 perturbations and the constructions on the ETCS-i systems.
17 So perhaps if you're interested in the test procedures, maybe
18 we should go to the third section.

19 Mr. Leviss. That's not really answering her question.
20 Her question isn't what does the report tell us; her question
21 is what was the methodology for the underlying experiments.

22 Is that what you asked?

23 Ms. Gaston. Yes.

24 The Witness. Okay. So methodology for the underlying
25 experiments. I mean, the idea was -- and, again, I was not

1 really involved in this part of the investigation, but I can
2 speak to the fact that from my knowledge of this, components
3 and vehicles were acquired where certain tests were performed
4 where they -- and I can refer to the report if you can give
5 me just 1 minute to do that.

6 BY MS. GASTON:

7 Q Why is there not a stated methodology in the
8 report?

9 A What do you mean by "a stated methodology"?

10 Q A written methodology.

11 A I think there is. There is at the back -- if you
12 look at Appendix C, there's a test protocol that was produced
13 that described all the test materials and exactly what
14 signals were effective and influenced, and what power
15 supplies were added.

16 Q Okay. So beginning at EXP01664, that is the
17 methodology?

18 A I would say 1660. Well, that's the first page of
19 it, and it continues. It continues through, and it discusses
20 not only the test materials, but the test preparation. It
21 discusses what the procedure was, test one, test two, test
22 three, test four, all the way through. So is that what you
23 meant by methodology?

24 Q Sure.

25 BY MR. LEVISS:

1 Q What were you trying to do with this study?

2 A Well, to understand the response of the system to
3 perturbations in the voltage signals of the position sensors.
4 So, for example, if you vary the voltage on one of the
5 sensors, how does the ECU respond?

6 Q The purpose of this study was to find out how the
7 ECU responded if you varied the voltage?

8 A No. Sorry, I was just answering your question of
9 how -- you know, what was it that we were testing in this
10 particular set of tests. And I was just describing that we
11 were looking at the effect of the signals that are input into
12 the ECU on the operation of the ECU.

13 Q So you're speaking to a particular numbered test
14 that's listed here?

15 A Exactly.

16 Q I was asking a higher-level question. What were
17 you trying to do? What was Exponent trying to do with this
18 study?

19 A Well, like one of the things that we were doing,
20 and again this was a partial study that was performed, it
21 wasn't describing or wasn't intended to describe all the work
22 that Exponent had done by that time, but it was trying to
23 understand if there are any potential causes to sudden
24 unintended acceleration. And the methodology for that, as
25 described in Appendix C, was to vary the voltages and the

1 voltage signals of the inputs to the ECU to understand how
2 the ECU responds to that, basically to detect if there are
3 any faults, any immediate faults, that we would find.

4 Q And where did you get the list of vehicles you
5 tested?

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1 RPTS COCHRAN

2 DCMN SECKMAN

3 [5:40 p.m.]

4 BY MS. GASTON:

5 A You mean the vehicles that are listed in table 1?

6 Q Yes.

7 A Where did we get them from?

8 Q I am sorry, not physically where did you get them
9 from, but how did you decide to use these models and model
10 years?

11 A Again, as I mentioned, I think that there was a
12 particular interest in the Camry. That was one of the
13 vehicles that was associated with an elevated rate of
14 reporting for SUA.

15 BY MR. LEVISS:

16 Q Interest in Camry by whom?

17 A By Exponent.

18 Q So Exponent was interested in testing the Camry?

19 A Yes.

20 Q Because it had a higher rate of reporting to whom?

21 A Oh. Reporting in terms of these are customer
22 complaints to several databases; NHTSA's database, as well as
23 Toyota's customer complaint hotline database. There are
24 several other databases.

25 Q Did Toyota come up with the list of vehicles on

1 table 1?

2 A No.

3 Q Exponent did?

4 A Yes.

5 Q Through access to Toyota's database?

6 A As NHSTA's database, and I think there was a
7 Canadian database as well. I mean, there were several
8 databases that are available that we performed our data
9 analysis on. This was independently performed data analysis.

10 BY MS. GASTON:

11 Q And how many vehicles did you test?

12 A Well, I can count them for you. In table 1, that
13 is 1, 2, 3, 4, 5, 6, 7 vehicles. And there were also
14 components that were purchased for the study, about 100
15 parts.

16 Q Did you test more than one of each model and model
17 year as a sample? Or do the cars listed in table 1, a 2002
18 Toyota Camry, a 2007 Toyota Camry, a 2007 Toyota FG Cruiser,
19 a 2008 Toyota Sienna, a 2006 Lexus IS 250, a 2006 Lexus IS
20 350, and a 2008 Honda Accord EX, you tested one of each of
21 those vehicles?

22 A Yes. And, again, this was an interim report.

23 Q Why did you use a different sample size for
24 components tests?

25 A They were easier to acquire.

1 BY MS. TINDALL:

2 Q So if it had been easier to acquire more cars, you
3 would have tested more cars?

4 A Possibly. I mean, it depends on the results. It
5 is all results driven. If there was something that justified
6 doing that, then we certainly would do that. It is part of
7 our continuing analysis.

8 BY MS. GASTON:

9 Q And how many times was each test described
10 conducted on the vehicles in the sample?

11 A That is a detail that I am not very familiar with,
12 but I imagine the figure is in the report.

13 Q Did you try to simulate a particular number of
14 miles on the road or have any number of testing cycles in
15 mind in designing the tests?

16 A I couldn't answer that question accurately for you
17 without referring to the parts of the report that discuss
18 that.

19 But, in general, again, I mean, the idea is not so much
20 running the vehicles through a particular number of hours and
21 a particular number of miles. The idea was, is there
22 something that we can identify as a potential cause? Let us
23 take a look at that, study it in detail, try to replicate it
24 on any vehicle. If there is a defect that we find, try to
25 simulate it on any vehicle, regardless whether there is a

1 defect or not, to see if we can reproduce a fault.

2 Q Did you conduct a fault tree analysis for the
3 experiments described in this report?

4 A Not being a coauthor of this report, I don't know.

5 Q Okay.

6 BY MR. LEVISS:

7 Q Were you involved in this report, in the
8 continuation of this work?

9 A I was involved in the -- there is a continuation, I
10 understand, but this is part of a larger analysis that we are
11 performing. Yes, of course, I am involved in the
12 continuation of this work from the perspective of the
13 software, hardware, and EMI perspectives of the electronic
14 throttle control.

15 Q Who is the --

16 A And Dr. Gilbert's analysis, or demonstration, too.

17 Q And who is the person at Exponent who is best
18 equipped to speak to this report?

19 A I believe this report was addressed by Paul Taylor.

20 BY MS. GASTON:

21 Q Do you know whether Toyota had previously conducted any
22 of the tests that were performed in this report?

23 A I am sorry?

24 Q Do you know whether Toyota had previously conducted
25 any of the tests that were performed in this report?

1 A No, I don't.

2 Q How many drafts were written of this report?

3 A I doubt that there were any drafts. Usually our
4 reports are in living documents.

5 BY MS. TINDALL:

6 Q So you write it once and it is done, or you just
7 write over and don't save changes?

8 A No. It is a living document. We don't like write
9 over it. It is a Word Document. You open up, and you
10 continue to add to it. You edit it as necessary, and you
11 save it.

12 BY MS. CHRISTIAN:

13 Q Who decides when it is done?

14 A When we have either -- in this particular issue,
15 either when we have identified a set of potentially possible,
16 realistically root causes --

17 Mr. Ficenec. I think she is asking -- are you asking,
18 like, when do you know?

19 BY MS. CHRISTIAN:

20 Q Who says this is final, now we can make it look
21 like this?

22 A I think we were asked to write this report. We
23 were specifically asked to provide an interim report. So at
24 that time, it was written.

25 Q What I mean is, like, who finalizes it? Did you

1 review the living document as it was being drafted?

2 A Oh, I see what you are saying. No, we have a
3 process where, once all the analysis is done and the
4 engineers involved finish writing up their sections and their
5 analyses, then there is an internal review process at
6 Exponent that involves a technical review, it involves --
7 basically a peer-review process within Exponent.

8 BY MS. TINDALL:

9 Q Do you, in reviewing this living document as it
10 becomes final, do you share via e-mail where the document is
11 at any particular time? Or do you log into a system, look at
12 it, and then report out any changes?

13 A It is usually saved on a secure server that people
14 access over the network.

15 Q And then if you make any changes to the document,
16 how do you communicate those?

17 A The changes themselves?

18 Q Yes.

19 A Well, you call up your peer, and you say, you know,
20 I would like to make some changes to this document. Here is
21 what I suggest.

22 Q Okay.

23 BY MS. GASTON:

24 Q So is there one person who is the keeper of the
25 document?

1 A The author of the document is the keeper, or the
2 project manager is the keeper, or somebody who is responsible
3 for delivering it to the client ultimately is the keeper.

4 Q Okay.

5 Q You said that once an analysis is done, that an
6 internal peer-review process kind of takes over.

7 A Yes.

8 Q How does that peer-review process work in terms of
9 you have a table-top discussion about it, or is there written
10 findings and communications about certain parts of that
11 report that need more work than others? How does that all
12 work mechanically?

13 A Usually, I mean, for instance, I am based out of
14 New York. I can review a document that are based out of
15 Menlo Park. And if I feel there are certain sections of it
16 that technically need to be reviewed again or more
17 experiments performed, I will call up the author of that
18 section of that report or that report, and I will tell them I
19 think we need to do more experiments there. If that is the
20 case, we will get together as a team again and see what
21 additional work needs to be done and how it ought to be
22 addressed in the report.

23 BY MS. CHRISTIAN:

24 Q Are you assigned to the technical review or
25 peer-review process, or how do you know when you are supposed

1 to participate?

2 A Yes, you are assigned as a technical reviewer of
3 any report early on in the process, so that you are somebody
4 who is obviously technically familiar with the content of the
5 matter.

6 Q Is Subbaiah the assigner for that, or who is the
7 person that would have done it for this?

8 A I think, for example, in a document like this,
9 there would have probably been several people who technically
10 reviewed it, because there are different sections that may
11 involve different technical expertise.

12 Who assigns technical reviewers? That is really up to
13 the person who has been working in the actual project, and it
14 is usually somebody who is familiar with the technical
15 subject matter. They may be involved, may not be involved.
16 If they are involved, they can't review their own work. They
17 may review some other person's work that they haven't done.
18 But that is something that depends on the team membership.

19 Q How do you find out you are a technical reviewer?

20 A You are usually assigned that technical
21 reviewership very early on in the report stage.

22 Q By e-mail, or phone, or how do you find out?

23 A It could be by e-mail. It could be by phone.

24 There is no --

25 Q Were you one of the technical reviewers or peer

1 reviewers of this report?

2 A No, I was not.

3 BY MS. GASTON:

4 Q Exponent has described this report as preliminary.
5 How does this differ from a final report?

6 A Well, it is preliminary. It differs in the sense
7 that the analysis here was not completed. I mean, this was a
8 snapshot in time of our findings of what we had done. I
9 mean, obviously, there was a lot more to this analysis in
10 terms of investigating potential SUAs than just this. So
11 while we stand by what we say here, at the time that it was
12 written, it certainly doesn't reflect a final report that
13 describes all of our analysis related to potential SUAs in
14 Toyota vehicles.

15 Q What will a final report have that this report does
16 not?

17 A The remainder of our investigations that involve
18 EMI tests, that involve software tests, hardware tests,
19 environmental tests and so on and so forth. And we may have
20 to divide it up into several reports.

21 Ms. Cassady. Is it standard or is it common for
22 Exponent to produce a preliminary report?

23 A No.

24 BY MS. GASTON:

25 Q Are the conclusions in this report subject to

1 change after further study?

2 A If there are any -- and that is why we are
3 really -- we dislike putting out preliminary reports, because
4 it is possible that there will be additional experimentation
5 that we have not yet done that we want to do that could,
6 especially if there is more evidence and more documentation
7 and more materials that are produced, that may produce
8 results that we would then have to change a particular
9 conclusion. So that is why -- I mean, our conclusions are
10 based on the data and whatever the findings are.

11 BY MS. CHRISTIAN:

12 Q In your experience on other projects you have
13 worked on, have you ever issued a preliminary report like
14 this?

15 A I have not, no.

16 BY MS. GASTON:

17 Q Can you please estimate how much time Exponent
18 spent in researching and writing this report?

19 A I couldn't do that. I would be speculating.

20 Q Okay. How much time has Exponent spent on this
21 work since issuing this report?

22 A No idea.

23 Ms. Gaston. That is sort of a block of my questioning,
24 so I think --

25 BY MR. KOHL:

1 Q Real quick. Do you do testing in New York also?
2 What is your New York office?

3 A We do some testing. We don't have a lab facility.
4 We have a small electrical bench. But most of our testing
5 gets done in Menlo Park.

6 Q What is the point of -- what is the reason for
7 having your New York office? Is it to obtain new clients?
8 Is it to get business? What is the point of the New York
9 office?

10 A No. It there is -- in a city, a metropolitan area
11 such as here, there is a need for technical expertise in New
12 York City. So the New York office is made up of around maybe
13 20 people. We have three or four different practices that
14 are represented. We have buildings and structures.

15 Q Right.

16 A There is a lot of consulting. We have an
17 electrical practice. There is a lot of work we can do in
18 collaboration with the buildings and structures folks. And
19 we have health sciences that look into the facts of
20 electromagnetic radiation. We have environmental folks that
21 study water levels and contamination of water in the ground.
22 And also part of my expertise -- do you want me to tell you
23 why I moved to New York?

24 Q Yes. I kind of wondered. It seems like you are a
25 lead on this that is essentially in California.

1 A I am a lead on this because of my experience and
2 expertise, and the reason I moved to New York is because my
3 wife got a job as a professor at NYU. And we have an office
4 in Manhattan, so it made perfect sense. I happen to travel a
5 lot. I started in Menlo Park. I was in Menlo Park for about
6 3 or 4 years before I moved out to New York. My area of
7 expertise is very much in integrated circuits, electronic
8 systems, semiconductor devices, so I continue to be heavily
9 involved in Menlo Park projects.

10 Now, along the way, in my spare time, I happen to do
11 other things in New York that do involve electronics and ICs,
12 but that is a subject for another discussion.

13 Q I was just going to say, does Exponent also have, I
14 guess, a sales type of force that obtains clients?

15 A No. We don't have sales. No. We absolutely do
16 not have sales. Each one of us -- we obtain work because of
17 our own reputation in our fields. Every one of us is a
18 consultant who has a reputation in their technical area, and
19 people come to us if they seek technical assistance.

20 Now, at the same time, they also come to us because of
21 our facilities. For example, in our Phoenix facility, and
22 this is something I also should mention, not also is our
23 testing done in Menlo Park, but there is some testing that is
24 done in Phoenix.

25 In Phoenix, we have the largest facility within

1 Exponent, and it does a lot of vehicle testing. We have
2 actually a 2 mile -- or is it 1 mile, I can't remember --
3 track, where we do a lot of vehicle testing, safety testing,
4 accident reconstruction.

5 So Exponent is definitely one of the premier firms in
6 the country when it comes to vehicle consulting.

7 BY MS. CASSADY:

8 Q I just have one last question, and I think it is a
9 pretty fast one. You mentioned one of the reasons you are on
10 the Toyota case is because of your expertise.

11 A Yes.

12 Q Why were you not a reviewer of this preliminary
13 Exponent report, given your expertise?

14 A So, again, this is really talking more about pedals
15 and throttle bodies, testing of the voltages going into the
16 ECU. I am much more inside the ECU. We are talking about
17 the semiconductor chips that are inside the ECU. We are
18 talking about the software inside the microprocessors of the
19 ECU. I don't want to make it -- that is it.

20 Ms. Cassady. Thanks.

21 Ms. Gaston. I think that will conclude our questioning
22 for today.

23 We will recommence at 9:30 tomorrow morning. Thanks for
24 being here.

25 [Whereupon, at 6:00 p.m., the interview was recessed, to

1 be reconvened at 9:30 a.m. the following day.]

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Certificate of Deponent/Interviewee

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I have read the foregoing 113 pages, which contain the correct transcript of the answers made by me to the questions therein recorded.

Shukri J. Souris

Witness Name

Sj Souris

May 18, 2010

Date



ERATA SHEET
FOR INTERVIEW OF SHUKRI SOURI

<u>PAGE</u>	<u>LINE</u>	<u>CORRECTION</u>
13	24	Add question mark (?) after “Bowman.” Change requested by witness.
27	16	Change “NITSA” to “NHTSA”. Change requested by witness.
33	23	Add underscore (_) between “TOYEC” and “000215950” and also between “TOYEC” and “00215951.” Change requested by the Committee.
34	2	Change “attornies” to “attorneys.” Change requested by the Committee.
34	12	Change “attornies” to “attorneys.” Change requested by the Committee.
84	11	Change “CASSADY” to “TINDALL.” Change requested by the Committee.
85	8	Change “CASSADY” to “TINDALL.” Change requested by the Committee.
85	25	Change “KOHL” to “COHEN.” Change requested by the Committee.
91	3	Change “didn’t” to “did.” Change requested by witness.
91	24	Change “CASSADY” to “TINDALL.” Change requested by the Committee.
95	16	Change “CASSADY” to “TINDALL.” Change requested by the Committee.
101	6	Change “As” to “And.” Change “NHSTA” to “NHTSA.” Change requested by witness.