

**Official Transcript of Proceedings**  
**NUCLEAR REGULATORY COMMISSION**

Title: Public Meeting on Modernization Plan #3:  
Commercial Grade Dedication of Digital  
Equipment

Docket Number: (n/a)

Location: Rockville, Maryland

Date: Thursday, February 16, 2017

Work Order No.: NRC-2863

Pages 1-127

NEAL R. GROSS AND CO., INC.  
Court Reporters and Transcribers  
1323 Rhode Island Avenue, N.W.  
Washington, D.C. 20005  
(202) 234-4433

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

+ + + + +

MODERNIZATION PLAN #3 WORKING GROUP

+ + + + +

PUBLIC MEETING ON MODERNIZATION PLAN #3: COMMERCIAL  
GRADE DEDICATION OF DIGITAL EQUIPMENT

+ + + + +

THURSDAY

FEBRUARY 16, 2017

+ + + + +

ROCKVILLE, MARYLAND

+ + + + +

The Working Group met at the Nuclear  
Regulatory Commission, Two White Flint North, Room T-  
6A1, 11545 Rockville Pike, at 1:00 p.m., Carolyn  
Lauron, Project Manager, presiding.

WORKING GROUP MEMBERS:

CAROLYN LAURON, NRO/DEIA/NRGP, Project Manager

PAUL PRESCOTT, NRO/DCIP/QVIB3

DAVID RAHN, NRR/DE/EICB

DINESH TANEJA, NRO/DEIA/ICE

DANIEL WARNER, NRR/DE/EICB \*

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

YAGUANG YANG, RES/DE/ICEEB

ALSO PRESENT:

AARON ARMSTRONG, NRC

STEVEN ARNDT, NRC

JANA BERGMAN, Curtiss-Wright/Scientech

DAVID CURTIS, NRC

JASON DRAKE, NRC

ASHLEY FERGUSON, NRC

ISMAEL GARCIA, NRC

MATT GIBSON, EPRI \*

DAVID HOOTEN, Altran \*

RON JARRETT, TVA \*

IAN JUNG, NRC

GEORGE LIPSCOMB, Goldwing Services, LLC

DEAN MUNDY, NEI

WARREN ODESS-GILLETT, Westinghouse \*

JONATHAN ORTEGA-LUCIANO, NRC

JASON REMER, NEI

BRIAN THOMAS, NRC

\*Present via telephone

C O N T E N T S

	<u>Page</u>
Welcome and Introductions.....	4
DCIP Presentation on Compliance with Part 21.....	14
NEI Presentation on Update to Appendix C.....	30
EPRI Presentation on Research Status.....	71
<u>Discussion of Referenced Documents . . . . .</u>	<u>112</u>
Public Comment.....	122
Summary of Actions.....	124
Adjourn.....	125

1  
2  
3

P R O C E E D I N G S

1:02 p.m.

MS. LAURON: All right. So let's welcome

**NEAL R. GROSS**  
 COURT REPORTERS AND TRANSCRIBERS  
 1323 RHODE ISLAND AVE., N.W.  
 WASHINGTON, D.C. 20005-3701

1 everybody to the public meeting to discuss the purpose  
2 and scope of Modernization Plan Number Three on  
3 commercial-grade dedication.

4 I'm Carolyn Lauron. I'm the Project  
5 Manager for this activity. Before we begin with  
6 opening remarks, we ask all those present in the room  
7 to fill out the sign in sheet down at the end of the  
8 table. And also to silence all phones.

9 This is a Category Two public meeting.  
10 And we will have an opportunity for the public to ask  
11 questions at the end of the business portion of the  
12 meeting.

13 The bridge line operator will be  
14 assisting us in opening the phone lines for questions  
15 and comments. All presentation materials are found  
16 at the NRC public meeting website under the notice  
17 for this meeting.

18 In the notice of this meeting under the  
19 section called related documents, the second item  
20 listed has a web link to the staff's presentation.  
21 The third item listed is also the industry's document  
22 that will be discussed at today's meeting.

23 Once we have completed introductions, we  
24 will ask presenters on the bridge line to introduce  
25 themselves and identify their affiliation.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           The meeting is being transcribed. The  
2 transcript and the summary will also be placed on the  
3 NRC public website under the related document section  
4 for this -- for the notice of this meeting.

5           One item to note, in the event of an  
6 emergency, we ask that all visitors in the room follow  
7 calmly the NRC staff to the nearest exit. And to  
8 remain with the staff at the emergency assembly area.

9           So now I'd like to open it up for opening  
10 remarks by NRC Management present.

11           MR. THOMAS: Okay.

12           MR. CURTIS: You don't have to do it if  
13 you don't want to.

14           MR. THOMAS: Why don't you.

15           MR. CURTIS: So, I'm David Curtis, Office  
16 of New Reactors. I did want to say, thank you very  
17 much for our last meeting.

18           I think for us it helped tremendously  
19 clarifying what industry's objectives are. And I  
20 think it, you know, if we can continue with half the  
21 day of good exchange of information, I think we're  
22 going to be in great shape. That's all I have to say  
23 for now.

24           MR. MUNDY: Thank you David. I think  
25 our objectives are consistent and we appreciate the

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 last meeting in November. And to continue.

2 A key for us, at least in our opinion is  
3 to continue the clarification of at least our intent  
4 and to get to a mutual intent for the effort.  
5 Fundamentally proposing the ability to leverage  
6 third-party certification when verifying critical  
7 characteristics in accordance with already endorsed  
8 documents under your endorsement.

9 I also want to suggest that we're -- what  
10 we're not advocating or not asking for, you know,  
11 sometimes that's as important as defining what you  
12 are talking about. You know, we're not suggesting  
13 further or broader discussion of the entire  
14 commercial grade dedication process.

15 And we're not looking to fix what's not  
16 broken in our opinion. Also, I just want to refer  
17 back and I'm not sure if in your portion of the  
18 introduction Carolyn or Dinesh, you will cover the -  
19 - kind of the overview of the schedule.

20 So ~~of~~for those in the room or on the  
21 phone, it would probably be important to make sure  
22 that we understand not only the objective, high level  
23 objective, but the current plan and the bigger picture  
24 for MP3 to make sure that any questions or comments  
25 that come up, you know, are in the context of that.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           Now, keeping the end in mind, all right.  
2           I always like to -- I'm a Covey's Seven Habits kind  
3           of advocate. Starting with the end in mind is  
4           important in our objective.

5           Ultimately, you know, the context of what  
6           we're trying to do here is for a more efficient,  
7           effective safer system by leveraging the significant  
8           operating experience in the rest of the planet is  
9           sought.

10           That's the end of my initial thoughts.  
11           Thanks.

12           MR. TANEJA: Well, you know, thank you  
13           for the, you know, arranging the meeting. And it's  
14           our second meeting on the topic.

15           And you know, just to summarize, this is  
16           a Modernization Plan Number Three commercial-grade  
17           dedication which falls under the Integrated Action  
18           Plan for Modernizing Digital I&C Regulatory  
19           Infrastructure.

20           So, you know, the goal and all like Dean  
21           is saying, what is the end goal in mind? The end  
22           goal in mind to really come up with a regulatory  
23           framework that works efficiently for both the  
24           industry and the NRC in accomplishing the goals of  
25           getting digital I&C in operating reactors as well as,

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 you know, addressing all the advanced -- modernizing  
2 advanced reactors.

3 So, it is that we want to have a  
4 standardized process, not a process that, you know,  
5 just works for the operating reactors. So that's a  
6 goal from my point of view.

7 That our goal is that we want to get to  
8 this one process that is good for digital I&C in  
9 general. And it's technology, I want to say reactor  
10 technology independent.

11 So, we have a full agenda for today. And  
12 you know, as far as the integrated action plan, we  
13 shared that in our last meeting, you know, as to what  
14 the plan was for this activity, which is undergoing  
15 revision one.

16 And I think that's going to be  
17 forthcoming shortly. Which, you know, a little cover  
18 as we go through the meeting, we will cover our, you  
19 know, follow up action and how we want to attack this  
20 activity.

21 Today's agenda as it's on the screen is  
22 really the couple of main things that we want to cover  
23 here is we want NEI to go ahead and present their  
24 thoughts on what this activity entails. And their  
25 explanation of the Appendix C.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           And then, you know, the NRC is going to  
2 present, you know, our expectation of commercial-  
3 grade dedication under Part 21. And you know, what  
4 is the framework and what is the expectation under  
5 Part 21.

6           And how this activity that we are trying  
7 to do would link into this process. Just like you  
8 said, we're not trying to fix what's already working,  
9 okay?

10           But the idea that you're presenting is to  
11 leverage some of the practices that are in place in  
12 other industries. See if the nuclear industry can  
13 benefit from those practices that are there already.

14           And then I guess EPRI would give us some  
15 oversight on their research activity in this area.  
16 And hopefully we'll have a productive exchange of  
17 dialog.

18           MS. LAURON: So, I'm going to talk about  
19 just a summary from the November 3 meeting. All the  
20 meeting information, the presentation, the transcript  
21 and the summary are found in that ADAMS accession  
22 number.

23           You can also go to the NRC public site.  
24 If you search on the calendar for November 3, 2016,  
25 and you click on more information for that meeting,

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 you will find all of the links to those documents in  
2 that announcement.

3 The action items that were resolved,  
4 there was discussion from the last meeting about the  
5 comment resolution table for the draft guide the  
6 staff's developing. And it will be available upon  
7 issuance of the final Reg Guide. I think it's  
8 expected for April of this year.

9 NEI also provided us feedback and  
10 comments on -- for consideration of the update for  
11 MP3. So we did receive that. And we did all commit  
12 to clarifying the objectives for this activity, MP3.

13 MR. THOMAS: Ms. Lauron, I know you have  
14 a sign up sheet going around. And I think there's  
15 also a brief with each other. But if you can go  
16 through and --

17 MS. LAURON: Sure.

18 MR. THOMAS: Get us to introduce  
19 ourselves, including those on the phone.

20 MS. LAURON: Sorry. I forgot. Okay.  
21 Sure. So I'll start. Okay, you all know me, I'm  
22 Carolyn Lauron. I'm the PM for this activity.

23 MR. TANEJA: I'm Dinesh Taneja. I'm  
24 leading the NRC working group for this MP3 activity.

25 MR. PRESCOTT: I'm Paul Prescott, Senior

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 Operations Engineer in the Quality and Vendor Branch.  
2 Who ~~have~~has been working with Dinesh on trying to  
3 streamline the process.

4 MR. YANG: My name is Yaguang Yang. I'm  
5 a Civil Engineer in Research, NRC.

6 MR. JUNG: Yes. Ian Jung, Branch and  
7 Office of Research ~~on~~in I&C.

8 MR. THOMAS: Brian Thomas, Director of  
9 Division of Engineering in the Office of Research.  
10 I'm also on the Steering Committee for Digital I&C.

11 MR. ARMSTRONG: Aaron Armstrong, Quality  
12 Assurance and Vendor Inspection Branch.

13 MR. ORTEGA-LUCIANO: Jonathan Ortega,  
14 Quality Assurance and Vendor Inspection Branch.

15 MS. FERGUSON: Ashley Ferguson, Quality  
16 Assurance and Vendor Inspection Branch.

17 MR. DRAKE: Jason Drake, Project Manager.

18 MR. CURTIS: David Curtis, Chief of I&C,  
19 and Office of New Reactors.

20 MR. RAHN: I'm David Rahn. I'm the Lead  
21 I&C Engineer in the Office of NRR.

22 MR. LIPSCOMB: I'm George Lipscomb. I  
23 recently retired from the NRC. Now a consultant and  
24 an interested party.

25 MR. MUNDY: Dean Mundy, NEI lead for this

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 effort.

2 MR. REMER: Jason Remer, NEI, Director  
3 of Quality Extension and New Technology. I just  
4 actually got one other thing added to my file, so.

5 (Laughter.)

6 MR. REMER: Glad to be here.

7 MS. BERGMAN: Jana Bergman, Curtiss-  
8 Wright.

9 MR. GARCIA: Ismael Garcia, Office of New  
10 Reactors.

11 MR. TANEJA: On the phone line?

12 COURT REPORTER: Oh, Devin Shiple, Court  
13 Reporter.

14 MS. LAURON: Yes. Can we also go online  
15 to the presenters? If they could introduce  
16 themselves.

17 MR. HOOTEN: David Hooten, Altran.

18 MR. JARRETT: Ron Jarrett, TVA.

19 MR. GIBSON: Matt Gibson, EPRI.

20 MR. ODESS-GILLETT: Warren Odess-  
21 Gillett, Westinghouse.

22 MS. LAURON: Daniel, are you on the line?  
23 Daniel Warner?

24 MR. WARNER: Yeah, sorry. Dan Warner,  
25 NRC.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MS. LAURON: All right. Thank you. Is  
2 there anyone else on the line who has not introduced  
3 themselves?

4 (No audible response.)

5 MS. LAURON: All right. Okay. Thank  
6 you. Go to the next slide.

7 MR. TANEJA: So, the purpose of MP3 as  
8 it's defined right now in our Integrated Action Plan  
9 is to evaluate domestic and international standards  
10 on commercial-grade dedication of digital equipment  
11 for improving the agency guidance in support of this  
12 modernization plan.

13 And the second purpose is to explore the  
14 use of independent third-party certification of  
15 digital equipment for use in nuclear safety  
16 applications. This process is being effectively used  
17 in other -- some of the other industries.

18 So, this is the main objective right now  
19 that we have in our Integrated Action Plan. But as  
20 we go through this process and we get what the  
21 expectations are of the industry and the  
22 stakeholders, we, you know, we can refine this  
23 process.

24 You know, I think we already started to  
25 talk about that last week. With this I'm going to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 turn it over to Paul. Paul, you going to lead the  
2 Part 21 discussion?

3 MR. PRESCOTT: I'll try.

4 MR. TANEJA: All right. So it's all  
5 yours.

6 MR. PRESCOTT: All right. Good morning.  
7 I'll start this off by saying that I had an  
8 interesting phone call this morning from somebody at  
9 EPRI that I've worked with on a number of other  
10 projects. And he's like, are you sure this is  
11 absolutely dedication?

12 And I said well, I'm too positive. I  
13 said, we're still learning exactly what they're  
14 trying to accomplish with this document. I haven't  
15 actually been able to get a copy of IEC 61508 to read  
16 and interpret and figure out just exactly what it  
17 does for you.

18 My take away after the phone call with  
19 this discussion from an individual I highly respect  
20 is that this might be looked at more as qualification  
21 then straight up dedication. Now a dedication would  
22 probably be part of it following the licensee or the  
23 other party getting the relay or a component or  
24 whatever it might be.

25 And programming it and make sure --

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 ensuring that the program that they load it with for  
2 this particular component performs whatever functions  
3 they need. However, the up-front part that would be  
4 performed by IEC may not be straight up dedication.

5 Now does that mean I had to go back and  
6 rethink what I'm going to propose today as a path  
7 forward with the IEC 61508? No. I don't think so.

8 I believe that with a little bit of  
9 tweaking that a path forward with the process that  
10 we've applied successfully before would work in this  
11 case. And I can talk about that today.

12 So, my intent wasn't so much to go over  
13 probably dedication so much. Because now that's kind  
14 of shot with the first part about what -- with what  
15 happened this morning.

16 But essentially dedication would apply.  
17 I do see applying ultimately for the overall  
18 accumulative effect to say that you have ended up  
19 with a basic component.

20 And by that I mean, just qualifying,  
21 we'll call it qualifying right now, to verify that  
22 the item will serve as a base for what you're going  
23 to ultimately add to it to accomplish what you want  
24 in the plant. That part is probably qualification  
25 as performed by the IEC outfit. Okay?

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1           So, -- but again, it will have to be  
2           decision from the standpoint somebody's going to have  
3           to, as with dedication, there has to be ultimately  
4           somebody who's going to be the party that says, yea  
5           verily, I'm the dedicating entity and I take  
6           responsibility that this is going to ultimately be a  
7           basic component in a plant.

8           So, having said that, I do believe that  
9           the process can be modified to make that acceptable.  
10          So, you know, I'm always care -- maybe it sounds like  
11          I'm being real careful with words.

12          But I think we have to be here. Because  
13          I don't think in every instance what you'll be asking  
14          this third-party outfit to do will be dedication  
15          necessarily. But it maybe qualification of a  
16          component.

17          So, I want to parse my words carefully.  
18          So, we're not trying to dodge anything here. I still  
19          believe that it's a process that can fit within  
20          Appendix B. And we just have to be careful on  
21          terminology and the way we use our terminology.

22          So, having said that, I think it's clear  
23          everybody understands what -- and the next slide  
24          please.

25          MR. MUNDY: Paul, just one comment then.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. PRESCOTT: Yes, Dean?

2 MR. MUNDY: Comment or agreement that --

3 MR. PRESCOTT: Okay.

4 MR. MUNDY: I think as David pointed out  
5 earlier, there was, as there almost always is with  
6 the English language confirmed in our first meeting.

7 A different interpretation of the intent  
8 and you now are articulating, you know, where thinking  
9 might have been in terms of dedication. That now  
10 we're clarifying that we're not saying this is about.

11 This is more in line with qualification.  
12 And as I mentioned in one of my introductory comments,  
13 specifically your endorsement of the EPRI TR-106439.  
14 And the section in it that talks about verifying  
15 critical characteristics.

16 I mean, if we can be so pointing and  
17 specific as to say, that's what we care about. And  
18 that's where we are considering or posting some  
19 consideration for applying third-party certification.

20 MR. PRESCOTT: Okay.

21 MR. MUNDY: That doesn't mean that we now  
22 believe that that's the right thing to do. Which is  
23 why we want to talk about the EPRI research. To  
24 validate that in fact, you know, we as an industry  
25 and then you ultimately as the regulatory, believe

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 that's the right thing to do.

2 MR. PRESCOTT: Okay.

3 MR. MUNDY: So, we're coming with a  
4 hypothesis, not an answer.

5 MR. PRESCOTT: Okay. Good. Good. Yes,  
6 so I'll continue. That essentially, you know, dedic  
7 -- as everyone knows, dedication is a subjective  
8 process, you know.

9 Undertaking by a reasonable assurance  
10 that a component will perform its design function.  
11 And that's really what you're trying to achieve with  
12 this process.

13 So again, to it -- we're trying to get to  
14 the same end when you do this. So, but again, there  
15 has to be somebody responsible.

16 And that's what I struggled with when I  
17 first looked at this. Is that, you know, the third-  
18 party, in this case, the IEC is commercial, straight  
19 up commercial.

20 So they can't take -- they won't accept  
21 Part 21. But you could impose it. But it would  
22 be -- it wouldn't mean anything as you're well aware.

23 So essentially somebody has to be that  
24 dedicating entity. Or the entity that's qualifying  
25 it is going to have to take

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 ~~responsibility~~responsibility -- Part 21

2 responsibility.

3 Hopefully we're clear on that.

4 MR. MUNDY: We don't see, we're not  
5 advocating the need to change any of the entity --  
6 and our responsibility today would be the same  
7 tomorrow.

8 MR. PRESCOTT: Okay. And again,  
9 obviously the reason with this slide is to discuss  
10 that, you know, should there be any issues that are  
11 identified, they have to be evaluated. They have --  
12 and then potentially reported if necessary.

13 And the other thing that Part 21 would  
14 bring into it is the records portion of it. Should  
15 there be an issue, there's something traceable back  
16 to say what the issue was.

17 And so, you know, Part 21 -- that portion  
18 of Part 21 I think is relevant to this discussion.  
19 So, probably enough said on that. The next slide.

20 Okay. And again, this slide was straight  
21 up to just stress, you know, criterion seven, the  
22 applicability of it to your supplier that a licensee  
23 uses. That you have to put certain controls in place  
24 to verify that they can supply the product that's  
25 requested in the procurement documents.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           And meet those procurement documents and  
2           the specifications, standards, technical  
3           requirements, whatever is imposed in those  
4           procurement documents. You know, that they can meet  
5           it. And you somehow have to verify that.

6           Now, you know, most of the way -- most of  
7           the time the way that's done is through an audit or  
8           survey. And so again, using those two words in the  
9           proposal that we're talking about, some form of audit  
10          or survey would have to be conducted of the body to  
11          verify that -- of the entity that's going to supply  
12          this item.

13          So, you know, again, we think it's a key  
14          to bring up Appendix B and it's applicability. And  
15          specifically criterion seven as it relates to  
16          ensuring that the supplier can do what they say they  
17          can do. And that you know that they can deal with  
18          that. So the next slide.

19          I wasn't going to -- I don't know how  
20          much time we need to spend on this. I don't know  
21          your familiarity with dedication of the process. So,  
22          I'll -- you know, so I'm not trying to -- I mean, I  
23          can go into it and adopt the use.

24          Essentially I wanted to give an overview  
25          of it.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. MUNDY: Sure. That's fine.

2 MR. PRESCOTT: Okay. And it was not mean  
3 to say that you don't know dedication already or have  
4 --

5 MR. MUNDY: I mean, it's -- it's only one  
6 we contradicted. Blatantly obviously that I have an  
7 issue, so.

8 MR. PRESCOTT: Okay. All right.

9 MR. MUNDY: So, this is -- it's always  
10 good. I mean, I'm not an expert in this. So anything  
11 you can say would be good.

12 MR. PRESCOTT: Okay. So essentially the  
13 first step in any commercial grade dedication is you  
14 verify -- you verify the design. You establish the  
15 design criteria, you have to verify.

16 Does all design criteria need to be  
17 verified? No. Only those that affect the safety  
18 function. That's the key thing with us from a  
19 regulatory perspective.

20 We stay in the box. If it doesn't affect  
21 the regulatory safety function of that item, you know,  
22 that's -- it's not relevant to us.

23 It may be relevant to you for some -- if  
24 a valve is only to close, you may -- and you need it  
25 to open and close, you may want to verify it opens.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 That's -- but that's what you need to do to satisfy  
2 yourselves.

3 So, and if you don't have the design, are  
4 you stuck or out of luck with commercial grade  
5 dedication? No. You can perform failure modes and  
6 effects analysis.

7 Which essentially means you take a look  
8 at what that component is supposed to do. And you  
9 essentially re-engineer it to determine what it does.  
10 And then take it from there.

11 And so, you know, a lot of the older  
12 plants, they don't have all of the necessary design  
13 documentation. They may not have that, but that  
14 doesn't mean they're stuck. You can do one of these  
15 failure modes and effects and make a determination of  
16 what you need to do to verify on the component that  
17 it will still perform its function.

18 And the staff has stressed through  
19 generic communications the importance of engineering  
20 participation and documentation and the process. And  
21 that's really why I'm here today.

22 These gentlemen are the experts. I am  
23 not the expert in I&C. I am, I guess, an expert in  
24 the process of how you get there.

25 But again, what I want to stress is that

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 we have to have some way in this process that we're  
2 looking to find acceptable, a way to look at the  
3 engineering and the documentation associated with it.  
4 Because just like any Appendix B item, it's necessary  
5 to have that documentation with it to show the  
6 pedigree of the item.

7 So somewhere along the line, you know,  
8 that documentation has to be available. And again,  
9 when I get a little further on in this, we'll talk  
10 about the issues associated with ISO that we've seen.  
11 And why we think we're going to -- we need you to put  
12 certain controls in place to make sure that all of  
13 that is accessible.

14 So once you've identified those important  
15 material design and performance characteristics that  
16 we call critical characteristics, you then take and  
17 find the acceptance methods that you need to use and  
18 the acceptance criteria that will establish that they  
19 will perform whatever function it is you need.

20 And that's where we get into the  
21 acceptance methods and hopefully everybody's aware,  
22 but special tests and inspections, commercial grade  
23 surveys, source surveillance, and supplier item  
24 performance history. So those are the four ways you  
25 can do it.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1           And likely this method would all for --  
2           and again, I want to parse my words carefully here.  
3           But, we probably would be looking at a hybrid  
4           surveillance type of review of the entity that's going  
5           to perform these tests for you.

6           So, in 25 words or less that's commercial  
7           grade dedication. Hopefully that fit the bill for  
8           here today.

9           MR. TANEJA: So, you know, let me ask,  
10          now your proposal on using this certified product is  
11          to probably leverage the work that's done in the area  
12          of the technical evaluation?

13          MR. MUNDY: Let me defer the answer to  
14          that to when we go through the specifics that are in  
15          our proposal. Rather, then give a partial answer  
16          now. If that's okay?

17          MR. TANEJA: That's fine.

18          MR. MUNDY: And I think that will come  
19          out in the data. I don't want to repeat, have us  
20          repeat ourselves.

21          MR. TANEJA: Okay.

22          MS. LAURON: Oh, okay. Can I leave you?

23          (Laughter.)

24          MR. TANEJA: Next slide.

25          MR. PRESCOTT: So, at the last meeting

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 that I wasn't at, and I apologize. And I'm playing  
2 catch up with this process and trying to get a handle  
3 on it. But I think I have a fairly good handle on  
4 it.

5 But essentially there was a number of  
6 questions asked. Like how is this all going to work?  
7 And you know, some of the questions that we came up  
8 with, I still feel are legitimate.

9 But, what I was looking at was, what could  
10 we think of that would possibly work to satisfy  
11 hopefully both organizations, our organization and  
12 yours to accomplish this process?

13 And what came to mind was, and I don't  
14 know if you're familiar with it, but NEI 14-05. Okay,  
15 great. That's great. That saves a lot of  
16 explaining.

17 But I'll explain a little bit.  
18 Essentially it's the ILAC accreditation guidelines.  
19 And essentially what it was was a hybrid of commercial  
20 grade dedication where it relieves the licensees of  
21 having to perform a survey.

22 And in lieu of a survey you verify that  
23 they have an acceptable ISO 17025 program. And it's  
24 to perform calibration. And it's in reference to  
25 calibration and testing specifically.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           And what the staff determined in its NSE  
2           that we developed and it accepts NEI 14-05. But  
3           essentially what the process, and this is the process  
4           I think it fit what we may be trying to accomplish  
5           here. Oh, great. Okay. Perfect. Perfect.

6           So, the process essentially was what we  
7           saw was the industry was using globally these labs  
8           for calibration and testing services. Because it's  
9           a global marketplace today.

10          So, essentially that was difficult for us  
11          to kind of step outside the box and say well, it's  
12          not in the U.S. We want to do this globally. How  
13          do we do it globally and ensure some controls over  
14          the process? And verify that the process works.

15          So essentially, and maybe you're familiar  
16          with this, but the staff also participated in a number  
17          of audits of the ILAC process being performed on the  
18          accrediting body -- by the accrediting body on the  
19          laboratories.

20          And verified that yeah verily, the ISO  
21          17025 process has the necessary attributes of an  
22          Appendix B programmatic controls to ensure  
23          consistency in the process that was being conducted  
24          by these labs -- these calibration and testing labs.

25          So, what we also did was in conjunction

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 with that, because we saw that as a one shot deal  
2 where we just go and verify one time that it's  
3 acceptable. Well, how do we ensure that the process  
4 continues to be acceptable?

5 And that's where we engaged NEI and came  
6 up with an agreement essentially. And it's laid out  
7 in the guidelines document that somebody had to be a  
8 member. Somebody had to attend meetings.

9 And periodically NUPIC industry would  
10 perform the -- would perform oversight of those audits  
11 to ensure adequate implementation by the ILAC  
12 signatories over the ABs and the labs themselves.

13 And that we felt comfortable with.  
14 Because now should ISO change, we would know about  
15 it. Should there be an issue with performance, we  
16 would know about it.

17 And also, one of the other requirements  
18 that we had put in place was the procurement documents  
19 had to be specific about identifying non-  
20 conformances. In other words, if the ABs found that  
21 the instrumentation was found out of tolerance, we  
22 would be notified of that so that the licensee could  
23 make their proper evaluation of whether or not  
24 equipment previously tested by this equipment could  
25 be evaluated and see if it creates a substantial

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 safety hazard. Or effects safety in some way.

2 So that was part of it. And part of the  
3 thing -- and there were other things with the  
4 procurement documents. Like you had to specify that  
5 they were ISO. And that it was current. And that  
6 you could do it to the -- your scope of supply was to  
7 this scope of supply.

8 So you still did a technical evaluation  
9 to encompass all of that. But it simplified the  
10 process quite a bit for testing of calibration labs.

11 And it gave us, you know, a confidence  
12 that, you know, that it was all good. And so  
13 essentially what you -- all you had to do was upon  
14 receipt inspection, verify the CoSC, verify the  
15 information on the CoSC, and verify the cert was still  
16 good for that particular calibration.

17 So, I see that as something ~~that as~~  
18 ~~something~~ that could be applied to this. A similar  
19 process where NEI, industry, NUPIC, as was done with  
20 -- and there's some industry involved with the ILAC  
21 process, which formed a group to provide adequate  
22 oversight or proposed some kind of oversight.

23 It doesn't have to be this. Again, we're  
24 not dictating what you do. But, after having looked  
25 at this, I feel it's a viable option to consider to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 move forward on this and streamline the process that  
2 you're looking to do.

3 And that's assuming that these gentlemen  
4 here agree with the technical process that's involved  
5 in the 61508 document. So, it would hinge upon that  
6 just like it hinged upon my review of -- our review  
7 of, sorry, our review of 17025 and the controls that  
8 ISO had for that.

9 So, ISO/IEC is -- it looks like the way  
10 it works is that when the IEC wants to publish  
11 something they publish it through ISO. So it looks  
12 like they work in conjunction. So, I imagine they  
13 work to similar processes.

14 And this is probably something that would  
15 be feasible to look at as a way to achieve everybody's  
16 goal. And unless there's -- I'm ready to answer  
17 questions if there are any.

18 MS. LAURON: Are any of the presenters  
19 on line? Would you like to ask a question about the  
20 presentation of Part 21?

21 OPERATOR: At this time if you would like  
22 to ask a question, please press star then one. To  
23 withdraw your request, press star two.

24 (No audible response.)

25 MS. LAURON: Okay. We could move now to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 NEI's presentation. Do you want me to pull up the  
2 document? I could pull that up.

3 MR. MUNDY: That may help at least for  
4 those in the room that don't have a copy. There are  
5 a few copies in the room here.

6 MS. LAURON: Is that big enough? Yes?

7 MR. MUNDY: It should be.

8 MS. LAURON: That's pretty big. Sorry.  
9 All right. For those who called in, I pulled up the  
10 third item on the public meeting notice. It's NEI's  
11 update, input provided on February 1, 2017.

12 MR. MUNDY: The basis for having this  
13 item on the agenda now, and I do appreciate the  
14 background and context within which you've -- the  
15 picture you paint for how this fits. I think that  
16 helps as good background.

17 And I further appreciate your reference  
18 to 14-05. Which we kind of had suggested as a  
19 potential example to learn from. And not necessarily  
20 to replicate. But to learn from.

21 Okay. And at this point I will sort of  
22 turn the mic, virtual mic here over to Dave Hooten.  
23 Who is one of the primary authors of this document.

24 And if Dave is able to speak now if the  
25 lines are open for the NEI contributors. Dave, you

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 can take it away.

2 MR. HOOTEN: All right. Thank you Dean.  
3 Good morning everybody. Or I guess good afternoon  
4 rather.

5 Before I jump into walking through this  
6 paper here, I guess I would like to -- or for context  
7 sake, mention that regarding the slides that the NRC  
8 folks went through, slide number eight, I guess I  
9 looked at that slide and said, you know, we are not  
10 proposing or to violate anything that would alter or  
11 would obliterate, you know, the basic structure that  
12 that slide talks about.

13 Everything that is in this paper is  
14 equivalent with what's on that slide. It just really  
15 deals with a different --

16 MR. MUNDY: We could bring him up if you  
17 want.

18 MS. LAURON: Okay.

19 MR. HOOTEN: Part on -- if you're  
20 changing your scope to a -- so at this time about a  
21 high level caution --

22 MR. TANEJA: Okay, Dave? Could you speak  
23 into the mic? We are kind of -- you are not that  
24 coming in clearly.

25 MR. HOOTEN: All right. My face is just

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 a few inches away from my cell phone. Am I not  
2 speaking loudly enough?

3 MR. TANEJA: Okay. I think we can hear  
4 you a little bit better now.

5 MR. HOOTEN: Okay.

6 MR. THOMAS: Can I? Dave? Brian  
7 Thomas. If I can just get a clarification of that.  
8 So if I look at slide eight, you're saying everything  
9 else that's addressed on slide eight, you're not  
10 proposing any changes, revisions, et cetera to any of  
11 that with the exception of the bullet that deals with  
12 third-party. Is that what I'm hearing? Or did I  
13 miss?

14 MR. HOOTEN: Well, if I understand the  
15 slide correctly, I'm not even sure that I'm proposing  
16 a change to that third-party one. I think that's my  
17 understanding of that slide of that bullet there is  
18 that it implementation of commercial grade  
19 dedications will be done either by a licensee or by  
20 some third-party, contractor, subcontractor, as you  
21 see there.

22 We're not proposing a change to that.

23 MR. PRESCOTT: Yes. This is Paul. I'm  
24 sorry, it is a little bit different. Because a third-  
25 party dedicating entity is expected to have an

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 Appendix B program. Not be straight up commercial  
2 as the case is with this.

3 So, you know, I felt it was necessary to  
4 bring that point up. Again, I'm not proposing that  
5 that's a show stopper. I'm just saying that again,  
6 I want to parse words carefully.

7 And in this case, they are not a third-  
8 party dedicating entity.

9 MR. MUNDY: And I'll answer maybe for  
10 Dave, or add to what Dave said. This is Dean Mundy  
11 again.

12 The -- we're not proposing that be  
13 changed. We understand that, you know, the  
14 dedicating entity must be a licensee or someone with  
15 an accredited Appendix B program.

16 Granted, and we don't expect these  
17 component manufacturers who may currently or in the  
18 future have SIL certified, or else some certified  
19 products to potentially even go after an Appendix B  
20 permit.

21 We don't really expect that. We just  
22 expect the dedicating entities to be able to leverage  
23 that certification in the validation of the critical  
24 characteristics.

25 MR. PRESCOTT: Understood.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. MUNDY: Particular performance and  
2 dependability.

3 MR. PRESCOTT: Yes. Thanks.

4 MR. MUNDY: Does that answer your  
5 question, Brian?

6 MR. THOMAS: Yes. Thanks.

7 MR. MUNDY: Okay.

8 MS. LAURON: Let's go back.

9 MR. MUNDY: Okay. Yes, thanks. Okay,  
10 Dave, back to you.

11 MR. HOOTEN: Okay. Thanks. That was  
12 well said, Dean. That pretty much summarized how I  
13 would have responded to the question as well.

14 So, all right. Basically the background  
15 of theirs for this idea started because the genesis  
16 of it is the recognition that outside of the nuclear  
17 industry there are numerous process industries that  
18 by nature of their operations and so forth, if things  
19 are not done properly, if equipment fails, et cetera,  
20 there can be serious results. People can get hurt  
21 or even have fatalities because of that.

22 So, we want to do -- we have industries  
23 dealt with I&C systems and equipment that is utilized  
24 to either help prevent and/or help mitigate the types  
25 of events that can lead to injuries or fatalities.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           That's really where we kind of started  
2 here. When you look back at the nuclear industry,  
3 you recognize if you've been working in the I&C area  
4 for very long that very little of the equipment that's  
5 currently available on the market is equipment that  
6 was developed and designed from the ground up using  
7 an Appendix B program.

8           So, virtually all digitalized I&C  
9 equipment now a days, you know, has to go through an  
10 acceptance process to be used in a safety-related  
11 application. And the documents that govern that are  
12 EPRI NP-5652, which is the overall process for the  
13 use of commercial grade items.

14           But then more specifically, if it's a  
15 digital equipment, then two additional EPRI documents  
16 that the NRC has in the past reviewed and endorsed  
17 are TR-106439, and in some cases TR-107330.

18           106439 I'll tell is the more fundamental  
19 document there. Because it applies for digital  
20 equipment all the way from the individual device or  
21 individual component level all the way up to, you  
22 know, larger platforms that, you know, are basis for  
23 entire systems.

24           In any event, because virtually all of  
25 these are commercially available -- or available

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 period, digital I&C equipment isn't produced under  
2 Appendix B program from the ground up. This process  
3 is a significant amount of work.

4 So what we were looking at trying to do  
5 is see if there's any say we can try to take advantage  
6 of, or as Dean said, -- what goes on in these other  
7 process industries with digital I&C equipment in a  
8 way to help make that acceptance process less  
9 burdensome, less time consuming, less costly, without  
10 sacrificing any quality or the goals of that  
11 acceptance process.

12 So, it turns out that the process  
13 industries utilize this concept called safety  
14 instrumented systems. And there's a standard IEC  
15 61508 that talks about safety integrity levels.

16 And these different levels apply to both  
17 the hardware and the software that make up the digital  
18 device of the digital system. And for the most part,  
19 although 61508 does talk about four safety integrity  
20 levels, in actual practice the fourth level is rarely  
21 if ever used.

22 That most of the products you see on the  
23 market are level one, two, and three. In fact there's  
24 a U.S. version of the 61511 standard, which is kind  
25 of a companion to 61508 for the process industries.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           The U.S. version is ISA 84. And that  
2 document only has three levels. So it's kind of more  
3 consistent with what you actually see in practice.

4           So anyway, my point there is that safety  
5 integrity level three is typically the highest level  
6 you will see. It would be the level assigned to the  
7 systems and components with the highest integrity  
8 level.

9           Anyway, so what we wanted to look at, is  
10 see how that could be applied to this process of  
11 acceptance of commercial grade digital equipment.  
12 And if you look in EPRI TR-106439, it talks about, as  
13 Dean mentioned, the identification and documentation  
14 of critical characteristics.

15           And 61, or excuse me, 106439 talks about  
16 the -- that digital equipment has a kind of an  
17 additional category of critical characteristics above  
18 and beyond what you typically see for other types of  
19 equipment. It talks about physical and performance  
20 characteristics that apply to all kinds of equipment.

21           But then for digital it talks about a  
22 third category that they -- that it refers to as  
23 dependability. And dependability is a pretty broad  
24 concept. 106439 defines it as being a broad concept  
25 incorporating various characteristics of digital

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 equipment including reliability, safety, availability,  
2 maintainability, and others.

3 So, we like to think of that as just  
4 basically saying that high dependability is just  
5 another way of talking about the basic quality of the  
6 hardware and software that makes up the digital device  
7 or the digital platform.

8 So what we are proposing here is to  
9 seriously investigate and look into the possibility  
10 of being able to say that the digital device or piece  
11 of equipment to -- that's been certified to a safety  
12 integrity level three has sufficient quality of its  
13 hardware and software. That you can then leverage  
14 that or use that to satisfy the dependability criteria  
15 that TR-106439 talks about.

16 So the idea there is rather than have to  
17 do a completely independent investigation and  
18 evaluation of the basic hardware and software  
19 quality, if it's got that safety integrity level three  
20 certification to say, okay, somebody else with the  
21 appropriate knowledge, background and experience, and  
22 not the manufacturer of the equipment, a third-party,  
23 has gone in and looked at that equipment and concluded  
24 yes, the quality of this hardware and software is a  
25 high level, worthy of a safety integrity level three

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 certification.

2 And that should be good enough to meet  
3 those dependability critical characteristics. Well  
4 that's not to say that that would automatically mean  
5 that it meets the other critical characteristics that  
6 fall into the physical or performance categories.

7 For example, you may have a performance  
8 requirement for the device related to its response  
9 time. Or the device that you might want to use in  
10 that application could have a safety integrity level  
11 three certification and be a high quality device.  
12 But it maybe that the specs for that device show that  
13 its response time is not adequate for the application  
14 that you're thinking about using it in.

15 So it's not a total path that if it's a  
16 safety integrity level three that you can somehow  
17 automatically put it in any safety related  
18 application no matter what. You would still have to  
19 evaluate the performance requirement, the physical  
20 characteristics and so forth, all within that TR-  
21 106439 process.

22 So, that's the kind of the high level  
23 concept there. A couple of other points I wanted to  
24 bring up are that this notion of relying to some  
25 extent on a third-party certification does have some

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 precedent.

2 Back in the early 2000s when one of the  
3 -- our TLC-based platform was evaluated generically,  
4 and the safety evaluation report for that platform  
5 does speak of the independent third-party review that  
6 was done by TUV Rheinland. And the safety evaluation  
7 report did take some degree of credit for that  
8 activity towards being able to conclude that that  
9 particular platform was of sufficiently high quality.

10 So, hopefully this concept isn't, you  
11 know, totally out of left field. And you know, not  
12 related to anything that's been thought about or  
13 considered previously.

14 And one of the advantages that we think  
15 that that provides, we've talked about some of the  
16 advantages to the industry. But we also think that  
17 provides an advantage to the NRC staff as well.

18 Because a lot of time is often spent in  
19 evaluating platforms and in some cases devices, for  
20 purposes of determining the basic quality of that  
21 device or that platform. And so if that's already  
22 been done by an independent entity that you know,  
23 hypothetically we would have mutually agreed is  
24 trustworthy and that we can rely on their conclusions,  
25 then that would reduce effort on the regulatory side

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 as well.

2 The other thing I guess I want to say is,  
3 this is a concept at this point. It hasn't been  
4 fully fleshed out. And Matt Gibson is going to talk  
5 in a little bit about some EPRI research that's  
6 planned to really dig into the details. You know,  
7 like a lot of things, the devil's in the details  
8 here.

9 But a lot of things are going to be  
10 investigated and understand at a much more detailed  
11 level how it works, who these certifiers are, how  
12 they become certifiers. You know, all that sort of  
13 stuff.

14 But, at this point we're not presupposing  
15 any conclusions about this. We just think that it's  
16 a concept that has enough merit to be worthy of  
17 investigation and serious consideration.

18 And that, you know, the results will lead  
19 us where it will. But, we think there's potential  
20 here. And that it's worth the time and effort to try  
21 to look into it. That this is a useful path to go  
22 down.

23 So, I'll stop there and take any  
24 questions that anyone might have on the proposal here.

25 MR. PRESCOTT: Okay. This is Paul

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 Prescott. Again, you know, I'm looking at this with  
2 an open mind. And making sure we fully understand  
3 it.

4 And it's come up quite often in questions  
5 with I&C equipment, what does dependability mean?  
6 How do I prove that when I perform dedication?

7 And the response has always been, at  
8 least from us anyways, dependability, you know, is  
9 this qualitative thing. And critical characteristics  
10 are quantitative.

11 But essentially what we've always said  
12 is, you know, dependability is built into design.  
13 Whenever it was designed, it was determined that this  
14 component would be needed to do this function.

15 And so therefore if you show the critical  
16 characteristics, you've shown the dependability.  
17 Now, you know, I think we're talking the same thing  
18 that when they prove dependability, they'll do it by  
19 verifying critical characteristics of the component.

20 Do I understand that concept right?

21 MR. HOOTEN: Well, I wouldn't necessarily  
22 separate critical characteristics and dependability  
23 as being two separate unrelated things. I would say  
24 that dependability is a subset of critical  
25 characteristics.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           And that's how TR-106439 talks about it  
2 today. The idea of having dependability related  
3 critical characteristics that the acceptance process  
4 has to demonstrate, that concept exists today.

5           So we're not really proposing any change  
6 to that in terms, you know, at the highest level.  
7 But rather proposing a specific way of demonstrating  
8 that the dependability related critical  
9 characteristics can be satisfied.

10           Does that distinction make sense? Or  
11 does it sound like I'm just doing the double talk?

12           MR. PRESCOTT: No. I -- well, you know,  
13 again it's all in when the rubber hits the road,  
14 right? You know, I've got to -- once I lay eyes on  
15 it, can understand the concept you're trying to  
16 explain.

17           I think we're saying the same thing. I  
18 think.

19           MR. HOOTEN: And so I guess the other  
20 point I guess maybe more -- will help clarify this,  
21 is that, you know, any time you select new digital  
22 equipment, whether it's a device or a whole platform,  
23 you know, the SIL certification doesn't know how  
24 you're going to apply it. Right?

25           It's just, you know, something you can

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 buy and use as you see fit. So, the SIL certification  
2 really only relates to the basic quality of the  
3 hardware and software that you're buying.

4 Whether or not that hardware and software  
5 is appropriate to apply in the specific application  
6 in the licensee's plant is completely not covered by  
7 the SIL certification. The critical characteristics  
8 related to the application still have to be identified  
9 and addressed just the same way, you know, they are  
10 for today.

11 I don't know if that helps any.

12 MR. PRESCOTT: Yes. I totally agree with  
13 that. With what you just said there. Yes.

14 MR. CURTIS: This is David Curtis. Just  
15 expanding on Paul's question. So, my understanding  
16 of that SIL certification process is in part that the  
17 certifier is actually evaluating the quality  
18 development process of that component.

19 That's where you were ask, you know,  
20 suggesting that industry would want to be able to  
21 take advantage of the dependability piece. So I  
22 think it's very much in line with, Paul, what you  
23 heard traditionally about what staff has told you in  
24 terms of what we're looking for from a dependability  
25 standpoint.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 Can you confirm that, Dave?

2 MR. HOOTEN: Yes. Yes. The SIL  
3 certification process addresses, like I said, both  
4 hardware and software. And it addressed hardware to  
5 a large degree in a quantitative way.

6 Which, you know, I'm sure you can imagine  
7 how that can be done. Which components have  
8 generally have published mean time between failures.  
9 And you can do calculations and figure out the  
10 likelihood of a failure of the hardware.

11 But the process also recognizes that you  
12 can't approach the software quantitatively like that.  
13 It's certainly not in the same way.

14 And it recognizes that the software  
15 quality needs to be evaluated, you know, with  
16 qualitative criteria. And that that drives you back  
17 to looking at the software development process and  
18 things of that nature.

19 Again, I can't get down into the gory  
20 details of exactly how that's done. And how that  
21 compares or relates to some other existing standards  
22 that, you know, are currently part of the NRC  
23 regulatory infrastructure.

24 You know, that's all going to be, I think,  
25 related to the forth coming EPRI research. But

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 conceptually, the software quality is evaluated and  
2 it is done using qualitative methods. Looking at  
3 things like the development process and how it's  
4 tested, and you know, so forth and so on.

5 So, does that answer your question?

6 MR. CURTIS: Yes. Thank you.

7 MR. THOMAS: Yeah, and I think my  
8 question is sort of a follow on to that. This is  
9 Brian Thomas again. And, you know, I have no  
10 expertise in third-party certification.

11 But based on your write up here, yes, my  
12 question has to do a lot with, you know, if you can  
13 help us understand the rigor of the SIL process if  
14 you will. Where does it start and where does it end?

15 MR. RAHN: And how does it compare -- and  
16 this is David Rahn. Just to amplify what you're  
17 saying is that how does it compare to what we  
18 currently do for software for digital components?

19 MR. THOMAS: Right. And the second part  
20 of that, I guess the staff would be, you know,  
21 probably be able to illuminate me on that aspect of  
22 it. Because that's what we do.

23 But, feel free to speak to that too. I  
24 mean, but, I do want to understand the rigor of the  
25 SIL process. Where does it start?

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           You know, to what extent does the third-  
2 party certifier then follow behind what has been done  
3 to then help assure the adequacy of it? And then,  
4 you know, where does it stop throughout this process?

5           And, if you can, a little bit on how does  
6 it compare to what we -- like Dave said, Dave Rahn  
7 said, how does it compare to what we currently do?

8           MR. HOOTEN: A couple of things on that.  
9 I have -- number one is just I'm hearing two different  
10 aspects to that. One has to do with the rigor of the  
11 process. And the other has to do with the scope or  
12 breadth of it, right? Which you're --

13           MR. THOMAS: Yes. Yes.

14           MR. HOOTEN: But the answer in both  
15 cases, I think, is that the planned EPRI research  
16 really is what's going to dig under -- look under the  
17 hood and dig into that. And try to understand that  
18 at a, you know, a fine level.

19           At this point I can only speak to high  
20 level about that. Because I have not personally gone  
21 through a detailed full certification and seen all  
22 the particulars of how they go about it and what they  
23 do.

24           You know, so it's just enough at this  
25 point that I believe that there's value and benefit

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 in investigating it. And seeing if it's good enough.

2 But at this point I really can't answer  
3 your question in much more detail.

4 MR. ODESS-GILLETT: This is Warren Odess-  
5 Gillett. Just to augment on what Dave's saying is  
6 that if the process goes through the whole life cycle  
7 of the development of the product, including the QA  
8 arrangements, procurement, you know, planning all the  
9 way through to testing and so on.

10 So it's the full -- just to give you an  
11 id -- the breadth, it would be the whole life cycle  
12 including the QA arrangements for the device.

13 MR. PRESCOTT: And this is Paul Prescott.  
14 I just want to ask, and as part of the EPRI document  
15 that we're eventually going to see hopefully, does  
16 that entail anything with eyes on the process at all?

17 Or is it just a more or less like an  
18 evaluation of the 61508 document and what that entails  
19 in that document as far as what it does to verify the  
20 quality of the item?

21 MR. ODESS-GILLETT: Matt, do you want to  
22 take that? Or do you want me to?

23 MR. GIBSON: I can take that. And I can  
24 talk a little bit about my overall view. It is a  
25 hands on research effort.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           Our goal with the research is to figure  
2           out if the SIL process, third-party SIL certification  
3           process actually works. So, it's a fairly ambitious  
4           research because it involves engaging the certifiers,  
5           you know, and finding out what they do.

6           It also involves obtaining reliability  
7           data for a large swath of SIL certified equipment to  
8           determine their, you know, at risk reliability and  
9           their reliability on demand. Because part of this  
10          is a, if you will, if I can mix these terms up a  
11          little bit, a quantitative assessment of a  
12          qualitative process.

13          So that, you know, if we can get the  
14          records for thousands or maybe even tens of thousands  
15          of pieces of equipment in operation, we can see where  
16          that real world performance of that process is. You  
17          know, how good is it at the -- ensuring this equipment  
18          is of high quality and high reliability?

19          So, that's kind of the way it will work.  
20          So it will be very much a classical research project  
21          with real data on real things. And real analysis of  
22          the process.

23                 MR. MUNDY: And Matt's prepared as part  
24                 of the agenda to go into some more detail about the  
25                 EPRI research. And just starting this year, but

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           whatever results are there and plans for the future.

2                         But you can't ask any more questions now.

3           Please feel free then.

4                         (Laughter.)

5                         MR. THOMAS: Well, I just -- let me just

6           -- how about -- and Matt, thanks for that information.

7           This is Brian Thomas again.

8                         You know, we're talking conceptually  
9           here. We're talking about a framework that affords  
10          us, you know, to do certain things to enable us to  
11          arrive at making an evaluation of safety if you will.

12                        But, you know, speaking conceptually,  
13          speaking from a frameworks standpoint, you know, the  
14          staff does go in, a lot into how. Because the staff  
15          has to make that determination of the adequacy of the  
16          methods that are being employed to get us to the end  
17          outcome, which is being in a position to make a  
18          determination of the adequacy of safety.

19                        So the how and all those gory details, I  
20          think, is very important in this process. And you  
21          know, what I'm thinking is, and I don't know all the  
22          details of your schedule going forward here, but I  
23          think in going through this process and addressing  
24          MP3, we will have to speak to the, you know, to  
25          whatever level that is, it could be some sort of a

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 graded approach.

2 We will have to be able to speak to the  
3 adequacy of the how to make -- to get to, you know,  
4 some sort of a conclusion that we think it's a --  
5 it's feasible. You know, it has good potential of  
6 meeting this, the staff needs.

7 Okay? So how is -- that's what I'm  
8 leaving you with, the how is very important.

9 MR. MUNDY: But Brian, this is Dean  
10 Mundy. A question about your question or your  
11 thought. And that is, -- and Matt will go into more  
12 detail about the research.

13 I think the research has at least two, if  
14 not more components. One is the equipment itself.  
15 Right, is it in fact dependable as it's stated to be?

16 MR. THOMAS: Right.

17 MR. MUNDY: In the documentation. And  
18 the other is, does the process by which the  
19 certifications are granted, right, is that process  
20 worthy? Right?

21 MR. THOMAS: Right.

22 MR. MUNDY: So, is that -- is that  
23 process, is that the how you're referring to? Or is  
24 there a different, an additional how?

25 MR. THOMAS: No. I'm speaking about, to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 tell you the truth, I'm speaking about the process it  
2 goes through. But I'm saying the staff would be  
3 looking at the adequacy of what are the methods you  
4 emp -- you know, you utilize when you get down into  
5 the details and you look into, you know.

6 And I guess how does that look over there  
7 too? But if you look into how does this component,  
8 or how does this device, or, you know, this how can  
9 we get it to point to where we feel satisfied that  
10 the certifiers, right, had gone through their process  
11 and we feel, you know, quantitatively or  
12 qualitatively we feel that we've been assured that  
13 we're evaluating the safety associated with it?

14 Does that make sense?

15 MR. MUNDY: Yes. Fair enough. And  
16 Matt, you can certainly chime in or take that up in  
17 your part of the discussion.

18 MR. GIBSON: Well, I can chime in. But  
19 I think that was Brian talking, right?

20 MR. THOMAS: Yes.

21 MR. GIBSON: So, as stated, the research  
22 wants to find out and Dean said that we want to  
23 determine if the process statistically has a very  
24 high performance level.

25 You know, like I said before, you know,

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 if we get data on as much as we can and determine  
2 that the process and the complete SIL ecosystem  
3 produces statistical levels of very highly reliable  
4 pieces of equipment, is reliability or assured to  
5 some high degree of statistical reliability.

6 Then, the other thing we look at is, you  
7 know, how is the process' integrity maintained? And  
8 that covers a lot of things. So, I'll kind of leave  
9 it at that.

10 You know, there's all kinds of elements  
11 of process integrity. So, if you have a process that  
12 produces a good result, what you want to do is then  
13 figure out if the process itself has any hazards in  
14 it. You know, where it could become not as effective  
15 over time.

16 And we'll look at that as well. Because  
17 Dave, I think as to your overall comment, there's a  
18 lot of dimensions to that.

19 MR. THOMAS: Okay. Thanks.

20 MR. RAHN: This is David Rahn. Maybe  
21 just to follow up on that particular issue. All  
22 right, I think we talked a little bit last time about  
23 the potential for comparing how one potential  
24 certifier performs the same SIL three level, or SIL  
25 level certification compared to other certifiers.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1           So, it's not just how is it being  
2 maintained, but is it consistent from one certifier  
3 to the next?

4           MR. GIBSON: But well, the answer to that  
5 question, we hope, will come out into the data  
6 analysis we do on the results of the SIL  
7 certification. The premise is that all certifiers  
8 are certifying to the same criteria out of 61508.

9           So, we want the -- our goal is to have  
10 large samples from each -- at least three major  
11 certifiers. We also want to find out how many  
12 certifiers there are. But, you know, we'll figure  
13 this out as we go.

14           And try to sample equipment from as many  
15 certifiers as possible. You know, certainly the  
16 major ones that would be the common certifiers for  
17 this kind of equipment.

18           Because we get a -- we get a statistical  
19 value of the consistency of their efforts. So, you  
20 know, if we -- an example would be if we were able to  
21 review four certifiers and we found that three of the  
22 four certifiers consistently supported that they  
23 achieved, you know, a ten to the minus three, or  
24 whatever reliability that was attempting to be -- or  
25 a failure rate by the way, reverse of reliability, of

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 the particular assessment.

2 And we found that a fourth of the  
3 equipment had a higher failure rate than the target  
4 for the SIL certification, then we could then  
5 understand that they're scat -- you know, that there  
6 are certifier specific issues that have to be looked  
7 at.

8 If you all achieve that same level, then  
9 the difference is potentially in their actual process  
10 within the certifier maybe less significant.

11 MR. TANEJA: Okay Matt, this is Dinesh.  
12 Do you know at this point whether there is any kind  
13 of QA compliance that these certifiers comply to? Or  
14 they're required to comply to? Like some --

15 MR. GIBSON: Well, it's just a -- I'm  
16 having a little hard time hearing you Dinesh. But I  
17 think you asked me who certifies the certifiers? Is  
18 that what you asked me?

19 MR. TANEJA: No. Well, not necessarily  
20 certifies the certifier. I'm asking whether they  
21 need to meet any kind of quality assurance standards  
22 themselves to be --

23 MR. GIBSON: Well, I'll tell you, that's  
24 part of the research.

25 MR. TANEJA: Okay.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 MR. GIBSON: If you read -- like if you  
2 go and get TUV's brochures, they'll tell you that  
3 they do. And that it's all kind of different, you  
4 know, 14 different QA standards they go by.

5 But until we look at how that actually  
6 works, I don't know. That's part of the research.

7 MR. TANEJA: Okay. All right.

8 MR. JARRETT: Hey Dinesh?

9 MR. TANEJA: Yes.

10 MR. JARRETT: This is Ron Jarrett. I  
11 just want to kind of chime in on a recent CDR I did  
12 with a vendor that does have SIL three products.

13 And we were just looking at from non-  
14 safety, non-SIL applications, and they had an  
15 extremely robust QA oversight. They are -- it is an  
16 ISO 9000.

17 But, you know, they do work for the Navy,  
18 the military, so they have -- they probably have a  
19 program that's better than any Appendix B program  
20 I've ever seen. So, from software to parts  
21 traceability, and this is not even the SIL  
22 certification.

23 So, and I don't know a lot about the SIL  
24 certification aspects. But just looking at their  
25 non-safety stuff, commercial stuff, they are at a

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 high level.

2 And I've seen that at a couple of other  
3 vendors too, and recently.

4 MR. TANEJA: Okay. So you're talking  
5 about the manufacturers themselves having some  
6 quality controls on their product and their services?

7 MR. JARRETT: Oh, it's extremely robust.  
8 It's down to Travelers and, you know, stuff you would  
9 go in and see. And it's the program. The  
10 requirements are traceable. Their parts are  
11 traceable down to the subcomponent surface mount  
12 components. Those are engineered.

13 So, it's very robust.

14 MR. TANEJA: Well, you know, I mean,  
15 that's the -- if you were doing a commercial grade  
16 dedication that's what you'd be doing, is evaluating  
17 those processes of these commercial vendors to take,  
18 you know, I guess that's like one of the evaluation  
19 criteria that you do use.

20 So, I think the question was that these  
21 third-party certifiers, will they have to have to be  
22 known as a certifying laboratory? Whether it's TUV,  
23 whether it's, you know, it's like they have to have  
24 some credentials to be qualified to be a certifier.

25 And I guess what I heard from Matt is

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 that that's part of the research activity.

2 MR. GIBSON: That's correct.

3 MR. YANG: Yes, a related question to  
4 Dinesh. You have to make -- you have done some  
5 research of the industries how to they do  
6 certification.

7 So, have you looked at if all the  
8 industries -- all the industries say first that's  
9 industry. If those certifiers have to be approved  
10 by certain organizations, say like FDA. Okay.

11 So, if someone certify some -- someone do  
12 certification for medical industry, does FDA have to  
13 approve those certifier is qualified? So, I think  
14 the question is related to Dinesh's question.

15 MR. MUNDY: So if I -- this is Dean. If  
16 I interpret your question correctly, it's in effect,  
17 how do other industries approve or endorse, or  
18 whatever word is appropriate, the certifying bodies?  
19 Or if they -- assuming they use SIL certification,  
20 how do they address this same question? Is that --

21 MR. YANG: I mean, in other industry, I  
22 mean, say some certifier certify equipment. Do these  
23 certifier have to be approved by say some --

24 MR. MUNDY: FDA or any other  
25 organization?

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. YANG: Yes.

2 MR. MUNDY: And I will defer to Matt here  
3 in a second. But I'll just introduce the topic that  
4 one of the reasons we're having this and any other  
5 discussions and we certainly encourage all the  
6 questions that you can put to us is that we'll only  
7 do nothing more than anything else but improve the  
8 quality of the research that's done.

9 All of these questions need to be folded  
10 into, if they're not already part of the, you know,  
11 of the research being done. So, I mean, please  
12 continue to throw those questions at us.

13 And if Matt's not already including them  
14 in the EPRI research, we'll make sure that, you know,  
15 if appropriate, we do. So Matt, any additional  
16 thoughts on that?

17 MR. GIBSON: Dean, I didn't hear that  
18 last part if you were asking me that question.

19 MR. MUNDY: Yes, I just -- that's okay.  
20 I just wanted to know if you had any additional  
21 thoughts on the question that was raised.

22 Which was effectively, how do other  
23 industries deal with -- did the certifying bodies  
24 need approval by other industries? So, for example,  
25 FDA --

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. GIBSON: Well, that's part of our  
2 research is to trace the ecosystem back to determine,  
3 you know, what we're dealing with. I do want to just  
4 sort of get everybody leveled a little bit, is that  
5 SIL certification, what we're proposing, applies  
6 again to the platform part of the system.

7 It is a manufacturer's certification.  
8 So, a SIL certification will be the engineered  
9 hardware. It covers the hardware and the system  
10 software that is part of it.

11 So, -- and it is done to the requirements  
12 of 61508. So 61508 is not just a process, it is  
13 criteria for the device to meet. So it's actually,  
14 you know, the critical characteristics if you will.

15 So, people who use these certifications  
16 have essentially agreed with themselves that  
17 something certified to 61508 would meet their  
18 requirements. And sometimes they have local legal  
19 entities, such as safety entities and national bodies  
20 that require due diligence for personnel safety.  
21 OSHA is one of those.

22 And so -- but the only piece about that  
23 that is sort of a mystery is the qualification of the  
24 certifier. You know, what they have to go through  
25 to be qualified to do that.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1                   And we'll look at that into the -- in the  
2                   research.

3                   MR. LIPSCOMB:   Can I ask you a question  
4                   about that?   This is George Lipscomb.   Matt, are you  
5                   still there?

6                   MR. GIBSON:   Yes.   I'm still here.

7                   MR. LIPSCOMB:   Yes.   A question about  
8                   that.   When you said it -- the certification applies  
9                   to the platform.   Are you saying that it applies to  
10                  the platform and the operating software that would go  
11                  on?   And not to the specific tailoring of the  
12                  particular I&C system to an application?

13                  MR. GIBSON:   That's right.

14                  MR. LIPSCOMB:   In other words, this --

15                  MR. GIBSON:   That's correct.

16                  MR. LIPSCOMB:   So, that's a separate  
17                  issue?

18                  MR. GIBSON:   So, the research we're  
19                  doing, that EPRI will do is on the efficacy of a SIL  
20                  certification for platform certification.   That's  
21                  what it does.   I mean, that's its stated purpose  
22                  anyway.

23                               And so we want to make sure that works.  
24                               Now what that does for you, is if that proves to be  
25                               good, is the theory behind why this research is useful

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 and why we're doing it, is that opens the possibility  
2 that utilities and regulatory bodies can begin their  
3 reviews at the application level by accepting the  
4 platform reviews that are done by the third-party  
5 certifiers.

6 So now, you know, you have to build an  
7 app. You have to write up a program, you know, for  
8 say -- we'll take a PLC for instance. So there's  
9 going to be an application that does reactor trip for  
10 instance.

11 And so that activity of writing a program  
12 that senses, you know, conditions and provides the  
13 reactor trip, is still in our traditional process  
14 that you're used to. But it really bifurcates the  
15 platform from the application. That's what we're  
16 kind of thinking we can do here.

17 And so it really changes the burden on  
18 everybody. The theory is it will change the burden  
19 on everybody by allowing folks to concentrate on how  
20 a system is put together.

21 I mean, you know, the questions about  
22 what are sensing? What are you doing with that  
23 information? And what are your outputs? And what's  
24 your logic for doing that? You know, and is your --  
25 you know, is your means of doing that going to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 adequately achieve the mission goal of that system?

2 You don't have to worry about whether --  
3 what kind of instruction set that particular -- it  
4 fee has or how the memory's put together. You're not  
5 wor -- hopefully you won't have to worry about that  
6 kind of stuff.

7 MR. HOOTEN: All right, this is Dave  
8 Hooten. It's very similar from a general scope  
9 standpoint to the generic platform reviews you all  
10 did like for Teleperm XS, Common Q, Tricon, and so  
11 forth.

12 Where you got topical reports and looked  
13 at those platforms, you know, the hardware and the  
14 basic software that comes with the platform apart  
15 from any specific application program that's  
16 developed by the end user or their contractor.

17 All right, so that concept is similar in  
18 terms of what's being looked at from a scope and  
19 breadth respect.

20 MR. MUNDY: A question protocol here.  
21 Since we're talking a lot about the EPRI research,  
22 would it make sense to have Matt do his part of the  
23 agenda now?

24 You know, I think we're back on -- agenda-  
25 wise, we're on the, you know, reviewing the NEI

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1       submittal and the questions around it. So, it's  
2       certainly up to you. It's up to you.

3               MR. TANEJA: We -- yes.

4               MR. MUNDY: It's your call.

5               MR. TANEJA: We're right in the schedule  
6       right now at this time. If you guys want to --

7               MR. GIBSON: Well you want -- Dean, I  
8       think I'm almost done with my part.

9               (Laughter.)

10              MS. LAURON: I don't know. Do you guys  
11       want to take a break first?

12              MR. HOOTEN: If we could -- this is Dave.  
13       Just one other thing I'd like to add. I meant to  
14       bring this up earlier, but I forgot.

15              One point I want to make here is that  
16       during our efforts to kind of socialize this concept,  
17       this proposal, we encountered some confusion  
18       regarding the concept of safety integrity level and  
19       the acronym SIL. It's kind of unfortunate, but  
20       safety integrity level and software integrity level,  
21       which is the term used in pre-2012 versions of the  
22       IEEE 1012 standard, which is on verification and  
23       validation. Since both acronyms are SIL, they're  
24       very easily confused.

25              But it's important to recognize here that

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 there really are different and separate concepts.  
2 That the integrity levels in IEEE 1012 are for the  
3 purpose of applying a graded approach to V&V  
4 activities.

5           Whereas the safety integrity level in an  
6 IEC 61508 context is, you know, is a different  
7 concept. It's got to do with, you know, as we talked  
8 about, reliability, quality, and so forth of the  
9 hardware and software, you know, from a design  
10 development and so forth perspective.

11           So it's very important that we don't mix  
12 up safety integrity level with software integrity  
13 level as used by 1012. So, I'm trying whenever I can  
14 remember to say, safety integrity level, so I'm clear  
15 on what we're talking about here.

16           But, those are two concepts that a lot of  
17 people have confused. And I want to try to make sure  
18 that we don't fall into that trap.

19           MR. YANG: Yes. I think that's a good  
20 suggestion. A small suggestion I think to go further  
21 is that when you say IO, please write it down so that  
22 we know it is safety integrity level, but not software  
23 integrity level.

24           MR. GIBSON: Right.

25           MR. TANEJA: Dave -- you know, Dave one

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 thing that, you know, in your write up that you point  
2 to, it says SIL corresponds to a range of target  
3 likelihoods of failures of safety functions.

4 So when you're talking about these SIL  
5 levels, I believe they're also linked to, you know,  
6 the level of safety that you require. Like, you  
7 know, if it's a higher integrity, meaning that this  
8 requires -- it's a high risk application.

9 Is that correct? Is that what this is  
10 trying to say? The likelihood of failure?

11 MR. HOOTEN: Well, I want to say yes  
12 until you use the word application. You know, that  
13 goes back to the thing Matt just talked about, you  
14 know, separating the platform from the application.

15 So, we're not really concerned with the  
16 application here. But that point aside, I believe  
17 what you're saying is correct.

18 The higher the number in safety integrity  
19 level, the more rigorous the requirements are to  
20 achieve that level. So, in other words, a safety  
21 integrity level three device would be judged to have  
22 met more stringent quality criteria than a safety  
23 integrity level one or two.

24 MR. MUNDY: This is like bowling, not  
25 golf.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. TANEJA: Okay. All right.

2 MR. RAHN: This is David Rahn. Before  
3 we leave this discussion on this particular topic, I  
4 just wanted to maybe get an idea from the industry,  
5 what they're thinking with regard to this potential  
6 bifurcation of the application from the platform?

7 And that's, you know, essentially at the  
8 present time we believe that our regulations apply to  
9 -- or and guidance, applies to the entire both the  
10 development of the platform and the application.

11 If the third-party certification process  
12 only addresses the platform aspects of it, at what  
13 point, and who has the responsibility for verifying  
14 critical characteristics of the application? Would  
15 that be back on the licensee?

16 MR. HOOTEN: The answer to that question  
17 is the same as it is today. Whether that be the  
18 licensee or the licensee's agent, contractor, what  
19 have you, the person that's taking responsibility --  
20 or not the person, the entity that's taking  
21 responsibility under Appendix B like we talked about  
22 earlier.

23 We're not proposing any change in that.

24 MR. RAHN: So currently, the way we go  
25 about that, at least for the more safety risk

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 significant applications, is we play to the IEEE  
2 standards for verifying the software development  
3 process. And I think you're trying to get away from  
4 that.

5 MR. HOOTEN: No. No. We were proposing  
6 that that not change at all at this point. Now  
7 granted, you know, we're talking in the context of  
8 MP3 here. And there are other MP numbers in this  
9 broader context that may want to address that.

10 But that's not our purpose here under the  
11 industry's MP3 proposal. So --

12 MR. GIBSON: Well, let's clarify that a  
13 little bit, Dave.

14 MR. HOOTEN: Why don't I clarify --

15 MR. GIBSON: Okay. Go ahead. Go ahead.

16 MR. HOOTEN: If you'd like to mention  
17 things, you can correct me if you want, but I'll try.  
18 But like what I'm trying to say here is that we keep  
19 talking about IEC 61508, but we're not talking about  
20 it from the standpoint of we want the NRC staff to go  
21 endorse that standard and say that it is now the thing  
22 that we're going to, you know, work to on every topic  
23 that it addresses.

24 That's really not what we're saying.  
25 We're just pointing to 61508 because it provides, you

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 know, framework, context, and descriptions of what  
2 safety integrity levels are. And how they're to be  
3 achieved and what the criteria is to achieve that.

4 So, we're not talking about going away  
5 from any other existing regulatory structural  
6 framework related to what's required to develop a  
7 safety related application on this products.

8 So, go ahead Matt, you can correct me  
9 now.

10 MR. GIBSON: No. No. I think that was  
11 good. I'll just reiterate that by separating the  
12 platform from the application, and determining that  
13 you can accept the SIL certified -- certification,  
14 then the part of the system software that's included  
15 in the certification is just -- it is now being  
16 certified and accepted.

17 The software development processes that  
18 would be reviewed and applied to the application are  
19 still the ones you're used to.

20 MR. RAHN: Okay. Right. And I just  
21 wanted to make that distinction so that we don't lose  
22 track of that part of it.

23 MR. HOOTEN: Right. Right. So if you  
24 have a SIL three certified platform that you realize  
25 it's function is not programing for example, you know,

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 the SIL certification is most likely going to have  
2 validated that the function blocks themselves.

3 Or software has been developed properly  
4 and according to a process. And properly verified  
5 and tested and all that good stuff.

6 But that doesn't imply that you can start  
7 taking those function blocks and put them together in  
8 a haphazard way to come up with some overall  
9 application. And that somehow automatically makes  
10 that okay just because you were starting with a SIL  
11 three certified platform.

12 MR. RAHN: Right.

13 MR. HOOTEN: And nothing of the sort.

14 MR. RAHN: Okay.

15 MR. YANG: I just have some -- just want  
16 -- it just reminded me of something. We're running  
17 on a concept software, but we would also consider  
18 hardware when we say commercial grade dedication. Is  
19 that right?

20 MR. HOOTEN: I'm sorry, I had trouble  
21 understanding --

22 MR. YANG: Well, I'm talking -- I'm not  
23 only talking about a software dedication, but also a  
24 hardware dedication. Is that right?

25 MR. HOOTEN: Yes. That's correct.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. YANG: Yes. For hardware we need to  
2 consider the, I think, the environment is very  
3 important. For example like, sensors usually in  
4 limbo condition would be say, 100 percent reliable  
5 possibly. But if you have radiation, the sensors  
6 probably can be changed.

7 So, we may not just consider the  
8 platform, but we also need to consider the basic  
9 application. That's what I think.

10 MR. HOOTEN: Well, if I understand you  
11 correctly, I think you're talking about potentially  
12 critical characteristics that would be --

13 MR. YANG: Yes.

14 MR. HOOTEN: Outside of the  
15 "dependability" related ones that we would be  
16 leveraging the SIL certification for. The other  
17 categories that TR-106439 talks about, like physical  
18 or performance type characteristics.

19 MR. YANG: Yes.

20 MR. HOOTEN: Those are still in play.  
21 And still need to be addressed under the, I think,  
22 process. And again, just because you might be using  
23 a SIL three certified device or platform, doesn't get  
24 you a pass for having to address those other critical  
25 characteristics.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 MR. YANG: Okay. Just want to make sure.

2 MR. TANEJA: Okay, break?

3 MS. LAURON: Yes. Okay. All right, so  
4 we'll go ahead and take a ten minute break.

5 MR. TANEJA: Yes. So, we're 2:30 right  
6 now. Be back at 2:45.

7 MS. LAURON: So, we'll reconvene at 2:45.  
8 In about 15 minutes.

9 (Whereupon, the above-entitled matter  
10 went off the record at 2:30 p.m. and resumed at 2:45  
11 p.m.)

12 MS. LAURON: Okay. It looks like  
13 everybody's back from the break. I think we're going  
14 to continue with the EPRI presentation.

15 OPERATOR: Okay. And this is Dory. Let  
16 me go ahead and place you back into the main  
17 conference. One moment.

18 MS. LAURON: Oh, okay. Thanks.

19 (Pause.)

20 MS. LAURON: Hi, this Carolyn. We're  
21 all back from the break. You all should see if you're  
22 participating via the GoToMeeting on the slide our  
23 next topic is the EPRI presentation, they're update  
24 on research, the research that they're doing.

25 MR. MUNDY: I assume Matt is still on the

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 line. I know we've talked a lot about what you may  
2 have planned to talk about in this piece of the  
3 agenda, but it might make sense to recap. And we  
4 didn't talk much about scheduling. That's one of the  
5 sub-items under status and scheduling, where we're at  
6 now with the -- and he talked a lot about scope  
7 already, but not necessarily where things stands now  
8 and the overall schedule.

9 So, Matt, are you still with us?

10 (No audible response.)

11 MR. MUNDY: And not on mute?

12 (No audible response.)

13 MR. CURTIS: You want to check to see if  
14 anyone hears?

15 MS. LAURON: Dory, did you open up the  
16 lines for the presenters?

17 OPERATOR: Mr. Gibson, please check your  
18 mute button. We're not able to hear you.

19 MR. GIBSON: Well, I can hear you talk  
20 real well, but there's so much noise and static in  
21 the room I can't hear anything in the room.

22 MS. LAURON: Okay. Is it better now?

23 MR. MUNDY: Where are the -- oh, is that  
24 actually on?

25 Is that any better, Matt? Can you hear

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 me now?

2 MR. GIBSON: Yes, yes. Yes, I can hear  
3 you now. That's a little better.

4 MR. MUNDY: Okay. Yes, there's a couple  
5 of roving mics here that we probably weren't paying  
6 enough attention to. All I was introducing is you  
7 covered a lot on the EPRI research in the prior part  
8 of the agenda, so that you stole most of your own  
9 thunder, so to speak, on this part. but you might  
10 want to cover schedule and current status, don't  
11 necessarily ask you to want to -- or going to ask you  
12 to repeat, but cover as much additional as you had  
13 planned to. And with that I'll just turn it back  
14 over to you.

15 MR. GIBSON: All right. Well we've  
16 covered a fair bit of the discussion, what the  
17 research will be doing. We plan on doing research  
18 beginning now through early 2018, so we expect the  
19 research results be published sometime mid-first  
20 quarter of 2018. So in the meantime we will be of  
21 course doing many things I expect earlier.

22 We'll be reaching out to the certifiers.  
23 We'll be reaching out to the manufacturers of sealed  
24 devices, sealed certified devices. We'll be  
25 evaluating the various elements of 61508 and how those

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 are interfaced. So we will also be, and I know it's  
2 part of -- again at some point there were some  
3 questions that staff had, some specific questions.  
4 And I think there's going to be some work on  
5 clarifying those a little bit, but we'll certainly  
6 include that input as far as the questions that need  
7 to be answered in our research that are not related  
8 directly to regulatory policy. It's just a fact of  
9 a matter about how a certifier is certified. That's  
10 a good question. We'll be answering those.

11 How that relates or meets any kind of  
12 specific NRC requirements, that's a policy analysis.  
13 We probably will not be covering that in our research.  
14 But that's something certainly that can be done once  
15 research is completed.

16 So that's kind of what I had. The bulk  
17 or the rest of what I wanted to share with you is  
18 -- and I can take questions about the research.

19 Oh, one other thing I know is -- if Brian  
20 Thomas is still in the room --

21 MR. CURTIS: He is not.

22 MR. GIBSON: Well, EPRI has an MOU with  
23 Research and we cover this research project regularly  
24 with them. We have monthly calls. So we'll be  
25 sharing how that's going through our Research Branch

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MOU. And if there's any questions the other branch  
2 staff have, they can certainly get a status from Brian  
3 and his folks while we're in progress. And certainly  
4 we can share that on these type of calls, too, but we  
5 do the MOU with Brian's group monthly. And Ian's not  
6 in the room?

7 Ian, you still there?

8 MR. CURTIS: He was gone. He was here  
9 earlier, but he's also not here. But Yaguang is  
10 here --

11 MR. GIBSON: Okay.

12 MR. CURTIS: -- and Yaguang --

13 MR. GIBSON: Well, they've all abandoned  
14 you, all the Research people.

15 (Laughter.)

16 MR. CURTIS: Yaguang is here and he can  
17 also work with us to communicate back and forth  
18 through the MOU that way.

19 MR. GIBSON: That's right. That's  
20 right. So anyway, that's kind of the setup. So if  
21 you've got any additional questions I can try to field  
22 those now. MR. CURTIS: I have an  
23 overarching question that's maybe more for Dean  
24 actually. So in industry's sort of strategy are you  
25 thinking that folks would like to be able to take

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 advantage of equipment that is SIL-certified as part  
2 of this process? Or as an alternative do you think  
3 that if we are able to ultimately adopt this approach  
4 as SIL has recommended that it will encourage  
5 manufacturers to adopt the SIL process or maybe some  
6 combination of the two?

7 MR. GIBSON: It certainly could be a  
8 combination of the two, but certainly the former is  
9 the objective. I use this terminology just -- the  
10 EPRI does research for the good of the industry in  
11 general, and one of those things is to have efficient  
12 processes. So the benefit for our utilities; and  
13 also I think it will be ultimately a benefit for the  
14 NRC as well, is to make this efficient. So to make  
15 it efficient you use certifications that are already  
16 done. So it's a commoditization of the safety-  
17 related platforms.

18 You go out and get a catalog and you pick  
19 -- you go shopping and you pick a safety-related  
20 platform that meets your application requirements,  
21 which is another step of this, right, obviously. You  
22 need one that has the capacity, the response time,  
23 the types of inputs you need, the isolation you  
24 require, that kind of thing. And you'll have to go  
25 shopping for one that has the features you want and

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 the capabilities you want. And then the idea is  
2 you'd be able to buy it. It's already certified. So  
3 then you can concentrate on getting the application  
4 constructed and certified and reviewed by regulatory  
5 bodies and approved for use.

6 So we think that's the sugar. It could  
7 -- if you backtrack a little bit, with the exception  
8 of a few of the most recent -- so FBGA-based systems,  
9 most OEMs or people who provide systems, safety  
10 systems resell an off-the-shelf piece of equipment.  
11 So it would encourage potentially those vendors to  
12 pick SIL-certified devices for use in their  
13 application offering that they might have. So that  
14 could also occur.

15 But you got to remember that the SIL  
16 certification has to be done by the original equipment  
17 manufacturer, because this is a manufacturing  
18 certification. So if you bought something -- I guess  
19 I'm speaking a little bit on what I actually know  
20 firsthand, but I've not ever heard of somebody buying  
21 a piece of equipment and then asking someone is it  
22 SIL-certified, because the cost of that and the access  
23 to the vendor information that would be needed to  
24 achieve that is pretty high. Because remember the  
25 certifier has to go in and look under the hood at the

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 vendor and see all kind of things.

2 Like Ron was talking about earlier, all  
3 that stuff he was seeing at quality assurance, well,  
4 those certifiers need to have to go in and audit all  
5 that just to know if it works. Well, that's pretty  
6 tough to do, especially on a onesie, twosie basis  
7 when you buy the equipment. So I don't see anybody  
8 commanding one to be done, but I can see integrators  
9 begin to pick SIL-certified equipment from the  
10 beginning versus and in-house dedication, a complete  
11 in-house dedication.

12 MR. CURTIS: Yes, and I guess to go a  
13 step further with my question, I'm thinking about the  
14 bigger picture of the integrated plan and for some  
15 folks in the room who have a lot of familiarity now  
16 with the safety chillers and the digital controller.  
17 And I'm curious if there are already on the  
18 marketplace SIL-certified digital controllers for  
19 chillers in that safety application and we could take  
20 advantage of that sort of thing as well.

21 I guess what I'm trying to understand is  
22 within the marketplace of digital equipment what  
23 percentage of manufacturers are already using SIL  
24 certification and to what level of safety  
25 application.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1                   MR. GIBSON:       Well, that's a good  
2 question. Some of that we'll find out during our  
3 research. I do want to make sure though that we do  
4 understand; and I think Ron Jarrett brings this up  
5 regularly, that it is possible that you will have an  
6 application that will not have a SIL-certified piece  
7 of equipment that meets your application  
8 requirements. So you would be back into the idea of  
9 using your traditional dedication process for that  
10 device as we're used to doing.

11                   And that's really important because  
12 sometimes in an effort to increase the quality of an  
13 application; and some of our chillers stories are  
14 kind of that way, we eventually reduce the quality of  
15 the application by hand rolling something that's been  
16 previously highly automized by the vendor. Say  
17 chiller is a good example, like the people who make  
18 chillers major controls for them. And they're highly  
19 automized and reliable. And so you're still going  
20 to be faced with the question is should I pick a  
21 controller simply because it's SIL-certified, or  
22 should I pick a controller that's been automized to  
23 have a high-quality application and then subsequently  
24 is dedicated?

25                   So we'll still have those kind of

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 questions that come up, but for a great majority of  
2 the applications you'll be able to pick a SIL device  
3 that does meet your application requirements.

4 MR. MUNDY: Good question, David. Just  
5 remember again that SIL certification does really not  
6 cover the application of the devices to the intended  
7 purpose.

8 MR. CURTIS: Understood.

9 MR. MUNDY: So you only get so far. And  
10 to agree with Matt, I speculate. And to put  
11 speculation in the right context, right, it's just  
12 like you would in a stock market firm. And the  
13 dedicators or integrators who would in theory here  
14 seek out now certified components more so than they  
15 otherwise would, the majority are maybe exclusively  
16 what I would see; again speculating, happening should  
17 this prove out to all work out, as we have the  
18 hypothesis it may, rather than nuclear manufacturers  
19 seeking out SIL certification. Market isn't big  
20 enough, right? My opinion. I'm just speculating.  
21 Good question.

22 MR. TANEJA: Just a perspective. A  
23 couple of weeks ago we were witnessing a prototype  
24 testing of a FBGA-based platform. Now they're  
25 developing this for a nuclear application, but it's

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 really right now a commercial product with -- there  
2 is no QA link to it. So I was just asking the  
3 question of the manufacturer. I said are you getting  
4 it SIL-certified? They said of course we have to get  
5 it SIL-certified. He said -- I said why? He said,  
6 well, we're not just selling it to nuclear. We have  
7 other marketplaces. So we need it to be certified  
8 for that reason.

9 And I said so how do you prepare for that?  
10 I mean, because this thing was in my mind when I was  
11 asking that question. He said, well, we conform to  
12 the IEC standard to begin with, so it's an easy walk  
13 for us when we go for certification. So this is for  
14 the NuScale, the ultra electronic, even though I think  
15 they are saying for the NuScale application they are  
16 going to build it under Appendix B in U.S.A., however  
17 they are still getting it SIL-certified for other  
18 global applications.

19 So it's knowing that the certification  
20 request is coming from the manufacturer, because they  
21 have now all the details of the design and the  
22 processes that they open up to the certifying entity,  
23 which like if you look at right now the EPRI  
24 guidelines we have for dedication, it says do exactly  
25 that. But if you go and try to get that information

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 of a product that you pick off the shelf, I don't  
2 know that the vendor is going to open up all his stuff  
3 to you. I think that's really the difference here.  
4 So just a perspective.

5 Back to you, Matt.

6 MR. GIBSON: Yes, I mean I didn't hear  
7 anything that was said that is different than what  
8 we're saying. Matter of fact, that is what you want  
9 to take advantage of. And there are SIL-certified  
10 FBGA systems that are modular where you can rearrange  
11 them a little bit and do different applications with  
12 them. So there you go. Those things all become in  
13 play and we -- the research would hopefully establish  
14 the efficacy for using those processes and artifacts  
15 to make the regulatory and the design process more  
16 efficient.

17 MR. JARRETT: This is Ron Jarrett. I'd  
18 just like to say I believe a SIL certification process  
19 would provide more consistency in this area. You  
20 wouldn't be dependent upon what this third party  
21 authenticator is thinking and their level of detail.  
22 And so I think it would provide some -- that standard  
23 would provide some consistency in this area.

24 MR. MUNDY: Thanks, Ron. Anymore  
25 questions for Matt at this point, or do we want to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 jump to the predefined -- the questions that were a  
2 result of the November 3rd meeting? Your call.

3 MR. TANEJA: No, not in -- I don't see  
4 any questions right now for Matt.

5 MR. MUNDY: Okay.

6 MS. LAURON: Are there any other  
7 questions from the presenters who called in? I don't  
8 know if Daniel is still on the line.

9 MR. MUNDY: Or, yes, NRC folks on the  
10 line.

11 (No audible response.)

12 MS. LAURON: Okay. All right. So we  
13 can go through the questions.

14 MR. MUNDY: Okay. I'll start by teeing  
15 this slide up. And for those who aren't in the room,  
16 we're currently on the slide that has considerations  
17 for the proposal, a bunch of questions that were a  
18 result of the -- or were actually in the summary notes  
19 from the November 3rd public meeting or prior public  
20 meeting on this topic.

21 So I'll tee this up by saying that as  
22 much as I hate to answer a question with a question,  
23 a lot of our responses to this, which we don't have  
24 in writing -- but a lot of our responses to this were  
25 to make sure that we understand your question. And

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 again, clarity of purpose and intent here is job one  
2 and our primary mission. A lot of those questions  
3 about your questions will be focused on making sure  
4 that, if not already included in the scope of what  
5 EPRI intends to do with their research -- that the  
6 questions here, if appropriate, can be.

7 So I'll tee it up like that. And again,  
8 not to be rude to answer a question with a question.  
9 That's not the purpose, but it's just to make sure  
10 that we seek to understand more than be understood  
11 what your questions really mean.

12 So starting with the first one, and, Matt  
13 or Dave or Ron, certainly feel free to jump in if you  
14 care. But to ask all more what's the question behind  
15 the question here? Did what we've already talked  
16 through in our intent and in Matt's -- Dave's  
17 description of the intent of our scope and Matt's  
18 description of the EPRI research, does that -- are  
19 you comfortable that that will be addressed in the  
20 research? Maybe start these one at a time.

21 The question is, for those who might not  
22 be looking at it, what entity will submit as a request  
23 to the NRC for conducting an evaluation of the  
24 adequacy of a proposed third-party certification  
25 process. So what we would say is at some point NEI

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 would submit on behalf of the industry something to  
2 the NRC for consideration, whether that's an NEI  
3 document or an existing part of the EPRI research for  
4 your consideration and potential endorsement.

5 And it's actually part of the research;  
6 and, Matt, correct me if I'm wrong, to identify what  
7 may be endorsed here. Again, that the research isn't  
8 about regulation. It's about the technical  
9 qualifications. But it will help us flush out or  
10 will flush out for us what may be endorsable or  
11 incorporatable into an NEI document, much like what  
12 was brought up earlier; Paul, you mentioned, up here  
13 NEI-14-05. So that's what we see kind of unfolding,  
14 which I think was the example you mentioned before.

15 MR. PRESCOTT: Right, and that's really  
16 the heart of the question. What we were wondering  
17 is would NEI be submitting a guidance document  
18 comparable to NEI-14-05 explaining the guidelines  
19 they're going to use to implement a process (1) to  
20 show us that the process works? And that would be  
21 part of -- I mean, to me it's like a two-piece thing:  
22 The technical evaluation will show what it shows, but  
23 we still have to meet the regulatory part and what  
24 guidelines are you proposing to put into place to  
25 ensure that it meets the regulatory requirements,

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 similar to what you saw in 14-05?

2 MR. MUNDY: Well I think I would say we  
3 wholeheartedly agree with that.

4 MR. PRESCOTT: Okay.

5 MR. MUNDY: And that's what we would  
6 -- that would -- again, it will depend on the results  
7 of the research, right? You may see nothing from us  
8 --

9 MR. PRESCOTT: Yes.

10 MR. MUNDY: -- right, if the research  
11 I'll say goes south or doesn't meet expectations.

12 MR. PRESCOTT: Right.

13 MR. MUNDY: But if our hypothesis is  
14 correct, there would be something out of 14-05 that  
15 would make sense to us given what we think we know  
16 now.

17 MR. PRESCOTT: Right. In addition; and  
18 I don't want to speak for Dinesh, so make sure you  
19 correct me if I'm wrong, but I would assume we would  
20 wanting to be do something to deal with 61508 for its  
21 technical viability to ensure it meets what we need  
22 to from a technical standpoint. So part of the  
23 submittal would involve the IEC document for staff  
24 review to ensure that the process looks sound.

25 MR. MUNDY: I'll actually ask if Matt and

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 Dave wanted to chime in here as well, but I would  
2 suggest that we'll learn more about this as the  
3 process unfolds and the research is more complete.  
4 Matt mentioned earlier the relationship and the MOU  
5 between EPRI and the NRC Research. And I would hope  
6 that some of that knowledge and collaboration and  
7 intelligence gathering --

8 (Simultaneous speaking.)

9 MR. GIBSON: Yes, and I will say, if I  
10 caught that last question correctly; and Dave Hooten  
11 said it earlier, and this is a key nuance here, we  
12 are not -- from a research point of view what we're  
13 trying to do is ensure that the SIL certification  
14 process produces demonstrably reliable equipment and  
15 that it evaluates the hazards and other things that  
16 are -- need to be evaluated in order to have a highly  
17 reliable system. Now that's where EPRI's research  
18 is going with this, to just establish that efficacy.

19 Now I don't think anybody is asking the  
20 regulators to fully endorse 61508 or not. That's  
21 something NEI can think about if they want to do that,  
22 but this is really not -- this is not about the  
23 endorsement of 61508 so much as it's about endorsing  
24 and accepting the outcome of something that has been  
25 done that way from a reliability and quality point of

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 view and using potentially the EPRI research to  
2 demonstrate that that in fact has a performance-based  
3 outcome, not a compliance-based outcome, but a  
4 performance-based outcome.

5 MR. TANEJA: Right, so the -- what I'm  
6 understanding that the SIL certification follows IEC  
7 61508 process that's laid out in there, correct?

8 MR. GIBSON: Well, it follows the  
9 criteria. The 61508; and there's seven or eight  
10 complete documents that go along with that set --

11 MR. TANEJA: Right.

12 MR. GIBSON: -- have criteria that a  
13 safety system has to perform and it has criteria that  
14 would require that that system has to be able to do  
15 -- has these characteristics in order to achieve  
16 reliable performance, deterministic performance in  
17 order to complete its safety function. That's what  
18 it's about. So the assessment of it -- I  
19 mean, the certification of it is a certification where  
20 the certifier takes what's in 61508 and ensures that  
21 the device under certification examination meets  
22 those criteria.

23 Now a SIL can also include 61511 in  
24 addition to 61508. There's a few derivatives there.  
25 And if you look at a few of these, it also covers

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 several IEC standards for EMC and seismic and other  
2 things. Now, so everybody else in the safety world  
3 has the same issues that everybody else does if you  
4 put a safety system in and you don't want it to fall  
5 off the wall or break if it -- if a truck goes by.  
6 So there's always some evaluation of physical shock  
7 hazards, EMC because the IEC has a whole suite of EMC  
8 requirements in Europe that are pretty extensive.  
9 And so they're evaluated to that as well.

10 So there's a lot to a SIL certification  
11 beyond just 61508, because 61508 will say that it  
12 must be resistant to EMC hazards and all that kind of  
13 thing. And then of course they apply to current  
14 European standards usually for that certification.  
15 So you got all that information in your SIL  
16 certification as well.

17 MR. TANEJA: I don't know, my thought are  
18 I think we need to probably discuss that within the  
19 NRC whether we should in parallel look at the IEC  
20 standards and its merits to the criteria that are  
21 outlined and how they marry up with our current  
22 regulatory framework. So that's something that I  
23 think we probably need to discuss internally to see  
24 if we want to undertake that activity on our own, not  
25 that we are asking NEI to ask us to do that, but we

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 should see if this is where this research is going,  
2 whether we need to do something in this area on our  
3 own or something like that. I'll put it on the table  
4 as for discussion internally and we'll take that into  
5 consideration.

6 MR. MUNDY: Yes, it's a good point,  
7 Dinesh. I wasn't necessarily going to ask on behalf  
8 of NEI that that be done, but suggest that you would  
9 consider it in the context of -- fast forward to this  
10 research being done and let's say the hypothesis  
11 proves true that, as Matt said, the outcome of the  
12 civil certification process produces something that  
13 we think is worth leveraging, right?

14 If we get to that point, I'd rather you  
15 all think about now whether you have to go dig under  
16 the covers of 61508 or if you're satisfied that that  
17 research and the results of what 61508 and the rest  
18 of the surrounding SIL certification produces is  
19 necessarily insufficient. I'd rather not -- again,  
20 sort of kind of beginning with the end in mind rather  
21 than wait until early 2018 to find out you guys have  
22 a lot more work to do. So it's a question to ask  
23 yourself. And I don't know how long it will -- or  
24 what that process entails for you to figure that out,  
25 but --

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. TANEJA: Well, it's --

2 MR. MUNDY: -- it's certainly worth  
3 doing.

4 MR. TANEJA: We have to run it through  
5 in our internal process to figure out how we want to  
6 go about evaluating this IEC standard. We know that  
7 our revision to the EMC standard, the Reg Guide 1.180,  
8 is probably going to endorse most of the IEC standards  
9 when it comes to the EMC qualification. So we are  
10 already going in that direction, I believe. And I  
11 think I want to discuss that internally with our group  
12 and our management on how we want to proceed with  
13 this evaluation of 61508 and the related DOTA  
14 standards.

15 MR. ARNDT: Let me ask a related  
16 question. Steven Arndt, NRC. If you look at the IEC  
17 suite, as Dinesh pointed out for EMC, there is greater  
18 or lesser extent of overlap as well as the whole  
19 mapping issue between safety and non-safety versus  
20 ABC categorization. If we end up deciding that this  
21 potential proposal can get us, to choose an arbitrary  
22 number, 45 percent of the way there and a SIL  
23 certification will provide us X number of  
24 requirements relaxation given the requirement, is  
25 there some general feel on the industry side of how

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 much would be necessary for it to make it practical?  
2 If we end up saying a third of our requirements would  
3 not have to be re-reviewed, is that enough or does it  
4 need to be two-thirds, or do you have some kind of  
5 feel as we go through this process as where it makes  
6 sense to either continue to spend resources or to  
7 stop spending resources? We don't need an answer  
8 today.

9 MR. MUNDY: Yes. Yes, obviously you'll  
10 get a qualified yes. That's a good question. And  
11 much like I started off by saying we'll answer  
12 questions with a question, I don't know that I have  
13 any more questions about what you mean by that, but,  
14 yes, it's always worth kind of sanity checking at  
15 checkpoints for ourselves whether we should continue  
16 or not, whether there is benefit of doing this for  
17 our effort, your effort, everybody's effort, the  
18 overall safety of the industry.

19 So I'll pose to Matt before -- he has to  
20 step away for a little while, but I'll post to Matt  
21 to see if that's something that is worthy of including  
22 in the research or if that's something that we do on  
23 the side while the research is happening.

24 Any thoughts on that, Matt?

25 MR. GIBSON: Yes, I heard a lot of what

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 Steve said, but I didn't -- I couldn't make out all  
2 of it. Dean, could you kind of summarize that real  
3 quick for me again? That might fill in some of the  
4 gaps.

5 MR. ARNDT: Sorry. The question was a  
6 strategy question. As we all know, the IEC suite and  
7 the IEEE suite and the additional NRC requirements  
8 are not a one-to-one map. And a -- whether it's a  
9 61508 or some other IEC certification, we're not going  
10 to be able to do a one-to-one relaxation of  
11 requirements based on that certification. The  
12 question is how do we evaluate how useful this product  
13 is depending upon how far down that road we can go in  
14 terms of how much relaxation is practicable based on  
15 the overlap between the IEEE suite and the IEC suite  
16 and the choice of IE suites that are going into the  
17 certification.

18 MR. GIBSON: Okay. That -- I understand  
19 your question a little better now because I can hear  
20 it. Thanks.

21 (Laughter.)

22 MR. GIBSON: So there's a nuance to this.  
23 Again, this is trying to evaluate this particular  
24 certification's -- how it might be applied to make  
25 safety-related designs a little more efficient to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 both the design and to evaluate from a regulatory  
2 point of view. In order to eliminate some detail  
3 work, it's often hard to do. You certifiers do it  
4 every day and are good at it. And also the  
5 manufacturers are fully involved in this because  
6 they're doing it for their other safety markets.

7 So with that said, this is a performance-  
8 based sort of idea, because we're trying to get out  
9 of the box a little bit, because if we have a process  
10 that ensures the public safety even maybe to a higher  
11 degree than what we're doing now by ensuring that the  
12 equipment uses a higher reliability and it's also  
13 efficient, that's kind of a -- something we're trying  
14 to demonstrate. If there's entanglements in various  
15 regulatory positions, I mean, that's kind of  
16 something that will have to be worked out I think  
17 when this is over with.

18 But I think if we're all honest, we all  
19 want to see maximum -- really safe plants that are  
20 also cost-effective to operate, because otherwise  
21 there won't be any. And we're also trying to make  
22 sure that the research is also trying to, from an  
23 out-of-the-box point of view, provide some input to  
24 the discussion on how to improve the review processes  
25 and the certification processes.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 I think that's just something that has to  
2 happen down the road a little bit after our research  
3 is done, because right now it's not in our scope to  
4 evaluate 61508 against the other standards or  
5 regulatory positions or anything like that. We won't  
6 be doing that. We'll be actually trying to figure  
7 out if it's good or not and why it's good and why it  
8 stays good, if it is good, over a period of time.

9 MR. ODESS-GILLETT: This is Warren Odess-  
10 Gillett. I'm a little bit concerned about the use  
11 of the word "relaxating" standards or criteria,  
12 because as Ron had said earlier, this process will  
13 actually endorse more of a consistency of judging  
14 dependability, the dependability critical  
15 characteristic than what we're doing now, which is  
16 basically and engineering judgment evaluating the  
17 commercial software development and the operating  
18 experience of the device itself.

19 And if we can take credit for a criteria-  
20 based SIL 3 certification for dependability, it  
21 almost removes that engineering judgment aspect out  
22 of the equation, and I see that being almost in the  
23 other direction in evaluating that critical  
24 characteristic rather than saying we're relaxing the  
25 requirement.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1                   MR. ARNDT:       Yes, I didn't mean  
2 requirements. I meant evaluation rigor. How much  
3 time do we spend on it, not the criteria itself.  
4 Because they're clearly not less -- a lower level.  
5 They're just different.

6                   MR. HOOTEN:   Yes, this is Dave Hooten.  
7 I'd like to answer the question like the -- in the  
8 context like of a real world example. I mean, you  
9 used the -- just as an example, you said what if it  
10 got us 45 percent of the way there. Well, for what  
11 we're proposing here I view this as more of a go/no-  
12 go kind of thing, not as a continuum.

13                   And what I mean by that is if you look at  
14 how you do -- how you apply EPRI TR-106439 today,  
15 let's say you want to go buy a pressure transmitter  
16 and use it in a safety application, and it's a  
17 commercial product, and it wasn't developed under  
18 Appendix B, and you go start to dig into how that  
19 product was produced. And typically what you'll find  
20 is they didn't develop the software for that  
21 transmitter using either the typical IEEE standards  
22 that are endorsed by the various Reg Guides and that  
23 sort of thing.

24                   So you end up having to go through some  
25 process of assessing what they did do and trying to

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1       ascertain whether or not what they did do ensures  
2       quality that's commensurate with what the quality  
3       would have been if it had been produced under Appendix  
4       B. I mean, that's actually on page 1 of TR-106439  
5       that that's the goal of the process.

6               So to me when you are addressing that  
7       example, if the pressure transmitter you're dealing  
8       with has a SIL 3 certification, then what you're  
9       really -- what we're really looking at saying there  
10      is that SIL 3 certification demonstrates that the  
11      hardware and the software in that transmitter does  
12      have adequate quality. So you can make that argument  
13      that TR-106439 requires of you to say that the quality  
14      is commensurate with what it would have been had this  
15      product been developed under an Appendix B program  
16      from the get-go.

17              So to me that's either a yes/no, a go/no-  
18      go kind of question. And to me if you only get 45  
19      percent of the way there, as in your example, the  
20      answer is you failed.

21              MR. ARNDT: That's certainly one way of  
22      looking at it. And alternative way of looking at it  
23      would be depending upon the evaluation of the criteria  
24      used in the certification we could map that to the  
25      third-party certification process such that we would

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 approve it in whole or approve it with some additional  
2 evaluation. My question was to elicit if we have to  
3 have some additional evaluation in addition to the  
4 SIL certification, how much would make it impractical  
5 to use versus practical given where we are today as  
6 an improvement?

7 MR. HOOTEN: So kind of like how many  
8 additional caveats are too many to make it not  
9 worthwhile? Is that the idea?

10 MR. ARNDT: Yes. And there may be not,  
11 but without looking at the mapping of the TR and the  
12 current IEEE suite to the IEC standards and the effort  
13 and review of the third-party certifier, it's hard to  
14 say that there is not some additional requirements  
15 that might necessarily be -- need be imposed or some  
16 additional or different evaluation criteria.

17 MR. ODESS-GILLETT: What concerns me  
18 -- this is Warren Odess-Gillett. What concerns me a  
19 little bit about that is that the current process  
20 doesn't require compliance to the IEEE standards.  
21 And so, if you end up saying, well, the SIL 3  
22 certification process -- I see a gap between the SIL  
23 3 certification process and IEEE 7432, and therefore  
24 you're going to also have to consider these things.  
25 That's over and beyond what we have to do now when

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 we're doing -- evaluating the dependability critical  
2 characteristics.

3 MR. ARNDT: Correct.

4 MR. HOOTEN: Well, the truth of the  
5 matter is that today most of the stuff that goes  
6 through the TR-106439 process don't meet all the  
7 requirements on all the various endorsed IEEE  
8 standards. So that was really the expectation.  
9 Very, very little digital commercial equipment could  
10 be used in safety applications.

11 MR. ARNDT: Correct. The point is that  
12 currently there is two mechanisms you can use. You  
13 can do the TR process or you could do the process by  
14 which you would review the IEEE suites. This would  
15 be a third process that would be evaluated against  
16 both of those to see whether or not it is acceptable  
17 as a third alternative. The only point there would  
18 be you'd have to take a look at both the current  
19 alternatives against this to make some kind of  
20 qualitative judgment.

21 MR. HOOTEN: Right. Well, that's a  
22 little different than what we're proposing. We're  
23 not proposing this as a third alternative. We're  
24 proposing this as a subset of the TR-106439 option  
25 and leveraging the SIL certification as part of the

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 demonstration of meeting the dependability-related  
2 critical characteristics within a TR-106439  
3 framework.

4 MR. YANG: This is Yaguang Yang. Yes, I  
5 think this question is somehow related to Dinesh point  
6 out earlier that we need to have some evaluation  
7 internally for IEC 61508. The reason is that the  
8 DOTA standards of 61508, they use -- especially the  
9 DOTA standard for nuclear industry, they use category  
10 A, B, C, which is different from NRC's current  
11 practice.

12 So your SIL 1, 2, 3, may somehow mapping  
13 to category A, B, C. So for safety systems, which  
14 means that we should label what can be -- what can  
15 choose. Say components certified as SIL 2, can we  
16 use for safety systems? or SIL level 3 can we use  
17 for safety systems? We must have some answer to  
18 that. That's why I think that because the two  
19 standards, IEC and IEEE, they use different  
20 categories. IEC use the category A, B, C for nuclear  
21 industry, but IEEE we use safety/non-safety. So  
22 there's no one-to-one map, just as Steve point out.

23 You may -- I think NEI may need to spend  
24 some time to consider this differences. That's what  
25 Dinesh mention, that we need to have some internal

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 evaluation how much will it impact on our current  
2 practice.

3 MR. MUNDY: Agreed. Understood.

4 To add on to Steven's question; which is  
5 a good one, I kind of broke it down into three  
6 categories: Maybe, Steven, you can correct me if I'm  
7 wrong on compartmentalizing incorrectly.

8 The three sub-questions I would ask  
9 myself is how much -- to eventually evaluate whether  
10 this is worth doing or not, right? One is how much  
11 time is industry spending on this activity now, right?  
12 So in effect how much more efficient can we be if we  
13 rely on somebody doing it who does it better  
14 potentially?

15 How much time is the regulator spending  
16 on this now? That I don't know. It's a valid  
17 question. Whether it's answerable or not, I also  
18 don't know.

19 And the third is what's not getting done  
20 now because of the uncertainly around this whole  
21 topic, right, and how much time, effort, calendar it  
22 will take? All right? There's a lot not getting  
23 done now in the industry because of that uncertainty.  
24 So is this a barrier to getting -- to making plants  
25 safer at all? So those three questions are maybe

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 sub-components to what you asked.

2 MR. ARNDT: Yes, the real question  
3 -- this is three sub-components is -- I'm sorry. The  
4 real question is this is going to take some detangling  
5 because it's a different approach and it may be more  
6 challenging than the simple one-to-one evaluation  
7 that Warren articulated. And when we do that, when  
8 you ask the three questions you just asked: how much  
9 effort, how efficient is it, how much is it going to  
10 buy us, and we have to weigh that, those questions  
11 against how challenging this may or may not be to  
12 untangle the inter-relations associated with this  
13 -- because as we all know, pulling something out and  
14 putting it back into the structure that we have is  
15 not as easy as it sounds.

16 MR. JARRETT: This is Ron Jarrett. I'd  
17 just like to say that on -- you have all done topical  
18 reviews, applied forums, and I know one of them had  
19 a SIL 3 certification. So that's one example of,  
20 okay, what did your review vet out that wasn't in the  
21 SIL certification? Was there anything different?

22 And the other point I'd like to make is  
23 if we can get past the platform and focus on the  
24 application, which in a lot of cases is a first of a  
25 kind application -- and that's where our

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 vulnerabilities are. And if we can focus more of our  
2 effort on the application instead of providing  
3 document after document after document, I think we'll  
4 get a better quality product.

5 MR. ARNDT: I think we generally concur  
6 on that. And to go back two steps, don't get me  
7 wrong, I'm a big fan of IEC certification. It's just  
8 a matter of how do we make it fit in a program that  
9 really hasn't considered it before. And I think the  
10 idea of looking at the previous reviews that have had  
11 IEC certifications is probably a fruitful area for  
12 evaluation. I know there's at least one that I can  
13 think of, and there may be more.

14 MR. MUNDY: And this is Dean Mundy one  
15 last time and then we'll move onto another question,  
16 not that anybody else can't chime in, but last for  
17 me. Consistent with what Dave Hooten  
18 reinforced before, we really aren't suggesting  
19 anything new other than looking at the already-  
20 endorsed EPRI TR-106439, and in particular Section  
21 4.2 there, which has the guidance on verifying  
22 critical characteristics. And not all -- again, not  
23 all critical characteristics. Frankly, a small sub-  
24 set of the characteristics. Is that a better or  
25 worse approach? Qualitatively our guts tell us

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 absolutely.

2           Okay. I think if I'm not mistaken, going  
3 back to the list of questions, we were focused on  
4 question No. 1, but I think question No. 2 is  
5 conducting an evaluation of the IEC third-party  
6 certification process. We addressed that early on  
7 in the conversation, and in fact I think Paul  
8 Prescott, who left the room here, mentioned that  
9 somewhat in his introductory remarks in reference to  
10 NEI-14-05.

11           So conceptually industry is suggesting  
12 that that -- the same as NEI-14-05 would conceptually  
13 apply again, but ultimately that's best answered  
14 after the research is done. So again, we have a  
15 hypothesis that will be and improvement or not by  
16 aspects of the research. So the answer to that  
17 question is assuming we interpreted you correctly and  
18 Paul's right on the money, we intent to leverage the  
19 lessons learned in 14-05 and what comes out of the  
20 research. Make sense?

21           (No audible response.)

22           MR. MUNDY: The third question, and I  
23 think the fourth -- let me lump the third and fourth  
24 questions together because they both use the term  
25 "membership." What entity will provide membership

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 access to third-party certification audit records?  
2 And question 4 is what entity will provide membership  
3 access to results of evaluations conducted by third-  
4 party organizations?

5 Again, I apologize for answering a  
6 question with a question, but what did you mean by  
7 "membership?" And again, I think we kind of  
8 addressed this a little bit in the discussions, and  
9 Paul referenced the 14-05 equivalency, but what's  
10 -- help me out with the "membership" definition.

11 MR. ORTEGA-LUCIANO: This is Jonathan  
12 Ortega. Basically 14-05, they have the whole section  
13 that explains these additional controls that they  
14 have in place, and basically they are there to find  
15 out -- for example, if something changes in the IEC  
16 certification process or the overall process that  
17 they use to maintain, because you're going to have  
18 different -- third parties are certified to perform  
19 this process. And the goal here is for all of them  
20 to perform the process equally. So it doesn't matter  
21 where you go. You can -- you may obtain similar  
22 results or the same results.

23 So basically we want to know -- the  
24 question is based on who is going to oversee that the  
25 SIL process is still the same. And if something

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 change, who is going to come back and tell everybody,  
2 hey, these change. You need to be aware of this and  
3 we need to alter our practice or guidance to make  
4 sure that it's consistently applied across all the  
5 certifying bodies that we use for the SIL process.  
6 That's basically what is behind those two questions.

7 MR. MUNDY: Okay. Very good. So I  
8 think that the answer to the question is then  
9 -- again, similar to NEI-14-05 and the process that  
10 Paul expanded upon very well, I think assuming that  
11 we go through that or a similar process, does that  
12 answer your questions about how that would be  
13 -- again, if we assume at this point that the research  
14 hypothesis is proven out and that we can prepare  
15 something like NEI-14-05 with the controls around it  
16 as described in that, does that answer your questions  
17 as much as can be today?

18 MR. ORTEGA-LUCIANO: Yes.

19 MR. MUNDY: Okay.

20 MR. ORTEGA-LUCIANO: Correct.

21 MR. MUNDY: Great. So that's questions  
22 4 and 5. I'm sorry, 3 and 4. Question 5 is what  
23 entity will maintain ongoing oversight of the third-  
24 party certification process? And I mean I sound like  
25 a broken record here, but you reference back to 14-

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 05. NUPIC, for example, or something like that may  
2 be appropriate. The research may find out that there  
3 is a different oversight organization already in  
4 existence.

5 I think someone, I can't remember who; I think  
6 it was Brian, asked who does this for other  
7 industries, right? The other industries relying on  
8 SIL certification, how do they do this, right? So  
9 the research -- and again, thank you for the questions  
10 because that's helping to influence what the research  
11 needs to look at and focus on. So that's the answer  
12 to that question.

13 Again, to recap, that it's like 14-05,  
14 but we may find out that there's some other  
15 organization out there that's already doing that that  
16 can support or be leveraged in addition to or maybe  
17 instead of NUPIC.

18 Question 6, what entity will ensure Part  
19 21 responsibilities for evaluating and reporting are  
20 satisfied? I think we've touched on this several  
21 times throughout the afternoon. Effectively no  
22 different than today, where the dedicating entity can  
23 be an Appendix B vendor or licensee. That would be  
24 the same tomorrow as it is today. Taking advantage  
25 of, leveraging the lessons learned and what SIL

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 certification may or may not bring to the overall  
2 system thing that is being dedicated. So again, the  
3 answer to 6 is no different than today.

4 Item 7, what entity will evaluate the  
5 adequacy of the IEC 61508 standard? And frankly, the  
6 longer conversation that was -- over the last 15, 20  
7 minutes, half an hour addressed that. And I won't  
8 do justice to recapping it, so I think I'll leave one  
9 on the floor as I think we've talked about it enough.

10 And you guys have to go back and, as you  
11 mentioned, do your brainstorming on how far under the  
12 covers of 61508 you feel is necessary. Assuming the  
13 research pans out, then -- and we have something to  
14 do after that, I guess it would be helpful if you all  
15 could come to that conclusion. And maybe that's  
16 something that you need to work into the MP3 schedule  
17 that's maybe not there already. You can answer that  
18 question as time permits.

19 Again, I don't know if that's been worked  
20 into the plan for MP3 already or not, or -- I mean,  
21 I know next week there was a -- I think there's a  
22 meeting scheduled next week to review parties for NRC  
23 to present the current status of the IAP, the  
24 integrated plan and updated schedules. Too late to  
25 work this in if it's not already in there, but you

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 might want to consider --

2 MR. TANEJA: Yes, it's not already in the  
3 -- it's just something that we just discussed earlier  
4 today, so it's definitely not on the draft that --

5 MR. CURTIS: Yes, I will speak to that,  
6 because we just -- I -- before I came to this meeting  
7 I came from a Steering Committee meeting, and we were  
8 talking about a different subject, but what we said  
9 was that for the next Wednesday's public meeting on  
10 the IAP, what we had up through let's say last week  
11 is what we're going to be presenting on Wednesday  
12 with the caveat that we're looking for feedback, that  
13 we may even be speaking about certain things that  
14 have changed even since the most recent draft for the  
15 intention that what we publish out in April will  
16 perhaps be slightly different from what we present  
17 next Wednesday. So it may be very possible that  
18 we'll be able to incorporate this between now and the  
19 time it actually gets published as a revision.

20 MR. MUNDY: Thank you. Okay. That's  
21 all we have unless any one of the other -- any team  
22 folks wants to add or correct anything that I stated  
23 in my response to the last few questions. I think  
24 that's all -- at least that's all I have in  
25 preparation for the questions.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 Ron or Dave? Anybody else, anything to  
2 add?

3 MR. HOOTEN: No, I'm good.

4 MR. MUNDY: Okay. Thank you. Warren?

5 (No audible response.)

6 MR. MUNDY: Okay.

7 MR. TANEJA: Yes, this is Dinesh. What  
8 we want to discuss here -- so the Draft Reg Guide  
9 right now that we have that -- endorsing the NP-5652  
10 Rev. 1 does not really -- it does not address these  
11 additional four EPRI guidelines that are identified  
12 in 5652 Rev. 1 that are related to digital I&C. This  
13 is specifically called out in Section 14.1 of the NP-  
14 5652 Rev. 1.

15 And also on EPRI TR-106439 and 107330 we  
16 have been receiving a lot of comments from the  
17 industry while this Reg Guide has been out for  
18 comments.

19 And I guess you want to give them a little  
20 summary of the type of comments we're getting on these  
21 two?

22 MR. ORTEGA-LUCIANO: Well, basically  
23 most of the comments were on the clarification side,  
24 because the language selected under TR-107330, they  
25 used the word "critical characteristics" across the

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 document. And the meaning behind that term is not  
2 strictly commercial rededication. It's actual a  
3 critical characteristic of design that you use to  
4 qualify the equipment, which you go through the  
5 qualification process either -- basically if you're  
6 not the OEM, you can a product, procure it and go  
7 through the qualifications yourself and qualify it.

8 And basically the term used "critical  
9 characteristic" is those critical characteristics for  
10 design for the end-purpose application that you're  
11 qualifying the item for. And that is the confusion  
12 on most of the comments was because the guideline  
13 doesn't say, oh, this should be done under method 1,  
14 method 2 or method 3 of the EPRI guideline. And the  
15 reason there's no mention of the method, because  
16 there's no dedication. It's just a qualification  
17 activity.

18 But the term "critical characteristics"  
19 threw people towards the dedication arena, which is  
20 not the intent. And the disposition of most of the  
21 comments are going to be explaining that the meaning  
22 of critical characteristic in that TR document is not  
23 necessarily talking about dedication itself. It's  
24 the critical characteristic of design.

25 Then 106439, that's dedication, that you

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 can take whatever it was qualified and the design  
2 that was lock in place in the previous TR. Then you  
3 can say, well, I cannot procure this Appendix B, so  
4 I need to dedicate it. So if I want to maintain  
5 qualification done on the previous TR, then this is  
6 what I use in 106439 to dedicate.

7 So most of the comments were in the area  
8 that 106439 talks about method 2 and then be for a  
9 method of EPRI and then include the critical  
10 characteristics. But the other one doesn't mention  
11 the method. So also the comments of what method will  
12 be adequate or acceptable by the NRC for the industry  
13 to use is clarified. So most of the comments from  
14 EPRI and other licensees were in that area seeking  
15 qualification for those two documents on the terms of  
16 critical characteristics.

17 MR. TANEJA: So it's a confusion in a  
18 way, right? So I mean, my thoughts would be like if  
19 you were doing seismic qualification, right -- so  
20 IEEE 344 allows you for different methods. You could  
21 do type testing, or you could do an analysis, or you  
22 could do a combination thereof. So when you look at  
23 the dedication methodology, it says testing, it says  
24 engineering evaluation and surveys. I think there  
25 are what, three -- the dedication methods?

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. ORTEGA-LUCIANO: There are four.

2 MR. TANEJA: Four methods, right? So  
3 those are really in contradiction. They're different  
4 things, right? Design methods are here are the  
5 methods. You follow 344. They allow you for certain  
6 methods. Then dedication methods are for dedicating  
7 the product. And I think it's --

8 (Simultaneous speaking.)

9 MR. TANEJA: Yes. So those are I guess  
10 the type of comments that --

11 MR. ORTEGA-LUCIANO: And we put a  
12 sentence in the -- not related directly to this, but  
13 the -- our staff engineering, they have a hard time  
14 addressing these comments on and on and on where we  
15 are being asked if they can qualify equipment for  
16 seismic or harsh environment to dedication. So the  
17 answer is no, you have to do that in Appendix B  
18 programs. You have to be an Appendix B supplier.

19 And we have a paragraph under the  
20 background section saying that dedication is an  
21 accepted process and is not -- it should not be used  
22 to qualify equipment, only in a qualification. You  
23 can obtain qualification through dedication, but  
24 because you're going to destroy an item. So you are  
25 really going to destroy an item every time you procure

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 it? No. So you do it one time and then you do an  
2 adequate dedication to maintain qualification.

3 So we need to get regulatory precision  
4 because it's not regulatory precision. It's more  
5 explanation. And we put it on the body of the  
6 Regulatory Guide saying that if your intent is to do  
7 qualification either in seismic or environmental,  
8 then dedication is from the process for that.

9 So and this -- those were most of the  
10 comments that we got for those two TRs for the Reg  
11 Guide.

12 MR. TANEJA: So where are we in the  
13 process?

14 MR. ORTEGA-LUCIANO: The Reg Guide was  
15 submitted on December to the Office of Research.  
16 Last week the Reg Guide got a number assigned to it  
17 and it's in the process of concurrence right now  
18 through Management in the Office of Research. So  
19 it's been submitted in a process for approval and  
20 concurrence. So how long it will take I can't answer  
21 that.

22 MR. TANEJA: I think on our schedule we  
23 have it --

24 MR. ORTEGA-LUCIANO: For April.

25 MR. TANEJA: -- for April right now,

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 March or April. So let's see. It's in the process.  
2 Okay?

3 So the follow-up question to that was, so  
4 these additional four EPRI guidance documents that  
5 are listed in NP-5652 Rev. 1, what is the intent?  
6 Does the industry want the NRC to evaluate these  
7 documents or is it there for the user to use and then  
8 we will just have to inspect them if somebody uses  
9 them for the intended dedication activity, or does it  
10 -- is the industry requiring the NRC to evaluate and  
11 endorse these other four additional documents?

12 MR. MUNDY: It's a good one. This is  
13 Dean Mundy. Thanks, fellows, for that clarification  
14 and the information and the question.

15 I think there's a two-part answer to the  
16 question: Under this MP3 effort, the short answer  
17 is no, we don't have an intent, at least at this  
18 point, and I don't see an intent to have -- to request  
19 NRC to even further evaluate or endorse or any way  
20 look at those four documents. The research and the  
21 following work over the next year will tell us more  
22 about what we intend to do, again whether it's an  
23 NEI-14-05-like document or something similar. So  
24 that's the first part answer. The short answer is  
25 no, we don't have an intent to ask anything related

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 to those.

2 The second part of the answer is there  
3 may be other commercial-grade dedication or other  
4 activities that I'm certainly not aware of. And I  
5 guess I'll ask my colleagues on the phone to chime in  
6 if they're aware of any other parallel or tangential  
7 or other activities that may be related to these four  
8 documents. I don't know of any. None have been  
9 mentioned to me, but I'll throw it out there to the  
10 group to see if anybody has any other thoughts.

11 (No audible response.)

12 MR. MUNDY: And I guess maybe, hearing  
13 none, Dave, Warren and Ron, I think you all are still  
14 on the line, if you don't know of any, then I don't  
15 know of any. So I think the --

16 (Simultaneous speaking.)

17 MR. HOOTEN: No, I don't.

18 MR. ODESS-GILLETT: I don't either.

19 MR. LIPSCOMB: Can I ask two questions  
20 regarding the new Reg Guide? This is George  
21 Lipscomb. Can you share the number yet, the new Reg  
22 Guide number?

23 MR. ORTEGA-LUCIANO: I think it is 1.164.

24 MR. LIPSCOMB: And is there going to be  
25 additional public comment on the Reg Guide

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 anticipated at this point, or an ACRS review?

2 MR. ORTEGA-LUCIANO: We are waiting for  
3 that. The RC was submitted for -- under that process  
4 and we just are waiting for ACRS if they want to do  
5 a full review or a partial review. So we don't know  
6 the answer yet.

7 MR. LIPSCOMB: Thanks.

8 MR. TANEJA: The reason I guess I asked  
9 this question was because in our MP3 scope description  
10 right now I believe we thought that going in that we  
11 were going to look at across other industries to see  
12 how they use commercial items in their critical safety  
13 applications, what processes do they follow and  
14 whether we need to go out and leverage some of those  
15 processes.

16 And what I'm understanding hearing from  
17 you, Dean, is that right now the focus is just limited  
18 to the -- leveraging the SIL certification activity  
19 at this time and not really going beyond and looking  
20 at some of these others. What does FPA do? What  
21 does transportation industry do when it comes to  
22 employing these digital devices in critical  
23 applications?

24 MR. MUNDY: Good question. To the extent  
25 that the research will address how other industries

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 are taking advantage of or leveraging SIL  
2 certification, the answer is yes, that's included,  
3 but only in the context of the EPRI research. It's  
4 not something that industry intended to parallel go  
5 look at at other regulating bodies or other industries  
6 outside that.

7 MR. TANEJA: Okay.

8 MR. MUNDY: And we've talked about like  
9 leveraging potential military, Department of Defense,  
10 mostly in the context of some of the other MP  
11 activities, not MP3.

12 MR. TANEJA: Thanks for the  
13 clarification, because it may be that it goes into  
14 some longer-term research activity on maybe MP4 or  
15 beyond, but right now we are just limiting it to the  
16 EPRI research. And then based on the results of the  
17 research we'll determine the follow-up actions. I  
18 think that's really how I'm summarizing this activity  
19 at this moment.

20 And then we'll evaluate looking at the  
21 IEC standards and seeing whether we want to go ahead  
22 and at this time start evaluating that or not. So  
23 that's really the only action that I'm seeing at this  
24 moment under MP3. Correct me --

25 MR. MUNDY: I agree.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701



1 MR. TANEJA: Right. Okay.

2 (Pause.)

3 MR. MUNDY: I guess I'll follow up, not  
4 that I mind the silence on the phone. That's  
5 sometimes good. But I thought of one other thing to  
6 note and maybe reinforce from prior, that I'll go  
7 back and mention the MOU in place between EPRI and  
8 NRC Research, that the extent that that can be  
9 leveraged here to ensure that the results of this  
10 research, however it turns out, are not only  
11 necessary, but proficient for the NRC. I think that  
12 kind of ties back to your question of is there  
13 anything else to look at in the meantime.

14 So if through that MOU and other meetings  
15 like this you can determine will that research provide  
16 enough, right? Is it sufficient for the objective  
17 we're looking for? And I think we'll completely  
18 agree with your assessment that nothing else at the  
19 moment other than what you mentioned should be in the  
20 plan. That make sense?

21 MR. TANEJA: So does EPRI -- I don't know  
22 Matt is still there. Does EPRI already have a written  
23 research plan for this activity?

24 MR. MUNDY: He had to step away, so I  
25 don't know if he's back yet.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 MR. TANEJA: Okay.

2 MR. MUNDY: If not, I'll take the  
3 question. In the --

4 MR. TANEJA: Ian, can we access something  
5 like that through the MOU?

6 MR. JUNG: At the high level EPRI MOU  
7 meetings we've been having EPRI actually offered to  
8 share their project plan when it is in a good shape.  
9 And then we'll -- internally we have an opportunity  
10 to take a look at it and provide some suggestions.  
11 And then we already provided some of these questions  
12 to -- some unrelated questions to Matt through MOU to  
13 provide some of the questions that might come up.

14 So we have a call every month, so I think  
15 any time you guys can also -- members of the working  
16 group can join also to listen on. It might take only  
17 10 minutes --

18 MR. TANEJA: Yes.

19 MR. JUNG: -- on where --

20 (Simultaneous speaking.)

21 MR. TANEJA: I think we had a lot of this  
22 question today, and then it's basically hinged upon  
23 -- it's going to be looked under the research. And  
24 I think it will be good to know what the project plan  
25 or the research plan looks like and which way it's

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 going and see what specific milestone or what specific  
2 areas of the research that we could simply say that  
3 are we going in the right direction, are we really  
4 achieving the expected results or do we want to at  
5 that time reevaluate where we're going and what we  
6 want to do from that point forward. So that's really  
7 my interest of the research plan was from that point  
8 of view.

9 MR. HOOTEN: This is Dave Hooten. I  
10 spoke with Matt Gibson recently about this question,  
11 and what he told me within the last few days was that  
12 he's got a detailed scope of work document for the  
13 research that he said is very nearly complete and  
14 including EPRI internal approvals. And he expected  
15 that to be completed in the very near future, like  
16 within a week or two.

17 MR. TANEJA: Thanks, Dave.

18 MR. MUNDY: Yes, thanks, David. That's  
19 consistent with what I've heard recently as well, and  
20 also recently more publicly as part of the EPRI  
21 Nuclear Power Advisory Council meetings at the first  
22 week of February.

23 MS. LAURON: All right. So now we're  
24 going to open up the phone lines for comments from  
25 the public.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1                   So, Dory, could you start opening up the  
2 lines?

3                   OPERATOR: Yes, thank you. If you would  
4 like to ask a question, please press star, then one.  
5 You will be prompted to record your first and last  
6 name. To withdraw your request press star, two.  
7 Once again to ask a question, press star then one  
8 now.

9                   (Pause.)

10                  OPERATOR: Please stand by for our first  
11 question. Our first question or comment comes from  
12 Marvin Lewis.

13                  Your line is open.

14                  MR. LEWIS: Hi. Okay. Thank you very  
15 much for allowing me a question or comment, whichever  
16 way you take it.

17                  I'm a member of the public and I'm very  
18 interested in all this you were talking about. I  
19 think it's good that we're looking into this sort of  
20 thing, but what worries me is the area where I find  
21 most of the problem and most of the questions coming  
22 up is not what you're talking about, but the area of  
23 error and the area of counterfeit.

24                  A lot of times -- well, I'll give you an  
25 example. I have a '50 Chrysler, one of the first

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1       Chryslers with a computer. And so, sure enough it  
2       had an error and sure enough I go out and I get a  
3       piece to replace it and I only find it had another  
4       error.

5                   Now, and my question is this: Yes, you  
6       test a lot and it's wonderful that you're testing,  
7       but are we really testing for the right things? Do  
8       we really catch all the errors? That's one of the  
9       parts of it.

10                   And the other thing is that I went out a  
11       few months ago and I was tasting at a little winery  
12       and I was really impressed by a bottle and I paid 17  
13       bucks for it, for an unopened bottle. Took it home.  
14       Opened the bottle and it wasn't what the first bottle  
15       was. And this is sad. I mean, people makes  
16       mistakes.                   Even when you put an RFI on it,  
17       radio frequency whatever it is, sometimes it gets  
18       switched around and all that and people forget to  
19       pass it across the reader and it doesn't get into the  
20       computer and a million and one errors.

21                   I'm saying -- I'm not saying that's  
22       necessarily any particular licensee does it, but at  
23       the same time we had a few errors showing at  
24       Fukushima. We had a few errors showing at Three Mile  
25       Island No. 2. And I'm not saying it's not impossible.

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 All right. That's the end of my comments  
2 and thank you for allotting some time. Bye now.

3 MR. CURTIS: Marv, this is David Curtis  
4 on behalf of the NRC. And in answer to your question  
5 I think that -- I don't know how much of the  
6 conversation you listened to today, but we're  
7 actually quite concerned about the same issue that  
8 you raised about are we checking for the right errors?  
9 And I think that both industry and the NRC; and  
10 industry can speak for themselves, are intending to  
11 go back and look at that in more detail.

12 And I will also say that NRC is certainly  
13 very concerned also about the counterfeit items.  
14 It's something that we focus on both inside the I&C  
15 and outside the I&C area. So thank you for that  
16 comment.

17 OPERATOR: And at this time we have no  
18 additional comments or questions.

19 MS. LAURON: I just wanted to summarize  
20 the action item that I have listed here. The NRC  
21 will discuss internally the need to evaluate IEC 61508  
22 and related standards. I think that's the only one  
23 identified so far. I don't know if there were any  
24 others industry perhaps wanted to offer or if there  
25 were any other action items that should be listed as

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 part of the summary.

2 MR. JUNG: I'll just comment that under  
3 MOU EPRI will continue to coordinate on the project  
4 plan and things to share internally. We'll share  
5 among our staffs and share any feedback to EPRI on  
6 that.

7 MS. LAURON: For any of the presenters  
8 on the line do you identify any additional action  
9 items I should take note of to include in the summary?

10 MR. HOOTEN: Not for me.

11 MS. LAURON: Is there anything else?

12 MR. JUNG: Any comments from --

13 (Simultaneous speaking.)

14 MS. LAURON: Oh, I'm sorry. Any other  
15 comments from members of the public present in the  
16 room?

17 (No audible response.)

18 MS. LAURON: Okay. There are none.

19 All right. Just a reminder for those of  
20 you who called in, especially members of the public,  
21 there is the feedback form on the NRC public site.  
22 The summary and the transcript for this meeting along  
23 with the materials will be found on the public meeting  
24 notice for this meeting, also on the web site. If  
25 you have any questions, please feel free to give me

**NEAL R. GROSS**

COURT REPORTERS AND TRANSCRIBERS  
1323 RHODE ISLAND AVE., N.W.  
WASHINGTON, D.C. 20005-3701

1 a call or send me and email, and I can provide that  
2 information to you.

3 And with that, I guess the meeting is  
4 -- will come to a close now. Thank you.

5 (Whereupon, the above-entitled matter  
6 went off the record at 4:08 p.m.)

7

8

9

10

11

12

13

14