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

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NUCLEAR REGULATORY COMMISSION

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MODERNIZATION PLAN #3 WORKING GROUP

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

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THURSDAY

FEBRUARY 16, 2017

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ROCKVILLE, MARYLAND

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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/NRGB, Project Manager

PAUL PRESCOTT, NRO/DCIP/QVIB3

DAVID RAHN, NRR/DE/EICB

DINESH TANEJA, NRO/DEIA/ICE

DANIEL WARNER, NRR/DE/EICB *

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

P R O C E E D I N G S

1:02 p.m.

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

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

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

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

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

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

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

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

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

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

MR. THOMAS: Okay.

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

MR. THOMAS: Why don't you.

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

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

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

last meeting in November. And to continue.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MS. LAURON: Sure.

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

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

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

MR. PRESCOTT: I'm Paul Prescott, Senior

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

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

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

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

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

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

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

MR. DRAKE: Jason Drake, Project Manager.

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

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

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

MR. MUNDY: Dean Mundy, NEI lead for this

effort.

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

(Laughter.)

MR. REMER: Glad to be here.

MS. BERGMAN: Jana Bergman, Curtiss-Wright.

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

MR. TANEJA: On the phone line?

COURT REPORTER: Oh, Devin Shiple, Court Reporter.

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

MR. HOOTEN: David Hooten, Altran.

MR. JARRETT: Ron Jarrett, TVA.

MR. GIBSON: Matt Gibson, EPRI.

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

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

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

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

(No audible response.)

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

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

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

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

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

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

MR. PRESCOTT: I'll try.

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

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

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

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

And programming it and make sure --

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

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

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

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

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

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

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

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

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

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

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

MR. MUNDY: Paul, just one comment then.

MR. PRESCOTT: Yes, Dean?

MR. MUNDY: Comment or agreement that --

MR. PRESCOTT: Okay.

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

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

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

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

MR. PRESCOTT: Okay.

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

that's the right thing to do.

MR. PRESCOTT: Okay.

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

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

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

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

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

So they can't take -- they won't accept Part 21. But you could im~~op~~pose it. But it would be -- it wouldn't mean anything as you're well aware.

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

~~responseibility~~responsibility -- Part 21 responsibility.

Hopefully we're clear on that.

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

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

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

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

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

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

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

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

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

Essentially I wanted to give an overview of it.

MR. MUNDY: Sure. That's fine.

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

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

MR. PRESCOTT: Okay. All right.

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

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

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

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

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

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

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

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

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

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

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

But again, what I want to stress is that

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

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

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

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

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

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

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

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

MR. TANEJA: That's fine.

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

MR. TANEJA: Okay.

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

(Laughter.)

MR. TANEJA: Next slide.

MR. PRESCOTT: So, at the last meeting

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

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

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

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

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

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

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

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

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

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

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

So, what we also did was in conjunction

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

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

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

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

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

safety hazard. Or effects safety in some way.

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

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

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

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

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

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

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

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

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

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

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

(No audible response.)

MS. LAURON: Okay. We could move now to

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

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

MS. LAURON: Is that big enough? Yes?

MR. MUNDY: It should be.

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

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

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

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

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

can take it away.

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

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

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

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

MS. LAURON: Okay.

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

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

MR. HOOTEN: All right. My face is just

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

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

MR. HOOTEN: Okay.

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

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

We're not proposing a change to that.

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

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

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

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

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

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

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

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

MR. PRESCOTT: Understood.

MR. MUNDY: Particular performance and dependability.

MR. PRESCOTT: Yes. Thanks.

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

MR. THOMAS: Yes. Thanks.

MR. MUNDY: Okay.

MS. LAURON: Let's go back.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

equipment including reliably, safety, availability, maintainability, and others.

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

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

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

certification.

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

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

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

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

precedent.

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

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

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

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

as well.

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

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

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

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

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

MR. PRESCOTT: Okay. This is Paul

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

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

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

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

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

Do I understand that concept right?

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

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

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

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

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

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

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

It's just, you know, something you can

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

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

I don't know if that helps any.

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

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

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

Can you confirm that, Dave?

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

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

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

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

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

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

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

So, does that answer your question?

MR. CURTIS: Yes. Thank you.

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

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

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

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

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

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

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

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

MR. THOMAS: Yes. Yes.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

whatever results are there and plans for the future.

But you can't ask any more questions now. Please feel free then.

(Laughter.)

MR. THOMAS: Well, I just -- let me just -- how about -- and Matt, thanks for that information. This is Brian Thomas again.

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

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

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

graded approach.

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

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

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

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

MR. THOMAS: Right.

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

MR. THOMAS: Right.

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

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

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

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

Does that make sense?

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

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

MR. THOMAS: Yes.

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

You know, like I said before, you know,

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

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

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

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

MR. THOMAS: Okay. Thanks.

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

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

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

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

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

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

the particular assessment.

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

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

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

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

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

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

MR. TANEJA: Okay.

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

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

MR. TANEJA: Okay. All right.

MR. JARRETT: Hey Dinesh?

MR. TANEJA: Yes.

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

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

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

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

high level.

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

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

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

So, it's very robust.

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

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

And I guess what I heard from Matt is

that that's part of the research activity.

MR. GIBSON: That's correct.

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

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

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

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

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

MR. MUNDY: FDA or any other organization?

MR. YANG: Yes.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MR. GIBSON: That's right.

MR. LIPSCOMB: In other words, this --

MR. GIBSON: That's correct.

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

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

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

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

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

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

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

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

adequately achieve the mission goal of that system?

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

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

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

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

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

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

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

MR. TANEJA: We -- yes.

MR. MUNDY: It's your call.

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

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

(Laughter.)

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

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

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

But it's important to recognize here that

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

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

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

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

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

MR. GIBSON: Right.

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

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

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

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

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

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

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

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

MR. TANEJA: Okay. All right.

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

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

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

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

We're not proposing any change in that.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MR. RAHN: Right.

MR. HOOTEN: And nothing of the sort.

MR. RAHN: Okay.

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

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

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

MR. HOOTEN: Yes. That's correct.

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

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

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

MR. YANG: Yes.

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

MR. YANG: Yes.

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

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

MR. TANEJA: Okay, break?

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

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

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

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

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

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

MS. LAURON: Oh, okay. Thanks.

(Pause.)

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

MR. MUNDY: I assume Matt is still on the

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

So, Matt, are you still with us?

(No audible response.)

MR. MUNDY: And not on mute?

(No audible response.)

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

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

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

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

MS. LAURON: Okay. Is it better now?

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

Is that any better, Matt? Can you hear

me now?

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

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

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

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

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

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

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

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

MR. CURTIS: He is not.

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

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

Ian, you still there?

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

MR. GIBSON: Okay.

MR. CURTIS: -- and Yaguang --

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

(Laughter.)

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

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

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

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

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

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

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

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

vendor and see all kind of things.

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

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

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

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

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

So we'll still have those kind of

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

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

MR. CURTIS: Understood.

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

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

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

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

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

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

Back to you, Matt.

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

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

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

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

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

MR. MUNDY: Okay.

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

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

(No audible response.)

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

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

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

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

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

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

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

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

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

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

similar to what you saw in 14-05?

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

MR. PRESCOTT: Okay.

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

MR. PRESCOTT: Yes.

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

MR. PRESCOTT: Right.

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

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

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

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

(Simultaneous speaking.)

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

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

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

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

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

MR. TANEJA: Right.

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

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

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

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

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

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

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

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

MR. TANEJA: Well, it's --

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

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

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

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

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

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

Any thoughts on that, Matt?

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

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

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

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

(Laughter.)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MR. ARNDT: Correct.

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

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

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

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

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

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

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

evaluation how much will it impact on our current practice.

MR. MUNDY: Agreed. Understood.

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

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

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

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

sub-components to what you asked.

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

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

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

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

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

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

absolutely.

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

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

(No audible response.)

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

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

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

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

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

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

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

MR. ORTEGA-LUCIANO: Yes.

MR. MUNDY: Okay.

MR. ORTEGA-LUCIANO: Correct.

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

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

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

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

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

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

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

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

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

might want to consider --

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

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

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

Ron or Dave? Anybody else, anything to add?

MR. HOOTEN: No, I'm good.

MR. MUNDY: Okay. Thank you. Warren?

(No audible response.)

MR. MUNDY: Okay.

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

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

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

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

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

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

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

Then 106439, that's dedication, that you

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

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

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

MR. ORTEGA-LUCIANO: There are four.

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

(Simultaneous speaking.)

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

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

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

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

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

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

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

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

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

MR. ORTEGA-LUCIANO: For April.

MR. TANEJA: -- for April right now,

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

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

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

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

to those.

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

(No audible response.)

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

(Simultaneous speaking.)

MR. HOOTEN: No, I don't.

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

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

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

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

anticipated at this point, or an ACRS review?

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

MR. LIPSCOMB: Thanks.

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

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

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

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

MR. TANEJA: Okay.

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

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

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

MR. MUNDY: I agree.

MR. TANEJA: Right. Okay.

(Pause.)

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

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

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

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

MR. TANEJA: Okay.

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

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

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

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

MR. TANEJA: Yes.

MR. JUNG: -- on where --

(Simultaneous speaking.)

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

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

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

MR. TANEJA: Thanks, Dave.

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

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

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

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

(Pause.)

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

Your line is open.

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

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

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

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

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

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

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

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

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

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

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

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

part of the summary.

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

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

MR. HOOTEN: Not for me.

MS. LAURON: Is there anything else?

MR. JUNG: Any comments from --

(Simultaneous speaking.)

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

(No audible response.)

MS. LAURON: Okay. There are none.

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

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

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

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