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UNITED STATES NUCLEAR REGULATORY COMMISSION'S

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

November 30, 2006

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

FUTURE PLANT DESIGNS SUBCOMMITTEE

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DRAFT REGULATORY GUIDE DG-1145

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THURSDAY, NOVEMBER 30, 2006

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The Subcommittee convened at 8:30 a.m. in Room T-2B3 of the Headquarters of the Nuclear Regulatory Commission, 11545 Rockville Pike, Rockville, Maryland, Thomas S. Kress, Chairman, presiding.

MEMBERS PRESENT:

THOMAS S. KRESS, Chairman

SAID ABDEL-KHALIK (via teleconference)

J. SAM ARMIJO

MICHAEL CORRADINI

MARIO V. BONACA

WILLIAM J. SHACK

JOHN D. SIEBER

GRAHAM B. WALLIS

STAFF PRESENT:

DAVID FISCHER

C-O-N-T-E-N-T-S

P-R-O-C-E-E-D-I-N-G-S

8:29 A.M.

CHAIRMAN KRESS: The meeting will come to order. This is a meeting of the Advisory Committee on Reactor Safeguards Subcommittee on Future Plant Designs. I'm Tom Kress and I'm Chairman of this Subcommittee. Members in attendance are San Armijo, Mario Bonaca, Michael Corradini, William Schack, Jack Sieber and Graham Wallis. Dr. Abdel-Khalik is participating by way of video conference just to show that we can do high tech stuff.

The purpose of this meeting is to summarize and discuss the technical content of draft regulatory guide DG-1145, titled Combined License Applications for Nuclear Power Plants, DLWR edition and to discuss the public comments that the staff has received on this document and finally, to summarize how the staff plans on resolving these public comments.

The Subcommittee will hear presentations by and hold discussions with representatives of the NRC Staff, the Nuclear Energy Institute, and other interested persons regarding this matter. The Subcommittee will gather information, analyze relevant issues and facts and formulate proposed positions and

actions as appropriate for deliberation by the full committee. Mr. David Fischer is the designated federal official for this meeting. The rules for participation in today's meeting have been announced as part of the notice of this meeting, previously published in the Federal Register on September 25th, 2006. A transcript of the meeting is being kept and will be made available as stated in the Federal Register notice.

Therefore, it's requested that speakers first identify themselves and then speak into a microphone with sufficient clarity and volume so that everybody can hear what they say. We have received no written comments or request for time to make oral statements from any members of the public regarding today's meeting. This Draft Regulatory Guide 1145 is a formidable document and it's hard to review. One person can't read all of this, so what we did as a subcommittee, is assign different chapters to individual members that may have some knowledge of that particular chapter.

So this may seem a little disparate when we try to bring those comments out but we have taken the trouble to take each individual's comments and put them together in a written form which should make it

easier.

I view this as a pretty good document. It seems to be a compendium of good past practices for LWRs and it even looks like it would be usable for other designs. Right after the -- the way I plan to proceed with this meeting, right after the staff gives us an overview of the whole document, then I'll ask those committee members that are here to bring out their comments and questions on their particular chapters and see if -- what sort of response we might get from staff.

That will be after -- if you have an agenda, I guess it's the final theme on the agenda.

MEMBER WALLIS: I'm puzzled by that, Mr. Chairman, because we seem to have half an hour for all of our comments. The only thing on the agenda which is our comments is the bottom of Item 3 and it says we have half an hour.

CHAIRMAN KRESS: Oh, yeah, that's right.

MEMBER WALLIS: How are we going to have all our member comments in one-half hour?

CHAIRMAN KRESS: That's a good question and we'll get the member comments in no matter how long it takes. Yeah, that's when the member comments are. I was looking for that.

As part of the chapter-by-chapter comments from the committee members, I would also encourage attendees at today's meeting, members of the public or industry representatives, to feel free to offer their comments on that specific chapter or those specific agenda items. And -- but please remember to come up a microphone and identify yourself first. We will now proceed with the meeting and I'll turn it over to Mr. David Matthews of the NRC staff to begin with the introductions.

MR. MATTHEWS: Thank you very much for those introductory comments, Dr. Kress. Welcome, good morning to members of the Subcommittee. My name is David Matthews. I'm the Director of the Division of New Reactor Licensing in the newly-formed Office of New Reactors. The Division is not newly formed, but the Office of New Reactors is newly formed. The Division has been in existence since November of 2005 and it was preceded in many of its activities through a program that I was also the Director of in the Regulatory Improvement Program Division.

So we've been at this for quite awhile even though we've recently reconstituted as part of the Office of New Reactors. One of the activities that we've been undertaking for the duration of that

time has been the development and preparation of this Regulatory Guide which you have in draft form and have had an opportunity to review. The need for this guide became very obvious as the interest in the level of -- the level of interest in licensing new reactors rose. This guide is a companion piece to the revised 10 CFR Part 52. The revised 10 CFR Part 52 was most recently issued for public comment in the early -- earlier this year. It is now in front of the Commission for decision.

We have made a commitment that this Reg Guide will be issued on a time frame that would be compatible with that rule being responded to by potential applicants and applications being prepared. The tsunami, as it's sometimes referred to of applications is expected to number on the order of 13 starting in the beginning of fiscal year '08. Possibly by the end of fiscal year '09, we will have 20 applications in house if we believe current projections of the industry.

So consequently, there is a great deal of interest and need for this guide because those applications have already started to be prepared which I'm sure the industry participants today will be reminding us all of. It is developed in response to

external stakeholder need therefore, for timely guidance in order to translate the requirements in 10 CFR Part 52 into concrete applications, and we're holding a high standard for the acceptance of those applications in that they be complete, high quality and applications that would have the potential of containing sufficient information to complete reviews by the NRC staff as opposed to applications which would just justify the beginning of reviews.

All of this is consistent with the program we've undertaken to develop a guidance that is focused upon certain design centered review activities. The Reg Guide is formatted in such a way to facilitate applications being prepared under all of options that are outlined in 10 CFR Part 52, prepared in a way that would allow somebody who is choosing a particular option, and when I discuss options, I'm talking about a combined license supported by a design certification, a combined license supported by an early site permit, both or neither.

And we've attempted to structure the regulatory guidance document associated with the preparation of those applications along those same -- along those same lines. We've had a high level of stakeholder participation during the development of

these activities. I can't number and recall the number of workshops we've had but Eric can summarize it for you in his overview remarks. It's been an intensive effort, as you might imagine. Dr. Kress remarked upon the size of this document. Just it's mere size would indicate to you just how intensive an effort it's been to get to this point.

It's been expedited in that the Commission provided emphasis with regard to our schedule by encouraging us to be sure that this guidance is available as applications are beginning to be prepared. We do understand that there has to be close conformance of this guidance with the rule that will guide the development of those applications and that rule is expected on the current schedule to be available for use as a final rule hopefully, in the February time frame and we're looking to have the guide out weeks following that.

There's an enormously high level of intensive support by the NRO and NRR management team to this activity both in terms of resource and our attention to the document itself. And you might imagine that there's a high level of Commission interest. In the interest of the concerns that were raised in the opening remarks, with regard to schedule

and the time for us to hear questions and comments that might be offered by the subcommittee members, one, I'm going to suggest that Eric move through his overview quickly with the potential that we might save some time there. Then there also is a subject listed under Roman Numeral Four, that was a regulatory treatment of non-safety systems. That's an issue that was originally envisioned to be important by virtue of the way that the requirements were going to be laid out in Part 52. There is not a requirement in Part 52 and that's been eliminated for addressing those non-safety systems. So I'm going to suggest that that's a part of the schedule that we could eliminate and maybe gain another maybe half hour for the --

CHAIRMAN KRESS: I think that's a good suggestion.

MR. MATTHEWS: -- for the benefit of the interaction. So if I could suggest that and then --

MEMBER SHACK: Could you explain why you don't need to consider that?

MR. MATTHEWS: I don't think I'm in a position to explain that but Mr. Colaccino can.

MR. COLACCINO: The -- this is Joe Colaccino of the staff. The RTNSS section that's in DG-1145 is a mimic of what's in NUREG 1793, which is -

- a portion of that which is the AP 1000 Safety Evaluation Report. I believe it's Chapter 22. We did that at the time when we put out the draft work in progress for completeness and this was a variation of, you know, for the passive safety system plants, and in AP600, AP100, ESBWR.

The RTNSS requirements were not codified in the revised version of Part 52. That's just gone up to the Commission. And so because those are not codified and we've already got -- you know, those requirements were out, they were pulled in because of completeness and they're just really taken almost verbatim from what was in 1793. So there's nothing new that's in the piece and that's why you know, we've already -- it was done in AP600. There are two SECY papers that are associated with that. The numbers are not jumping out at me right now.

MEMBER SHACK: I mean, the guidance isn't going to disappear from 1145.

MR. COLACCINO: You know, it doesn't have to, no, I don't think so. Our point is, is that the reason why we can take it out, we can skip it here in the discussion is, is that we -- you know, this is something that's already been covered in a staff Final Safety Evaluation Report and the ACRS has had a lot of

discussion on this.

CHAIRMAN KRESS: Yeah, we've reviewed that in the past and --

MR. COLACCINO: Right, right.

CHAIRMAN KRESS: -- since there's no change in it --

MR. COLACCINO: Right, and I hear some sentiment that we'll go back and take -- I mean, it's in the draft and, you know, we had not decided whether it was going to be put into the final or not. I mean, I actually don't know what those discussions are, so that's why we thought that that would gain some time for the members to have more discussion about the individual questions that they have.

MEMBER BONACA: We are not discussing it, but I think it should stay in 1145.

MEMBER SHACK: And I want to make sure that the whole concept isn't going away.

MR. COLACCINO: No, the whole concept is not. As a matter of fact, there was a meeting either yesterday or the day before yesterday with General Electric on who they're treating RTNSS, Regulatory Treatment of Non-Safety Systems for the ESBWR. So the concept is not going away.

MEMBER SHACK: Well, then if it's not

going away, I think there should be some guidance --

MR. COLACCINO: And that was the original thinking, is that it was put in the guide for completeness.

MR. MATTHEWS: Okay, with that, that concludes my opening remarks. I'd like to now turn it over to Eric Oesterle, who is the lead project manager in this activity to give you this overview and start the day's discussion.

MR. OESTERLE: Thank you, Dave, thank you for the introductory remarks and thank you, Dr. Kress and Subcommittee members. We appreciate the opportunity to come to you and provide you information on DG-1145 and provide you with an overview and status of where we are with 1145. Dr. Kress, I couldn't agree with you more on your characterization of DG-1145. It is rather formidable and it was a rather formidable effort to put it together. No one person could. The entire staff chipped in to put this document together.

My name is Eric Oesterle. I'm one of the Project Managers in the Division of Reactor Licensing in the Infrastructure Branch and as David said, I am the lead PM on DG-1145. Today I'm going to provide you all with an overview of DG-1145 and the status of

where we are today with respect to resolution of public comments. There won't be any presentation on each and every section of DG-1145 as that could probably take a couple of days but as Dr. Kress mentioned, there is time at the end of this overview to ask question on specific sections and we have staff members available today to address any technical issues that come up.

Some staff, unfortunately, are not available today as they are supporting the Grand Gulf ESP hearing. So if there are questions that come up with respect to those sections, we'll be happy to take those down and get back to you with answers later. As David mentioned, the Part 52 Rule was issued as a proposed rule in March of this year and went up to the Commission in October.

DG-1145, as drafted, was based --

MEMBER WALLIS: I'm a little puzzled. I thought the whole purpose of this meeting was for you to get feedback from this committee and if you're just going to have a monologue, that's not going to help the feedback process.

MR. OESTERLE: What we've done is follow Mr. Fischer's instructions and limited our time to approximately half the time allotted on the agenda to

allow for discussion by subcommittee members.

As I was saying, DG-1145 was prepared based on the draft proposed Part 52 rule that was issues in March of this year and as it went up to the Commission in October, there had been some changes made, so some of the presentations that you hear today may, in fact, reflect some of the changes that have already been identified as being needed to DG-1145 as a result of the changes to the Part 52 rule.

The purpose of DG-1145 was to provide guidance to potential applicants for combined construction and operating licenses pursuant to Part 52. The structure of this guidance document was such that it could provide guidance to COL applicants that did not reference a certified design, COL applicants that referenced a certified design but not an ESP and COL applicants that referenced both a certified design and an ESP. For several years, prior to the development of DG-1145, the staff was engaged with the industry and NEI in their effort to develop a guidance document for COL applicants and that was NEI 04-01.

The guidance that was developed in NEI 0401 was considered guidance for the base case applicant. That is the base case was a COL applicant that referenced a certified design and an early site

permit. In addition, the guidance was focused predominantly on one standard design, the AP 1000 which had yet to be certified at that time. During the last quarter of 2005, the following approval of the Energy Policy Act, the NRC increasingly engaged in interactions with external stakeholders that included the potential COL applicants. The increase in the number of potential COL applicants resulted in the possibility for several different COL application scenarios. That is the staff heard about potential plans for COL applications referencing a certified design, COL applications referencing design certifications in progress, COL applications referencing an ESP, COL applications referencing an ESP and a design certification in progress.

As --

MEMBER CORRADINI: Did you hear any possibilities of the first category which you listed which was, I guess you'd call it a customized design?

MR. OESTERLE: We did not. However, the intent with providing that information was two-fold. One was that it would provide guidance to applicants for certified designs. Although this was not intended to be guidance for those types of applicants, much guidance could be gleaned from this section by an

applicant for a certified designed. In addition, we felt that it would provide guidance for a COL applicant that would be referencing a design certification in progress.

MEMBER CORRADINI: So just so I understand so if -- pick an example, so if Utility A is referencing a potentially certified design, you will treat it as a customized design. I'm trying to understand -- I'm sorry, I'm trying to take a lot of pages into a little chart in my mind and say if the EPR wants to go in this location, it will be treated as a customized design or you will hold off everything as the design certification process proceeds. That's what I'm kind of asking myself. Am I making sense?

MR. OESTERLE: Yes, I understand what your question is. There is some guidance in one of the later sections in this document. I believe it's C.III.6 on COL application timing, okay? And it discusses various scenarios. However, this guidance document does not tell the staff or the public how the NRC plans on or even intends on prioritizing the review of applicants. Okay.

As a result of the numerous interactions that the NRC had with external stakeholders, it became increasingly clear to the staff that a more

comprehensive guidance document for COL applicants was needed. At that time, there was not one potential applicant that would be considered a base case and that was late 2005.

The development basis for DG-1145 was Reg Guide 1.70 and that was the standard format and content Regulatory Guide for applicants that received their construction permits and licenses and operating licenses in the Part 50 process. To develop DG-1145, we went back to Reg Guide 1.70 and used it as the basis. And that being said, I need to point out that 1145 only applies to light water reactors as did Reg Guide 1.70. It does not apply to high temperature gas cooled reactors or any other type of non-LWR reactor.

Project managers were assigned the heavy lifting, if you will, by taking individual sections and drafting those sections based on Reg Guide 1.70 based on updated SRP revisions including the Draft 96 updates and including information that was developed in the NEI 04-01 guidance document. Although that remains as a draft, there was much usable guidance in that document and we commend the efforts of the industry and NEI in putting that together. In addition, the project managers utilized experience that the NRC had gained from design certification

reviews and from reviewing ESPs. Also policy issues and positions that the Commission established in SECYs and their associated SRMs were included in the guidance document.

The proposed Part 52 rule upon which DG-1145 is based was issued in March of this year. The development of DG-1145 took place in the public forum. The planning for the development took place in the latter part of 2005 and actual development of 1145 began in earnest in January of this year. Upon completion of the draft work in progress sections of DG-1145, they were placed on the NRC's public website. Monthly public workshops were held beginning in March of this year to discuss the draft work in progress sections that had been completed and public comments and feedback were solicited during those workshops.

The public workshops continued through September of this year even though all draft work in progress sections were posted on the NRC's public website by June 30th. It was an extraordinarily intense effort and took place in the public domain. External stakeholder participation and involvement was consistently high and very constructive. The public workshops resulted in over 500 comments which the staff reviewed, resolved and discussed with external

stakeholders and included in an appendix to DG-1145, the staff's responses to those comments. These comments and their dispositions were discussed during the workshops as well. Incorporation of these public workshop comments took place during July and August, a challenging time for any major work effort, and the draft position for a 45-day public comment period on September 1st, 2001.

Going onto the structure of DG-1145, the format, Part C.I was intended to provide guidance for a COL applicant that references a certified design -- neither a certified design, excuse me, nor an ESP and it was intended to be consistent with the requirements of Part 52.79 as published in the proposed rule in March of '06. As I mentioned before, although it was not intended to be issued as guidance for applicants for design certification, much guidance can be gleaned from that section for those types of applicants. It was anticipated that a COL applicant referencing a certified design in progress could also obtain guidance from this section.

Consistent with the requirements of Part 5279, this section included the major FSAR chapters. Section C.II was developed to be consistent with the requirements of proposed Part 5280.

MEMBER WALLIS: Can you explain something to me? How does this fit in with -- we were each given -- I wasn't on the list but there's a list of Chapters 1 to 22 that the members were asked to review. How does that relate to these parts that you're talking about here?

MR. MATTHEWS: C1.

MEMBER WALLIS: Is it all C1?

MR. OESTERLE: It's all in C1.

MEMBER WALLIS: I thought it was all C1.

MR. OESTERLE: In fact, my next --

MEMBER WALLIS: Are we not reviewing the rest of it at all, that you're only reviewing part C1?

MR. OESTERLE: No, I believe Dave sent out other sections as well.

MEMBER WALLIS: Did he ask us to review the other parts as well?

MR. FISCHER: The list of chapters you got was the standard list of chapters in an FSAR and it includes all of C.I and parts of C.II and C.III as well. It really includes all four of these sections. C1 only goes through like Chapter 13 of the --

MR. OESTERLE: Yeah, the next few slides will identify the --

MEMBER WALLIS: So some of these chapters

that I've got on my list are in Part C.II?

MR. FISCHER: They're in C.II, III or IV.

MEMBER WALLIS: They are? Okay, that was not the first answer I got.

MR. OESTERLE: The next few slides will help to clarify.

MEMBER WALLIS: Okay. Thank you.

MR. OESTERLE: Part C Roman numeral II again, was consistent with the requirements with proposed Part 5280 and that was considered additional information --

MEMBER WALLIS: I don't understand. Part C.IV.10 is Non-safety Systems for example. That says 10, that's Chapter 10 of C.IV. What's that got to do with this list of 1 to 22 that's in front of me?

MR. OESTERLE: That's Section C.IV.10. It's not considered a chapter of the FSAR. And I'll get to that with the next slide.

MEMBER WALLIS: Okay.

MR. OESTERLE: Just let me go through these last couple of bullets here and we'll get there.

C.III was intended to provide --

MEMBER BONACA: I thought C.II is for applicants that reference a custom design.

MR. OESTERLE: C.I on the slide here,

identifies all of the chapters that are applicable to a custom COL applicant. And as you can see, they are consistent with traditional FSAR chapters with the exception of Chapters 1 and 19 but these chapters are consistent with what we had -- what the staff had prepared for final safety evaluation reports for the AP 1000 and are consistent with the ECDs.

MR. COLACCINO: Eric, if I could add just one more thing here, just for the Members, this is Joe Colaccino of the staff. One important thing to remember about Part 1 is that it's aligned with the Standard Review Plan, so that we have consistency within the Standard Review Plan. And what you'll see is in C.III, is that -- and especially, I know Eric is going to talk about that, is that the information will cascade down from the chapters in Part 1, so especially in C.III.1. And so you did Part 1. We did Part 1 first in order that we could build C.III.1 and so there is information in Part 1. And Part 1 is really the basis of the document that gives you all the information requirements and Parts 2 and 3 give you information on the different scenarios that Eric described before. And Part 4 is a series of series topics. If you let Eric get through this, I think his slides will explain all of that.

MEMBER BONACA: No, I think just the way it's been communicated to us Part 1, it says applicants who are not referenced certified designs and Part 2 is applicants referencing custom designs. So I'm saying, one must offer the question, what's the difference between a custom design and the design that is not referencing a certified design. And so that's why I was asking the question.

MR. OESTERLE: That instruction was not quite right. For any applicant C.II, information in C.II applies. That's additional information -- additional technical information required by --

MEMBER BONACA: Exactly, that's why I was asking the question.

MR. OESTERLE: -- the application.

MEMBER BONACA: That's what you show in your slides, okay. So it's just additional --

MEMBER WALLIS: Look, I'm not really interested in what Eric is getting through. I'm interested in the interaction between Eric and the Committee and what are we doing here, that's what I'm trying to grasp. And what is the assignment that's been give to the ACRS and it's not just a question of him getting through something. It's the interaction between you guys and us that I'm interested in.

MR. OESTERLE: We were requested to come and provide a presentation to the subcommittee to provide information on this guidance document.

MEMBER WALLIS: But we are supposed to write a letter or something on this?

CHAIRMAN KRESS: I don't think there will be a letter.

MR. OESTERLE: That's not my understanding.

CHAIRMAN KRESS: I don't think so. What I think our product will be, will be just the written list of comments from each member that we'll just hand over to them in written form and then they can treat them like public comments of individual members. It's not an ACRS position at all and they can take them and apprise them and do what they want to with them.

MEMBER WALLIS: Okay, so if we want to influence anything we have to write it down.

CHAIRMAN KRESS: Yeah. We'll we've taken what you've supplied to us already and put them together to hand to them in written form. Now, if you have additional comments after this meeting, we'd like to have those in written form also. And so I don't envision a letter and I don't envision even -- I don't see there is any need for a presentation to the full

committee.

MEMBER WALLIS: So if there's a section, let's say on the safety systems, if some member doesn't do anything, that doesn't necessarily give consent. It just means that he didn't do anything.

CHAIRMAN KRESS: That's right, that's exactly right.

MEMBER WALLIS: Okay, all right.

MEMBER BONACA: A comment I have, I mean, the comments you receive, Tom, are not all the comments because for people who were trying to attend the meeting, we said we'd just bring the comments in, so --

CHAIRMAN KRESS: And we'd like to get those in written form.

MEMBER BONACA: Yeah.

CHAIRMAN KRESS: Okay, that's what I'm going to charge you guys with. If you've got additional comments over what you sent already, please put them down in writing and we'll make that part of the product.

MEMBER BONACA: I didn't send them in. I was planning to be here.

MR. OESTERLE: In order to make this guidance document a better product, we are certainly

receptive and appreciative of any comments that the subcommittee members will have.

MEMBER WALLIS: This is very different from the usual way we operate. Usually we operate as a committee and we reach some kind of consensus on things and anybody can comment on anything. This way, apparently, it isn't that. It's just individuals commenting on individual chapters and that's it.

MEMBER SHACK: You can comment on anything.

CHAIRMAN KRESS: Yeah, you can comment on anything, the whole document, if you've read it and you have comments.

MEMBER SHACK: The purpose of those assignments were just to focus your attention and we make sure that somebody covered that chapter, but you were then free to roam at will.

MEMBER WALLIS: That's very --

CHAIRMAN KRESS: I'm sorry, if I didn't get this --

MEMBER WALLIS: No, that's okay. I'm just trying to clarify what we're doing here, that's all right.

MEMBER CORRADINI: I have a question about that slide. So I'm back to my big picture. I'm sorry

that I can't get off of this. So what you're kind of telling me is that everybody that did a design certification already did C.I.

MR. OESTERLE: Parts of it.

MEMBER CORRADINI: Well, the way you said it is everybody that did a design certification and it's through AP1000 did C.I.

MR. OESTERLE: All of the information that's included in a certified design would be included in C.I, that's correct.

MEMBER CORRADINI: Okay, so now I'm jumping to comments that I have read, this big thick thing that we were given, so if I was in the industry, what are they going to say to you, just go back and see the design certification and they will not repeat this for you?

MR. OESTERLE: The guidance, the way it's structured was in Part C.III.1, that provides specific guidance for a COL applicant that references a certified design. So the intent was to provide guidance on what additional information a COL applicant that does reference a certified design needs to provide in their application.

MEMBER CORRADINI: Thank you. Okay, thank you.

MR. OESTERLE: So C.III contains information for COL applicants that reference both certified designs and early site permits and additional information associated with those two applications or those two types of documents. Part C.IV includes information on miscellaneous topics; for example, limited work authorizations, submittal guidance and RTNSS.

MEMBER ARMIJO: Let me ask a question about C.III. Now, that -- the way I envision it is you've got an issue or a certified design. You've got an ESP so as far as Part C.II it's a cover letter with copies or something that states, "This is already done, here's -- please send me a combined license"?

MR. OESTERLE: Not exactly.

MEMBER ARMIJO: "Here's your check", or whatever.

MR. OESTERLE: A certified design as well as an ESP includes COL action items and the applicant that references both a certified design and an early site permit will need to address and resolve those COL action items as part of the application. So it's not simply a matter of slapping a cover letter on and sending in both of those two documents.

MEMBER ARMIJO: There's still issues that

have to be resolved.

MR. OESTERLE: There are still issues including designs for -- site specific designs, for example, security features. There may be sites that require intake cooling water structures depending upon what reactor technology they choose, intake cooling water piping and things of that nature.

MR. MATTHEWS: One comment I might make in just a simplified form of this process is that Part C.III would in effect, identify for you which -- what information is needed to reflect how you combined the certified design that you have and the early site permit that you've already received, in such a way as to reflect its union or its integration, okay, with the specific circumstances, in fact, marrying that ESP and site to that design.

And so there are -- I've used the phrase before, there are gaps and C.III is intended to identify how you fill those gaps for the benefit of the staff in advance of us having to ask how they're filled. Eric is right, we've already identified where some of those gaps exist because when we've issued the early site permit, we identified that this site permit is necessary but not necessarily sufficient, okay, to reflect the union of that design and that particular

site and the COL action items, as we've referred to them as, are identification from the staff's standpoint ahead of time, "These are the areas that you're going to need to -- these are the gaps that you're going to need to fill in order for this to be a complete application". Okay?

MEMBER SIEBER: I think there's one aspect that everyone needs to keep in mind. When you get a certified design, there are certain areas within that design where the work isn't done. For example, the AP1000, the I&C portion is an ITAAC item. The design isn't done. It's not approved in the certified design and so for the FSAR application that goes in, all of that has to be covered. And I think there's a lot of instances like that within the certified design where you have to really understand what the certified design provides and then match it up to these documents to fill in the empty spaces.

MR. MATTHEWS: The only thing I might add to that assessment, which is generally correct, is that those portions of the certified design that are reflected in something called design acceptance criteria, what you're referring to, the certified design is approved. The INC portion is approved but it's approved in consideration that certain criteria

will have to be met by the INC portion.

MEMBER SIEBER: But the design is not done yet.

MR. MATTHEWS: Right.

MEMBER SIEBER: And so, you know, a lot of these sections say, "Describe all the codes and standards, provide single line diagrams, grounding diagrams," and all this kind of stuff. If you don't have a design, you can't provide any of that and so all that still has to come and it's through that that you meet acceptance criteria that are either provided here, in some other code or standard, some other regulatory guide or the regulations themselves.

MR. MATTHEWS: We're going to attempt to walk you through this in IV on the agenda to address the integration of this ITAAC/DAC concept associated with its translation from certified design to application.

CHAIRMAN KRESS: Is there anywhere in the guidance document, for example, the environmental report that requires a Level 3 risk assessment at all?

MEMBER SIEBER: No.

MR. MATTHEWS: No.

MEMBER SHACK: Well, the RTNSS section does.

MR. OESTERLE: The current Part 52 rule does not require a PRA to be submitted with the application. And there will be a presentation on PRA later this morning, so we can get into those details at that time. For right now, just to put things in a nutshell, there are Design Acceptance Criteria and ITAAC associated with certified designs that need to be completed by the COL applicant and in a nutshell, Design Acceptance Criteria contain approved design completion processes and design implementation as part of that DAC. And we'll go into --

MEMBER SHACK: That's the one thing that confuses me. You don't really have to complete the design to get the COL. When do you have to complete the design, when you build the sucker?

MR. OESTERLE: Well, I'll get into that in the ITAAC and DAC presentation but to give you a short answer to your question, because DAC is an ITAAC, the regulatory requirement for completing that is prior to operation.

MEMBER SIEBER: You have to complete the design before decommissioning.

(Laughter)

UNIDENTIFIED SPEAKER: Let's let that one lie.

MR. OESTERLE: This slide shows a breakdown of Part C.I and identifies all of the guidance in the traditional FSAR chapters. Chapter 19 is a new one because it talks about PRA and severe accidents. Chapter 1 is an expansion to what's included in Reg Guide 1.70 and it's based on the information that was provided in design certification documents and in the final safety evaluation reports for certified designs.

CHAIRMAN KRESS: Is that why those have the asterisk?

MR. OESTERLE: Yes, sir, that's why they have the asterisks in, so I can remember. Format and structure for Part C.II was intended to be consistent with the requirements of proposed Part 52 that was issued in March of 2006. This will change. We had it organized as C.II.1 being the PRA and Mr. Donald Harrison will talk about that in the next presentation. That's going to change.

C.II.2 is on ITAAC. C.II.3 is guidance on the environmental report. The format and structure for Part C.III is information for a COL applicant referencing certified designs and ESPs. C.III.1 is information needed for a COL applicant and references a certified design. It's consistent with the format

of C.I in that the guidance within that section is laid our chapter by chapter. The same thing with C.III.2. That provides guidance for a COL applicant that references both the certified design and an early site permit. And again, the format is consistent with C.I in that the guidance is laid out chapter by chapter and it conforms with the SRP sections, so that the reviewers can make a one-to-one match.

C.III.3 has guidance on finality of an EIS associated with an ESP, meaning an Environmental Impact Statement. And that guidance will be changing based on the Part 52 rule that went up to the Commission. C.III.4 is guidance on COL action items. Those are items that were included in certified designs and ESPs that the COL applicant needs to complete. C.III.5 is on Design Acceptance Criteria. C.III.6 is on COL application timing and it addresses the situations where you have a COL applicant that may be referencing a design certification in progress. C.III.7 is additional guidance in ITAAC but specific to COL applications referencing a certified design and an early site permit.

C.IV includes guidance on --

MEMBER SHACK: Who else would have ITAAC?

MR. OESTERLE: A custom -- well, everyone

would have ITAAC. Everyone had ITAAC, a requirement of the regulations.

MEMBER CORRADINI: Custom or no?

MR. OESTERLE: Custom or no, everybody. C.IV includes miscellaneous topics, operational programs, limited work authorizations, regulatory treatment of non-safety systems, et cetera.

MEMBER SIEBER: This is the place where items like fire protection would appear?

MR. OESTERLE: No, that would be Chapter 9.

MEMBER SIEBER: Chapter 9, all right.

MR. OESTERLE: With respect to status on DG-1145, PM's that were assigned DG-1145 sections for coordination and resolution of public comments also have the same SRP sections to update, so we're achieving some coordination there and conformance between DG-1145 and the SRP sections. The process for resolution of public comments on DG-1145 also includes looking at the SRPs. The comment period for DG-1145 did close in October of this year. We receives approximately 700 public comments. The staff is currently working to resolve those public comments and revise DG-1145 as appropriate and to insure that it conforms with the revised Part 52 rule that went up to

the Commission.

MEMBER CORRADINI: I have a question about that. I'm looking at the comments now. The NEI comments are in Appendix 1?

MR. OESTERLE: No, Appendix 1 included the comments that came up during the public workshops that we used in the development of the draft that was issued in September for public comment.

MEMBER CORRADINI: Whereas, these are following that time period.

MR. OESTERLE: That's correct. Those are the public comments on the formal draft that was issued in September.

MEMBER CORRADINI: Okay, all right. Okay, and then -- all right, that's fine, thank you.

MR. OESTERLE: Okay. So we have a process in place to insure that DG-1145 conforms with the SRP updates and also with the Part 52 rule. The plan with 1145 is to publish it after the Part 52 rule goes final and after we achieve resolution of all the public comments. In addition, the staff is considering additional venues or forums to provide information to the public on the status of DG-1145 and resolution of various technical issues that came up as a result of the public comment. And just a time line

to show everyone going back to the Energy Policy Act and the various time lines for issuance of proposed Part 52 rules; in June of '06 we put all the draft work in progress sections of DG-1145 on the web. The Part 52 rule went to the Commission in October. And we currently are looking at revising or publishing DG-1145 as Reg Guide 1.206 final after the Part 52 --

MEMBER WALLIS: To go back to my original question, what we're doing here, this isn't -- this is really an important Reg Guide. I mean, this influences all future designs and some parts of it are good enough that they could apply to non-water reactors and some parts are written so generally that you could branch off and expand to take care of other sorts of reactors. Yet, there's nothing in here where you're actually sort of seeking ACRS approval. It's all you're just telling us what you're doing. And this seems a little strange to me.

This is one of the more important Reg Guides that might require us to actually think about it in some depth.

MR. MATTHEWS: Let me answer that as the principal manager responsible for this activity. Let's keep in mind that this Reg Guide, while it is regulatory guidance, it stands apart from the kind of

regulatory guidance that is usually captured in reg guides. This is a process document. It's not a technical requirement document. It is important in that it is connective of all our other regulatory documents and technical requirements and directs people to those portions that need to be addressed, but it in itself, does not provide any requirements or regulations or technical guidance.

MEMBER WALLIS: It's extraordinarily detailed in its description of what should be and if you look at any one of these chapters, the detail is immense.

MR. MATTHEWS: And that's why, you know --

MEMBER WALLIS: But it's not important. It's --

MR. MATTHEWS: I hope I didn't imply it's not important. I'm going to suggest to you that it's one of the most important documents that we're putting out in preparation for these applications we expect to see in the fall and I think you'll hear from the industry, they view it as critically important as well. However, I'm going to suggest that it does not have safety implications associated with it. They are process implications for efficiency and effectiveness.

MEMBER WALLIS: But it's the most

extraordinary detailed compendium of all the things that you've got to do, it implies you've got to do them, in order to insure safety, so the place where you find all these things.

MR. MATTHEWS: I don't want to denigrate its importance by calling it a convenience, but it is a convenience document. All the requirements exist in our requirements. They exist in the standard review plan as identifying criteria.

MEMBER WALLIS: Let's just pick something. You say something about spray nozzles and testing the drop size from spray nozzles and so on. Is that somewhere else than in this guide?

MR. MATTHEWS: Yes, sir.

MEMBER WALLIS: It is somewhere else. Everything that I see in this guide is somewhere else?

MR. MATTHEWS: If it isn't, then we've made a mistake.

MEMBER BONACA: I view really this as a compendium of all the experience we have accumulated over 40 years and the document that you have behind that. I mean --

MR. OESTERLE: It vectors the applicant to the items that he needs to get an answer for.

MEMBER SIEBER: In fact, that was one of

the difficulties of reviewing this document is if you go to the NRC website, half of the reference regulatory guides aren't there. And so if you want to see how it fits into the grand scheme and you're forced to use the web, forget it. You just can't do that unless you have all of those reg guides already in your head.

MEMBER CORRADINI: You mean, you can't find them or it's difficult to navigate.

MEMBER SIEBER: Well, it's in the index but if it's just in black print, there's no associated document that lies behind it. So the query just fails.

MEMBER SHACK: But you can typically find them in ADAMS.

MEMBER WALLIS: You can find it in ADAMS?

MEMBER SHACK: At least the ones I looked for I found in ADAMS.

MEMBER SIEBER: Well, I found about half of them, but I used ADAMS, too, and some of these old ones, like 1.23 and 1.26, have not even been scanned in yet. You know, all you have is the title and the number.

CHAIRMAN KRESS: I thought you had them all memorized. I thought you had them all memorized.

MEMBER SIEBER: Well, you know, I was practicing engineering 20 years before the first one come out.

MEMBER BONACA: No, but one of the criteria I used to review this document was that the document imposed no requirements which are not in the regulation. That's one of the questions I had myself and because there are some locations where it was general enough that one could ask that question, okay, is there some new requirements that shouldn't be there and --

MR. MATTHEWS: I can summarize, Dr. Bonaca. There's no new technical requirements created by this document.

MEMBER BONACA: At least as far as I can see, there wasn't.

MR. OESTERLE: It's a road map and provides pointers in many different directions to those documents that do provide the technical requirements, including other regulatory guides.

MEMBER SHACK: So it's -- I'm sorry.

MEMBER SIEBER: I think if you applied this document to an existing late model plant, you would end up with the same application that already exists for that plant and the standards would be

pretty much the same, too, except to the extent that from IEEE or ASME standards have been updated since the last '90s.

MR. OESTERLE: That would be true --

MEMBER SIEBER: And that's where it reflects itself, but otherwise, it's just a roadmap as to what to apply.

CHAIRMAN KRESS: Said, did you want to say something?

MEMBER ABDEL-KHALIK: Yes, I have a question about the overall structure of the document. Conceptually, regardless of which option an Applicant has, whether it's a custom design or someone referencing a certified design or an ESP, there is a body of information that the applicant has to provide to NRC. And that body of information is the same regardless of which option. And presumably, that body of information is elucidated in a great deal of detail for Option 1 which is the custom design option and therefore, it would seem to me that the document would be far better structured if everybody who is making application regardless of which option it might be, have exactly the same outline as far as information to be provided and wherever information had already been provided in some other place, whether it is a

certified design or early site permit, that they would just simply reference or provide the location where that information had already been provided, rather than dividing it into different options and allowing room for things to fall through the cracks.

MR. OESTERLE: Yeah, that's what we attempted to do with section C.III.1 and CIII.2 for COL applicants that reference a certified design. The intent was for them just to go to Section C.III.1 to look for guidance on the additional information that they needed to provide with their application. The same thing with C.III.2. The intent there was to provide guidance to COL applicants that reference both the certified design and an ESP for what additional information they needed to provide as part of the application.

MEMBER BONACA: Well, I have a comment still. As I said before, as I was reviewing it, I was looking at whether or not this was imposing new requirements. One that came to mind was the ALRF in the PRA. You know, according to regulation it doesn't impose a large release frequency. Isn't that a new requirement? I just bring it up as an example of something that comes to mind and maybe you can comment on that.

MR. OESTERLE: That will come up in the next presentation on PRA.

MEMBER CORRADINI: Because if I look at it -- I think Mario has hit upon one I was looking for. Since this is a road map or like a meta-document, that supposedly it's somewhere, somewhere else, somehow, I think the way to look at it is, can I understand the meta-document? It's kind of hard, first, that's comment one, kind of hard.

Comment two is, there are certain things that seem to be glaring and the NEI think particularly this one, I was struck by the fact they were concerned about it. They ranked it number one and they don't even have a suggestion other than they don't understand why this seems to appear as a new requirement that isn't referencible from past, unless I understand it wrong.

MEMBER BONACA: I don't disagree with that. I'm only saying however that, yeah, it looks like a new requirement and so I'm saying, the comment was made before by Dr. Matthews that there will be a problem with the rules and requirement. Well, that seems like it will be a new requirement introduced by the Reg -- by 1145.

MR. OESTERLE: Let me just say this about

that issue; the probability that that issue will be discussed during the next presentation is very good.

MEMBER WALLIS: Well, can I give you a perspective --

MEMBER BONACA: Wait a minute now, just as an example, okay, and again, I want to go back to the discussion we had before, does it impose new requirements? And here is one, there may be others.

MR. MATTHEWS: Well, let me -- I would suggest that Eric did mention this but I'll repeat it. There are two or three portions of this document that have not yet been conformed to the revised Part 52 in final form that we have in front of the Commission for a vote, okay? My statement was based upon the fact that when DG-1145 in its final form is issued, there will be no requirements expected in that -- I mean, to be responded to in that document that aren't backed up by a regulatory requirement. The difficulty is, that at one point in the proposed Part 52, if we can speak to PRA, okay, there were requirements associated with the submission of information with regard to your PRA as opposed to just the results of your PRA. And this is an issue that has been an issue for debate among the industry, the Commission and the staff as to just what constitutes the level of information that needs

to be reflected in the application, okay, relative to PRA results.

And that's an issue that has been in controversy. At such time as the Commission issues their vote sheet and their final SRM on Part 52, immediately this document will be reconformed to that requirement. So I should have been a little more careful. The document you have in front of you might identify an expectation for submission backed up by requirements and a proposed rule. It will not reflect the need for information to be provided to the staff that goes beyond the requirements that will be reflected in the final rule.

MEMBER BONACA: I appreciate it.

MR. MATTHEWS: Okay, and I'm sorry for that confusion. I probably contributed to that.

MEMBER WALLIS: Well, I'm going to get back to my point here now. I see this totally differently. You seem to look at this as some kind of a bureaucratic thing which just has to be done, but I look at it as a compendium of the NRC's technical knowledge and questions to be asked about new reactors, and it's a very important public document. And if I look at say Section 6 on safety features, I look at it and say, "Does the NRC really understand

what it's doing? Is this comprehensive? Is it complete? Have they missed something and so on? This is a statement by the agency about how it's going to look at new reactors, a very important thing. It's not just something where you just refer to other Reg Guides or you don't have to do it because it's not necessary in the regulations. It's a very important document.

Have I got something wrong here? Is this for public consumption? And if it's not a good document, if it's not convincing to the technical public, then it's not fulfilling its function. So my concern was, is it a convincing document, is it complete and all that sort of thing, you know. That doesn't seem to be a concern with you guys at all.

MR. MATTHEWS: Oh, I think it's very much a concern of ours.

MEMBER WALLIS: It's all tangled up in some sort of bureaucratic structure.

MR. MATTHEWS: Okay, I hope I didn't imply that I thought it was bureaucratic. My view is that this is a very important document.

MEMBER WALLIS: That's what I thought we were doing. I thought we were looking at this at ACRS and saying, "Well, is this good enough to go out as

this statement by the agency that shows that it's really competent and knows what it's doing?

MR. MATTHEWS: And I think comments on its usability, on whether it meets our expected goals of being able to provide sufficient guidance are welcome with regard to this document. The only clarification I was --

MEMBER WALLIS: You're on a different level here. I mean, maybe I'm off on something that's inappropriate but I thought that's what we ought to really focus on is not all this history of stuff and so on but you know, does it have the quality, if it will pass muster when it's reviewed by the technical community out there.

MEMBER SIEBER: I think the overall reliance on the safety of whatever plant you build hinges basically on the codes to which it was built. In other words, if there were no NRC, you would go to ASME and IEEE and the concrete industry --

MEMBER WALLIS: You do in some of these sections, they do that.

MEMBER SIEBER: You know, you could apply a set of codes and end up with plants that are built essentially the way current plants are built. This document tells applicants which of the codes apply

based the year of construction and other features, plus what they need to send into the staff in order to describe what it is they did and any anomalies that showed up in the process of either design or construction. And so the whole safety of the facility does not necessarily rely on this document. It relies on every document that's referenced and most importantly the codes of standards.

MEMBER WALLIS: I don't think the codes of standards help much with the safety features part of it.

MEMBER SIEBER: Yeah, that's right.

MEMBER WALLIS: They don't say anything about how you work out the minimum containment pressure, for instance, and all that sort of stuff that's in there. It's very much specific.

MEMBER SIEBER: The code speaks to that but the code does allow some of the exceptions that the staff and we have considered and allowed. For example, in the I&C world where the codes actually do say this, when you talk about redundancy and defense in depth and those kinds of features, that actually appears in the codes, but how a designer interprets that is -- it can be interpreted and put into design space in a lot of different ways. Some ways embody

those features more so than others.

MR. OESTERLE: One thing I think that's important to note here is that this Reg Guide provides guidance to the applicants on the information that they need to submit as part of their application. When a reviewer looks at that application, he doesn't -- he or she does not take this Reg Guide and compare the information against the Reg Guide. They have a set of SRPs that they review the information against which contains acceptance criteria --

MEMBER WALLIS: Why do you list all these things here unless you expect to review them? I mean, it seems to me that all these details are very important. You put them in there because they're going to have an influence on what happens.

MR. OESTERLE: And it matches up with the Standard Review Plan. That will be reviewed by the staff to insure that it meets the acceptance criteria.

MEMBER CORRADINI: If we're into individual questions, I kind of want to jump off of where Graham's asking. So he picked unfortunately a section I reviewed but Section 6 is incredibly detailed. So let me just rephrase what you just said, which is if I go -- which I didn't maybe I should have, gone to a Reg Guide, that level of detail we saw

in that chapter is reflective of a level of detail either in a Reg Guide or a Standard Review Plan about it's got to be this graph, it's got to be these units, it's got -- to you know what I'm getting at?

There was some detail there that was pretty awesome. And I'm -- and so I think to push the point what Grahame is asking is there is somewhere else that I would find exactly that level of detail.

MR. OESTERLE: Either the SRPs or the Technical Reg Guides that provide guidance on how to address some of those areas.

MEMBER CORRADINI: Okay.

MR. MATTHEWS: Let me take another approach, maybe, to explaining or putting this document in context. At such at time as an application arrives at the NRC, this document will be used, along with other checklists to determine whether or not the application is sufficient for us to conduct our review. It will be contrasted against this Reg Guide to insure that each portion that we've asked the information to be provided in is provided and it's provided at the level of detail that's identified in this Reg Guide.

We will then send a letter back, based upon that review that will identify that we're

accepted the application for docketing and at that point in time, the review will start and the review will be of that application against regulations, standard review plans and Reg Guides. All right, and SERs will start to be written on individual sections.

Once we reach that point, and by the way, when we sent that letter back, we're also going to send a letter back, I mean, a companion piece to that letter which will be our proposed review schedule. And that review schedule will take any number of months. It might be as many as 30 or so, for us to complete this review. That review schedule will be predicated upon the degree of conformance that the applicant has made to the information we've requested in this Reg Guide, okay?

MEMBER WALLIS: So it's pretty close to being regulation.

MR. MATTHEWS: Well, let me be clear. At such time as that letter is sent back, this Reg Guide will have served its purpose and it will not be referred to again. You will not see anything in the Safety Evaluation Report reflecting whether they did or didn't conform to some information that was asked for in this Reg Guide. It will be that they did or did not provide information sufficient to satisfy

regulatory requirements as reflected in the Standard Review Plan. So this document serves a purpose, a very important purpose, in anticipation of these applications and their preparation but as such time as that application is received for review, this Reg Guide for all intents and purposes, for that application goes on the shelf and isn't referred to again. So I just want to be clear about that. It is a very important document because it is going to facilitate the efficient and timely review of these applications by insuring that the information is provided to us that we believe is necessary in order for us to complete our review to its conclusion. Okay, we're never going to avoid the need for, as I say, request for additional information. We're trying to minimize the amount of times that we're going to have to request additional information by virtue of saying up front what it is that you're expected to provide in order to have us conduct our review.

So I'm just trying to put this in context in terms of the role or the stepping stone that this document provides and by no means, by stating it that way do I mean to offer that -- or diminish its importance. It is critically important but it serves a purpose and no more than that, namely, its purpose

is to allow for the timely and efficient preparation of the application in the hopes that it can meet our new policy related standard is that we won't start working until we have a full, complete and high quality application. We've demonstrated our willingness to return applications in the past in the license renewal program.

We've also delayed acceptance of applications for design certifications by virtue of the fact that applications have been made who have been incomplete. Okay, and we're not opposed to in effect, sending them back if they don't meet these criteria. In order to establish a basis for that return, so to speak or sending an application back, we had to be very fair with the industry in terms of what our criteria was for our rejections or our delay in acceptance.

And the criteria for rejections or our delay in acceptance is this criteria. This is going to determine the entry condition for us starting a review. That's its purpose and frankly, that's its sole purpose.

MEMBER WALLIS: So all these tremendous level of detail about safety features really indicates all the things that you're going to expect to see in

an application.

MR. MATTHEWS: Absolutely.

MEMBER WALLIS: So it's getting pretty close to a requirement.

MR. MATTHEWS: No.

MEMBER SIEBER: Well, I mean, I reviewed all this with just the opposite twist. For example, I considered what it would take for me to be able to make a determination that such and such a system performs its function and will operate as designed and installed. And then I looked at the draft guide and it's underlying documents to see if the information necessary to make that determination is requested, asked for in this document and in a couple of places, I had difficulty finding where there was sufficient information to be able to make that determination and you can't do that all through RAIs; otherwise you would be in a sea of RAIs forever asking for additional information.

So this sets a -- both a minimum and a maximum amount of information that you could legitimately ask a licensee to provide and I think that we need to look at it both from the standpoint do we ask for the minimum and are we excessive in deciding what should be in there and what should not.

MEMBER BONACA: Well, I mean, I looked at it -- I reviewed it as a guidance document and it seems to me that if I were somebody who wanted to build a plant, it would provide a lot of guidance well-focused. I like the document. I thought that it is a good document. I was looking specifically at some sections. One of them that was assigned to me was Human Factor Engineering, and it clearly identifies all the requirements that you would expect with all that we know today about human factors and the requirements coming from post-TMI accident and so on and so forth. It would provide a complete list.

Now, when I was looking at completeness, you know, it's hard to figure completeness and that's why we go through this review processes, to see that somebody identifies that we haven't covered something or we have excessively covered something else. But I thought that was a good document and I think that it's a helpful document.

CHAIRMAN KRESS: I agree, Mario. And surely an applicant won't just use this Reg Guide. He'll have in mind the acceptance criteria and standard review plan. He'll have -- he knows what the regulations are he has to meet. So, you know, this makes sure he looks at all those things and makes a

complete presentation. I think it's --

MEMBER SIEBER: It's basically a map.

CHAIRMAN KRESS: It's a map, and, so, you know, he won't use this the absence of knowing about all the other things. Did you have something to say, Said?

MEMBER ABDEL-KHALIK: I was going to say that the way I looked at this document is, it's just nothing more than a fancy checklist. The function of this document can be achieved if you have a detailed checklist. It's just guidance for the Applicant to know what information to provide and by looking at that checklist, the NRC can decide whether or not they have all the information that they need to make a determination. Is that a fair sort of assessment of what this document is all about?

MR. OESTERLE: At the very minimum, yes.

MEMBER SIEBER: Well, it doesn't establish any new regulation or position.

MR. OESTERLE: No, it doesn't establish anything new. It's a facilitation document.

MEMBER SIEBER: But it is a checklist.

MR. OESTERLE: A facilitation document is a very good characterization, yes. Mr. Chairman, at this point, it's 9:45. And we're scheduled to move

onto another presentation but we haven't come to the point yet where committee members have asked any questions on specific sections.

CHAIRMAN KRESS: Why don't we go ahead and do that first, because we can always --

MEMBER WALLIS: You're going to go through them from one to 22? How much time are you going to spend on each one?

MEMBER SIEBER: Thirty seconds.

MR. OESTERLE: And I would ask that any staff members that have any information on the questions that do come up, please come up to the mike and identify yourself and help me out with a response.

CHAIRMAN KRESS: We need to do that now, while all your staff members are here. And I think some of these questions have already been asked. Now, in order to proceed, I guess we ought to just go through the chapters in numerical order and so that first one is -- well, it's mine and you know, my only comment was this was -- this seemed sufficient to me. It's such a high level description that it really -- I really didn't have any comments on my Chapter 1. I did have a question, which I've already asked, which is, is there a requirement anywhere for a Level 3? And I think there ought to be somewhere but I don't

know where -- it may show up in the Environmental Impact Statement but I don't know. But I really didn't have any comments on Chapter 1.

And Chapter 2 is Dana powers. Dana is not here and we didn't actually receive any comments from him yet. They may come later in written form, so we'll skip that and you'll get written comments on that. So we go to Bill Shack, Chapter 3.

MEMBER SHACK: What is Chapter 3 again?

CHAIRMAN KRESS: That's Design of Structures, Components, Equipment and Systems.

MEMBER SHACK: Okay, yeah, I guess I had a number of comments, but mine were all sort of, of nits really. One of the things I was interested in was , you know, reference to the guidance, you know, you bring up Reg Guide 156 on BWR Water Chemistry which is an obsolete Reg Guide. I'm not sure why it's been deleted and replaced in this discussion. It basically provides quality -- you know, you have a discussion of PWR water chemistry because you don't happen to have a Reg Guide on it. You just provide general consistent discussion because there's an old out of date Reg Guide on BWR water chemistry that's brought in, but as far as I'm concerned, that Reg Guide would not be an acceptable treatment of BWR

water chemistry and it probably ought to be discarded, would be my recommendation. I see no reason to update it but I also see no reason to pretend that it's an acceptable treatment of BWR water chemistry.

MR. KOENIG: This is Steve Koenig and on the Standard Review Plan side we have addressed Reg Guide 1.56 and in this subsequent consistency conformance check, that is one of the things that we will address, that Reg Guide in particular. And we're going to replace it with, I believe it's EPRI water chemistry guidelines.

MEMBER SHACK: The other thing is there's no references in this -- well, I could only find one, you reference the EPRI document on flow assisted corrosion. So you've established a precedent that you can cite non-NRC documents but that's the only one. I would have thought there'd be some reference to, for example, to PWR and BWR water chemistry guidelines.

MR. KOENIG: Right, and I believe that consistency check when we were developing these guidance document, obviously, we wanted to get a product out on DG-1145 first. When we're going through the Standard Review Plan, we are picking up some of those areas. And then the conformance check in the next three months will address those type of

DO's and make sure they're consistent.

MEMBER SHACK: And then I guess my other comment was that actually, you had a good discussion of leak before break in there and I just wondered why there wasn't a Reg Guide on this. I mean, everybody's going to be doing it, I think and, you know, we should have, after 20 years have formalized the requirements into a Reg Guide, I would think. I thought you had one like two or three years ago and it never quite made it.

MR. CHAN: Terrence Chan, I'm Chief of the Piping and NDE Branch. I used to have responsibility for LBB a couple of years ago. The staff had embarked on the development of the Reg Guide and a draft had been developed by the Office of Research. Because of developments related to PWSCC and our need to rethink the basis for the position of two mitigated methods that need to be present, in light of active degradation in piping that might be candidates for leak before break, we decided to put that Reg Guide in abeyance because of concerns related to our understanding of PWSCC.

Recent examples of PWSCC or in-service cracking that's attributed to potential PWSCC at Wolf Creek has resulted in us taking a additional looks as

to whether or not the guidance that's currently out there for PWSCC is applicable and it's for that reason that the Reg Guide is not yet finalized.

MEMBER SHACK: Okay, so we're going to march ahead making leak before break decisions but we haven't formalized any guidance on which to do it.

MR. CHAN: The current guidance that's out there is still current as far as we've determined to date. We're looking to see whether it needs to be changed and that's what the Reg Guide would do is to reflect any changes to current requirements. We've not made any decisions on that yet.

MEMBER SHACK: I guess the other comment I would have is not so much on this chapter. It goes back and forth. That is, there seems to be some inconsistency between the chapters which is not surprising, since they're all written by different people. But you know, the guy doing the feedwater piping system I thought had a very good suggestion on ISI. He's got some section that says, you know, what are you doing to make sure that cast stainless steel is volumetrically inspectable? You know, what requirements are you going to do on it? And so he does that on the secondary piping system, the Class 2 piping system. The Class 1 piping system makes no

comment on that and merely reflects you back to the ASME code. And so I would think there needs to be some cross-check here to make sure that the requirements within the document seem roughly consistent and at the right level. But I'd take the one from the feedwater piping and use it for the Class 1. I thought it was a pretty good idea myself.

MEMBER SIEBER: Yeah, but the code requires inspectability, the code by itself.

MEMBER SHACK: Yes, well, but this one had an additional statement focusing on cast stainless steel and just what measures you were going to make to make the casting which seemed to me a good question. And again, I'm not up to date on the latest requirements in the code, in terms of a more specific suggestion, but it just -- if it's a good suggestion in one chapter, it ought to be a good suggestion in another chapter.

MEMBER WALLIS: Now, isn't it a suggestion that came out as a result of writing this document? It's something new?

MEMBER SHACK: Well, I think it's experiential. You know --

MEMBER WALLIS: Experiential, gathering together experience.

MEMBER SHACK: Now that people have tried to inspect cast stainless steel piping, they find that they --

MEMBER SIEBER: It's not easy.

MEMBER SHACK: -- it's not easy.

MR. COLACCINO: This is Joe Colaccino of the staff and that's not the first time we've heard that comment and we think it's an excellent point. When we go to final, those are some of the things we'll try to rectify.

MEMBER SIEBER: On the other hand, in order to get around the problems of defining indications of the cast piping, you almost have to switch to some other kind of piping.

MEMBER SHACK: It might not be such a bad idea.

MEMBER SIEBER: Well, yeah, okay.

CHAIRMAN KRESS: Okay, Sam, your turn, Armijo.

MEMBER ARMIJO: I had Section 4 or Chapter 4, the Reactor and I reviewed that. I found it to be very complete, the sort of things that we've always addressed in preparing FSARs, a long list of things to worry about and -- but what I had problems is, I couldn't find and I expected to find in the reactor

section, a really solid chapter in materials and materials degradation issues and I couldn't find it there, but I found more information in the following Section 5, Reactor Coolant System and Connected Systems which Jack was reviewing.

And it just struck me that this industry has had such a terrible problem with materials degradation and choices of materials, you know. If any of these new reactors have stress corrosion cracking, we ought to fire ourselves. Something -- and what I'm worried about is that the corporate memory in the industry on these materials issues may not exist unless we make it part of this Reg Guide in some way where there's a focused attention to the issue of material selection, materials fabrication, environmental issues or all the phenomena that we know of are identified and where the applicant says, "I know about this problem, here are the solutions to this problem. This is how they're going to be incorporated in our design". And rather than having it sprinkled all over the Reg Guide, I just thought there's -- it's justifiable to have it as a special materials and environmental section somewhere. That's really my comment.

And there are some inconsistencies as Bill

pointed out, on the water chemistry, a lot of information on obsolete BWR water chemistry, which is, you know, nobody uses any more. So I think it could be improved, but as far as the amount of information requested, it's clearly an enormous amount of information but the industry is used to that. We know how to get this stuff. So basically, that's my comments. I had some other minor comments that I sent to Dave on typos and wording, but that's about it.

MR. OESTERLE: Yeah, I would suggest that your comment on the materials degradation is a good one. Just by the very nature of the way this document was organized and structured on a chapter by chapter basis in accordance with the FSAR, the discussions of materials degradation would be -- would show up in the systems and component sections as they apply to rather than say a centralized location. And I would suggest that, perhaps, a more technically based reg guide rather than a roadmap like this would b the appropriate place to put all of that industry and corporate knowledge with respect to material degradation.

MEMBER ARMIJO: I may have an additional agenda because traditionally the material selections in the existing fleet of plants were made by

mechanical engineers designing to code. The metallurgists and the water chemists were only brought in after things started to crack. And what I'd like to do is in this Reg Guide is put the cart before the horse. You know, let the people who have experienced and solved -- had to solve a lot of environmental cracking problems, material selections, the proper materials selections, let -- force that up to the front.

It's been a chronic problem in this industry and we should address it with this Reg Guide and the designers, whether it's the GE's or the Westinghouses or the AREVAs, those guys, perhaps, will put the right kind of design team together so that the application really -- and the design really reflects the knowledge that's out there as opposed to repeating the same mistake we made the first time around.

MR. COLACCINO: This is Joe Colaccino again. Eric, we have a real advantage. We've got all 250 SRP sections here in front of us and Section 452 certainly covers materials degradation and so it's a good comment again, and I think we'll take that back and look at that.

MEMBER SIEBER: On the other hand, I don't think that by regulation or regulatory guide, the

agency ought to be in the business of selecting materials for the licensee.

MR. OESTERLE: No, but the --

MEMBER SIEBER: All you have to do is list the properties and how you're going to examine them and what criteria you're going to use.

MEMBER ARMIJO: But, Jack, the applicant should say, "Here are the phenomena that can degrade the performance of the materials and we understand it and this is how we're going to treat it and we don't expect to see any stress corrosion cracking, IAFCC, PWFCC." My gosh, if we can't do that in a new set of reactors, something is wrong and I think the NRC should put that at the forefront, that we don't expect -- we want a complete, thorough treatment of the materials and the environment together so that these plants run reliably.

I just -- because I'm afraid that some of these things people have -- the knowledge just might disappear over time and we'll slip back into the same kind of problems we've had in the past. That's all I've got.

CHAIRMAN KRESS: Okay, moving on, Jack, you're next, Cooling System.

MEMBER SIEBER: Yeah, I read through this

several times and went to a lot of the -- some of the reference documents to make sure I understood what was in various places. I ended up starting off with some questions which by the time I got to the end, those questions were answered. It's mainly because it was in a different order than I would have written it, had I written it. On the other hand, I do have some questions.

First of all, when you describe the reactor coolant system, one of the things I was looking for is foundations, hangers, supports, seismic restraints, things like that. And I didn't find discussion of those and then I got an e-mail from Bill telling me where to look for it and to me, that description did not seem real complete.

In the early days there was difficulties with PWR steam generator supports. There's a lot of changes in seismic snubbers and how one analyzes for the motion and the stresses there. And I think there needs to be more description of what the licensee proposes to do as far as hangers and supports are concerned.

I did not find too much of a reference to fatigue life and the potential for description of the fatigue analysis that went -- that the licensee is

supposed to do. I also would like to have seen a description of the design limitations for hydros of the reactor coolant system pressure boundary. I think that they are part of the tech specs when the plant is finally licensed but the basis for that probably should be in the FSAR.

With regard to describing the materials content and the configuration of the reactor coolant system, including all of its components and the piping, I thought that discussion was pretty good even though it appeared in a couple of different places. On the other hand, a concern of mine revolves around one instance would be the Oconee Reactor Coolant System Well problem where a well repair was made during the construction phase. The geometry of that repair, while it existed someplace, would have been better described in the application so that everybody was aware of what had been done there, which code cases applied to make it acceptable under the ASME code and as we know, it, ultimately, began to leak.

If I were to try to do an analysis, I would like to have some geometric cross-section drawings of how some of these wells were made, particularly feritic to osonitic (phonetic) wells where buttering is used and what those compositions

are. Actually you do ask for that. You ask for all the chemical compositions of the metals in the reactor pressure vessel and I thought all of that was adequate.

So I'm not suggesting that you need to make a change there but I think it's something you ought to look at again to make sure it satisfies your needs and the reviewer's needs because the reviewer has to make a determination based on what the licensee presents. And so I would be satisfied with that. Otherwise, I thought the section was pretty good and I think that if you use just that and the reference codes and standards and other Reg Guides, you could build a 1980 style plant right from that.

MR. OESTERLE: Thank you.

UNIDENTIFIED SPEAKER: That was a compliment.

MEMBER SIEBER: Yeah, and the FSAR would look just like the ones that are out there.

MR. OESTERLE: Okay, thank you for those comments. For detailed responses, I'll defer to the appropriate staff members but I will make an observation that perhaps, some of the details that you are looking for may be verified during the construction phase by ITAAC or by engineering design

verification efforts or first of a kind engineering inspections.

MEMBER SIEBER: Yeah, a lot of these questions arose during the construction phase but the idea here in making this whole process more efficient, is to foresee where the problems are and do the analysis up front before you've invested money in fabrication and materials and labor and so forth. So I think that's also a consideration rather than to say, "Well, you build it and I'll tell you whether it's any good or not".

MEMBER SHACK: Moving on --

MEMBER WALLIS: Can I -- this is one section I looked at, just randomly looked. I assumed it was my job to look at something.

CHAIRMAN KRESS: All right, why don't you start?

MEMBER WALLIS: I wasn't quite sure what I was looking at because the CD simply has a whole lot of numbers on it and it didn't tell me which chapter I was -- I just picked one, and said, "I'll read that and see what it". I couldn't make connection. Didn't -- none of us had a problem with -- 060440351 is Section 8, how am I supposed to know that? So I -- I thought it was a pretty good section. I did notice

the -- in some of these sections, in this one, there are some interesting typos. Here you're talking about the extent of insolubility of a fluid system has provided by isolation valves. Now presumably it's not insolubility, it's isoloability if that's a word.

CHAIRMAN KRESS: Isolatability?

MEMBER WALLIS: If there is such a word but you don't make in insoluble by closing a valve.

UNIDENTIFIED SPEAKER: That's a mechanical engineering word.

MEMBER WALLIS: So I'll move on from that. It was a pretty short section, really, so it was -- compared with the next section.

CHAIRMAN KRESS: Yeah, well, let's go onto the next section, then.

MEMBER CORRADINI: I want to talk about PRA and severe accidents. So I -- other than the fact it's incredibly detailed, I did two things. I went back and looked at the Kewanee FSAR and everything you're requiring the folks to do is in some old --

MEMBER WALLIS: You're jumping to Section 19?

MEMBER CORRADINI: Huh?

MEMBER WALLIS: You're talking about Section 19 now?

MEMBER CORRADINI: No, 6. 6, I got two assignments, so I want to save my fire for --

MEMBER WALLIS: Save your fire for that one, okay.

MEMBER CORRADINI: So other than the fact it's very detailed, everything -- if I were to go back to an old -- my way of checking is to go back to an old FSAR and just kind of do a cross-comparison and it was all there. So other than that, I'm still struck by you need a checklist in that amount of detail. If you want it, that's fine. If you will turn back the applicant because he doesn't have it, okay, but other than that, I would say the NEI comments, they found a lot of really fun typos and so I agree with theirs.

CHAIRMAN KRESS: Okay.

MEMBER WALLIS: Can I say something about this section?

CHAIRMAN KRESS: Sure.

MEMBER WALLIS: Again, I was struck by the extraordinary level of detail. Everything that you could possibly think of that you have to worry about with safety features. Just a couple of things. There is one section to analyze the effects of small particles that penetrate the sump screen and I just don't know if they know how to do that because, I

mean, this whole sump business, they're asked to do things but we don't really know if they know how to do it. We don't even know if the staff knows how to evaluate what they've done.

On the subject --

MR. COLACCINO: We want that to be considered.

MEMBER WALLIS: The subject of fan coolers, there was a whole safety issue on the draining of fan coolers and subsequent water hammer effects. It doesn't appear here at all. There's no concern -- I think there ought to be something here about what happens to fan coolers during accidents and when they drain and refill. I've found this was missing completely from this and among all the extraordinary level of detail, it wasn't there and so I expected it should be there.

MR. OESTERLE: If the designs include those, then --

MEMBER WALLIS: Well, you talk about fan coolers in your RG-1145, then you need to make it complete. What was this design leakage rate of secondary containment greater than 100 percent a day?

MEMBER CORRADINI: That wasn't primary containment. That's what our e-mail back and forth

was --

MEMBER WALLIS: So what do you mean by that? What is primary and secondary containment? Am I just confused about --

MEMBER SIEBER: Pressure boundary is primary.

MEMBER CORRADINI: Yeah, pressure boundary is primary at .1 percent per day.

MEMBER WALLIS: So what is secondary containment then?

MEMBER SIEBER: Keeps the rain off the primary.

MEMBER WALLIS: Now, wait a minute, wait a minute, be serious about it. What do you mean by secondary containment and why is the leakage rate allowed to greater than 100 percent a day?

MR. OESTERLE: Any staff want to take a crack at that?

MEMBER SIEBER: I could give you an idea. I worked in a plant that had primary and secondary containments. The secondary containment was there in case a leak developed in the primary containment that you could do something with it as opposed to allowing it to escape to the atmosphere and so it had filter banks on it and charcoal absorbers and things like

that but it was not designed to be leak tight.

MEMBER CORRADINI: Can I try another thing, Graham? My interpretation, when you e-mailed me, I thought you were talking about primary containment. Then I found that same sentence.

MEMBER WALLIS: It is secondary containment.

MEMBER CORRADINI: Yeah. I found that sentence. My interpretation -- the staff knows better than I but 10 CFR 100 has no requirement on a secondary containment. It's primary containment at .1 percent per day based on a certain pressure temperature evolutionary history. Right, from TID, whatever it is.

MEMBER SIEBER: Right.

MEMBER CORRADINI: So that's it. Am I off base?

MEMBER SIEBER: No.

MR. COLACCINO: This is Joe Colaccino. I don't think we have the staff here to support a discussion on this comment, so we'll take it back and appreciate it.

MEMBER WALLIS: Yeah, I just saw 100 percent of the day. I wonder where did that come fro. It seemed a strange number, that's all. When you're

talking about ice condenser, ice condenser was called a fission product. Ice condenser is not a fission product.

MR. OESTERLE: That was a typo.

MEMBER WALLIS: Something is really strange. Okay, that's another one of those strange things. Again, when you're talking about effectiveness of the sump for moving products, these sentences don't go anywhere. There are some typos or some missing text or something on page C165.5.5.1(1), got all that. There's some incomplete sentences talking about the effectiveness of the sump.

I guess we're supposed to read at this level of detail if that's provided. Generally speaking, I thought I was impressed with the level of detail that was covered in this, in this section, which is why I viewed it as sort of a statement as I said earlier, by the agency of, "These are the things that we consider when we're evaluating a submission, a submittal". And in a way you're trying to do two things. One is to prevent there being a lot of RAIs because you already asked for the stuff and the other is, I think for public consumption, you're letting the world know that these are the things you really do, and I don't think you want to underestimate that.

Thank you.

CHAIRMAN KRESS: All right, Said, are you prepared to talk about your chapter?

MEMBER ABDEL-KHALIK: Yes. My questions on Chapter 7 center mostly on Appendix C17A which deal with digital instrumentation and control system application guidance. Specifically, Item 6 and 7 of that appendix deal with the life cycle process requirements and software life cycle design outputs. And in those two items, for example, Item Number 6, it says that the computer system functional requirements should be documented using a systematic process and then it goes on to say that a statistically valid sample of system requirements should be selected to confirm that the applicant licensee's life cycle activities have been implemented as planned. What bothers me is the next sentence where it says that, "The sample size should be such that the staff can conclude with at least 95 assurance that the quality of the design has been validated."

The question then is, why 95 percent? Is that adequate even for safety systems? Is that requirement spelled out somewhere else? Does that 95 percent confidence level come from somewhere else?

MR. LI: This is Hulber Li,

Instrumentation Control Branch. We had similar comment from industry so we plan to --

MEMBER ABDEL-KHALIK: I'm sorry.

MR. LI: We have similar comment from industry so we're going to revise the guidance. Basically, we try to require the applicant provide a index of the documentation to demonstrate they have complied with the high tech requirements. So we would go from the index list and pick the documentation we're going to audit. The original intent is try to give through a screening process so give more confidence but you are right, you know, we don't have really specific 95 percent this criteria. So we change our wording on that.

MEMBER SIEBER: Maybe one thing I would comment on, too. I actually looked at this section, not because it was assigned but I was interested in it, and one thing that I noticed there was a meeting with the commissioners, between the staff and the commissioners that talked about digital instrument and -- instrumentation and controls and part of that discussion had to do with independence of protection systems versus control systems and what 3Ds mean, you know, redundancy, diversity and defense in depth. How does one translate that into a design and there is

some mention in the IEEE codes that are referenced here but those references are pretty vague to me. And as a former instrument and control designer, which I did years ago, there isn't enough here to tell me you know, to what extreme should I apply the design to achieve diversity and redundancy and so forth and it's sort of left up to the beholder.

I could see a lot of different systems that have varying degrees of these attributes fitting the definitions of the Codes of Standards in this Regulatory Guide and to me I don't think that this document and its reference documents are up to date with respect to the thinking of the Commission right now.

MR. OESTERLE: You're absolutely right. There has been some discussion with the Commission and in fact, the staff and the industry are looking at ways to resolve these types of issues and when that happens, the results of those discussions between staff and industry will certainly inform this guidance document and we'll update it to reflect --

MEMBER SIEBER: Yeah, but in order to do that, you're going to have to increase the amount of regulation that you apply and I'm not -- I don't know whether that's a back-fit or not or how one interprets

that but right now, everything seems to me to be so loose that once you become more specific in the minimum requirements that you expect to see, that means more rigorous regulation. I'm not sure how you're going to do that.

MR. OESTERLE: We'll make sure that our guidance document conforms with the regulations.

MEMBER SIEBER: I'm sure that you will.

MEMBER WALLIS: I read this section, too, and compared with the previous section, it is vaguer. And the previous section, obviously represents a lot of history, maybe RAIs on safety features and you know what you're doing there. In the case of I&C it was vague. A lot of things are to be addressed and then were was some sort of discussion about how one might address them, but it's nowhere near as specific as safety systems.

And one particularly I picked up was they should address cyber-security requirements but there's no indication of what these are or if the agency knows what they need to be, if the applicants know what cyber-security requirements need to be. It just simply says they should be addressed. So this probably is an important area.

MR. LI: This is Hulbert Li.

MEMBER ABDEL-KHALIK: I was going to say certainly this chapter does not include as much detail as many of the other chapters in the document.

MEMBER WALLIS: Are you going to get some guidance on cyber-security?

MR. LI: Yes, the Reg Guide 1.152 Revision 2 has specific some guidance on the cyber-security and industry have a meeting with NRC in October 19th and then going to another meeting December 12th, where touch on this subject also. So we're still in the communication with industry to resolve this concerns.

MEMBER WALLIS: It's not quite like sort of thermo-hydraulics where you can build a test rig and see if it works. Cyber-security, you've got an active enemy there and I presume you can do tests but they're different kind of tests. It's almost a game you have to play and an active enemy trying to break in.

MEMBER SIEBER: On the other hand, if you close all the doors where the active enemy can get there, for example, don't have data links or networking outside the site --

MEMBER WALLIS: Yeah, you can do that sort of thing, right, make it impossible to get in, that's right.

MEMBER SIEBER: Yeah, so that only your friends can get in, some insider threat.

CHAIRMAN KRESS: Let's move on to your Chapter 8.

MEMBER SIEBER: Okay, electrical, I probably shouldn't say this, but electrical to me the regulations have been around for a long time. They're quite specific. They're pretty cut and dry. They're properly referenced in this document. The only area that caused me to scratch my head a little bit was the expectation that the document has regarding grid stability. For example, station blackout or loop events are really an abnormal occurrence and the way the document, this Regulatory Guide asks for the licensee to submit an analysis and to describe the means for having real time analysis performed by the system operator, I think that was okay in a vertically integrated utility where you could do that, but not all system operators out there do real time analysis all the time in support of nuclear plants at least where I live they don't do that.

And so that may be a requirement that a licensee can't meet. Also, the analysis that's to be submitted is supposedly a probable worst case analysis but in effect, it is not a worst case analysis. A

worst case analysis, the grid would fail and you would be isolated and all your emergency systems would take over. I think it's okay to ask those questions and because it prompts licensees to maintain a relationship with the system operator which I think is essential and, perhaps, cause the industry to develop the tools that are necessary to comply with what the NRC staff is asking for.

On the other hand, right now, I don't think that's available in every case for all plants and as long as that understanding is in everybody's mind when they review submittals, I think it's okay. But otherwise, this chapter was done very well. The regulations are quite specific. I guess one other area where it talks about protection, electrical protection schemes are pretty standard. You get a copy of the Silent Sentinel and follow what it says in there, you'll end up with everybody's standard protection scheme.

It talks about microprocessor control devices which to me means things like timers and other kinds of relays that use solid state controls. You have to be careful of the quality of the power supply to those and I learned that through bitter experience, because if you have surges in your DC power system, it

can knock out micro-processor timers, reset them to zero. Things like diesel generator sequencers will not work that way. You may not get breaker openings and closings as you want. I think the standards now have adequately addressed power conditioning and power controls but it's an area for the staff to pay attention to in their review. That's it for electrical power.

MEMBER WALLIS: I also read this. I agree with Jack, it was well done. I liked it because it's technology neutral and you could have any reactor and this is one of those things you could carry forward to any system.

MEMBER SIEBER: You could even have a cold fire plant.

MEMBER WALLIS: That's right.

CHAIRMAN KRESS: Okay, let's Auxiliary Systems is not here, so we'll skip that.

MEMBER WALLIS: What are you going to do with those? I note Ballinger (phonetic) for instance, had quite a bit of comment but he's not here. Are we just going to skip all those things or --

CHAIRMAN KRESS: We're just going to give them the written comments.

MEMBER WALLIS: You're going to give them

the written comment and there's going to be no resolution or no response here?

CHAIRMAN KRESS: They can just treat them like public comments and do what they want with them.

MEMBER WALLIS: Okay, fine.

CHAIRMAN KRESS: Sorry, I don't know any other way to do that. I don't want to paraphrase them.

MEMBER WALLIS: That's just fine. I was just wondering how we were going to do it.

CHAIRMAN KRESS: Okay, so Chapter 10, Said, that's yours again.

MEMBER ABDEL-KHALIK: Yes. In Chapter 10, perhaps the current reflects the fact that different chapters of this document were written by different people and there was no attempt to sort of cross-link all these different chapters and sort of make sure they're consistent. For example, Chapter 10 has a small section on water chemistry for PWRs and from what we heard earlier, Chapter 3 has a section on BWR water chemistry, albeit, it refers to an obsolete reg guide. And the question is, you know, shouldn't there be sort of the cross-correlation between the different chapters just to make sure that, number 1, there is no duplication of material and if there is duplication,

at least that the material is consistent?

MR. OESTERLE: I think the information in Chapter 10 on the PWR water chemistry was related to the secondary side and the BWR information was related to the primary.

MEMBER ABDEL-KHALIK: Yes, I understand that but so you feel that the fact that this is put in Chapter 10 versus the other material that's included in Chapter 3 is appropriate.

MR. OESTERLE: It depends on what the SRP sections are looking for and I'm seeing nods of agreement from the staff that, yes, Chapter 10 is the appropriate place for that information.

MR. KOENIG: And, yes, during this conformancy and consistency check we will try to pick up what's in water chemistry to make sure it's handled consistently.

MEMBER ABDEL-KHALIK: Okay, thank you.

CHAIRMAN KRESS: Okay, thank you. Chapter 11, 12 and 13 we'll have to skip because those people aren't here.

MEMBER WALLIS: Chapter 11 comes after you operate it for awhile.

CHAIRMAN KRESS: Yeah, but there needs to be some discuss there. Chapter 14 is mine. I thought

the description of the initial test program and ITAAC was very good and I had no particular comment.

Chapter 15, Banerje (phonetic) is not here. He had extensive comments, which we'll include in the written section. 16 and 17 for Maynard is not here, so that brings us down to 18. Mario Bonaca, it's yours.

MEMBER BONACA: Yeah, I reviewed this section and I think it's an excellent section. I think it's very detailed. It goes from planning and analysis to effect on design, procedural development, training program, VNV, and I think that it's an excellent guidance. I reviewed the industry comments and I think they're good comments. Most of them ask for some clarification or expansion and I don't see that there is any staff -- I mean, actually, I believe there is already a commitment of the staff during some of those meetings to bring closure on those issues. So I think it is very good.

CHAIRMAN KRESS: Thank you. Chapter 19.1 is Apostolakis but he's not here. But I wondered if -- Mike Corradini has left. He implied that he may have some -- we'll get back to him.

MEMBER WALLIS: Yeah, when he gets back.

CHAIRMAN KRESS: His is also the next one,

which is severe accident. Seismic margins was Dana Powers and Mike may have some comments on that one also, which brings us down to 20, which is Generic Issues. That was fine, I had no comments on that. Banerjee is not here and Apostolakis is not here.

MEMBER WALLIS: Yeah, if we get into computer code validation, that might take a whole day.

CHAIRMAN KRESS: Yeah, where is that?

MEMBER WALLIS: That's number 21, too, computer code validation.

CHAIRMAN KRESS: Yeah, that was one that may take awhile but we'll just have to wait until we see Banerjee's written comments. So that leaves us waiting for Mike to come back and talk about his sections. Since he's not here, would you like to take a break?

MEMBER WALLIS: Yes.

MR. OESTERLE: Mr. Chairman, the next presentation does talk about PRA as well, so perhaps that might be a good segue for Mr. Corradini's comments.

CHAIRMAN KRESS: Yeah, that would be a good time for it. Yeah, okay, that's great. So I suggest now that we take a 15-minute break to -- be back at 10 minutes till 11:00.

(A brief recess was taken at 10:29 a.m.)

(On the record at 10:48 a.m.)

UNIDENTIFIED SPEAKER: Well, since we don't seem to have Mike -- where did Mike go? He disappeared again. So why don't we just to on to this discussion that's next on the agenda which I guess is the PRA discussion?

MR. HARRISON: Can I ask how we get the -- back up?

CHAIRMAN KRESS: You want, what, slides?

MR. HARRISON: I want the slides. Thank you.. My name is Donny Harrison. I'm with the NRR, Division of Risk Assessment and I'm going to discuss the Chapter 19 of the FSAR or I think in the guidance it's C.I.19, as well as the supplemental information that was to be provided in C.II.1. We'll talk about some recent changes that have occurred to the proposed rulemaking on Part 52 and the impacts of that change, the basis for the guidance that's in the Regulatory Guide, the overall objectives of the PRA and severe accident evaluations, and then just an outline of what the Chapter 19 regulatory guidance requires.

Okay, the first thing is the recent change to the proposed rulemaking. In the initially issued draft rulemaking that went out for public comment,

there was a Part 52.80(a) requirement that required the submitted of the plant-specific PRA. This is what fed into Section C.II.1. There were public comments on this section while we were completing -- after we completed the draft guidance based on the staff's original comment resolutions. The NRC's position changed in regard to the need for the submission of plant specific PRA for the COL application.

MEMBER WALLIS: If it's available, why can't they just mail it to you? It seems sort of ridiculous to do it this way. I mean, if you want it, you could have it. If you want to look at it, you can look at it. But having them have it in their office and it's ridiculous. They can just send you a copy.

MR. HARRISON: Well, except the NRC -- and I'll defer to maybe legal counsel but if someone sends us something that's part of an application, then we would docket it. This would be supplemental information that would not be docketed as part of the license application.

MEMBER WALLIS: So you only get it if you ask for it?

MR. HARRISON: We'll get to the --

MEMBER WALLIS: Ask for it, then you'll get it.

MR. HARRISON: We'll get to the impacts of this change in position on the next slide.

CHAIRMAN KRESS: Is the implication that if they required this submittal, then it would be part of the licensing basis; whereas, if they leave it like this, it's not really part of the licensing basis?

MR. RUBIN: This is Mark Rubin, Branch Chief in the PRA Branch. I have only very limited information in this area. I'll share what little I know and then it can be supplemented by the new reactor projects folks. Late in the concurrence process, there was a decision by senior management to remove the requirement that the PRA be submitted as part of the FDA or COL application process. Even within the original context of Part 52, the PRA was not going to come in as part of the FSAR so it would have been supplemental information and would not have been part of the plant's licensing or design basis.

But it would have been in to the staff, it would have been available to the technical reviewers. All the material would have been here for technical review. That is not the case now. It will only be available at the vendor for staff audit if that's felt necessary.

MEMBER WALLIS: You have to go to the

vendor to see it?

MR. RUBIN: That is my current understanding.

MEMBER WALLIS: You can still see it? You can still see it?

MR. RUBIN: Yes.

MEMBER WALLIS: So this is, again, ridiculous.

MR. RUBIN: If we go to the vendor.

MEMBER WALLIS: You have to see it anyway, why have to travel to go and look at it?

MR. RUBIN: Would the --

MEMBER WALLIS: It makes no sense.

MR. RUBIN: -- projects people have something?

MR. COLACCINO: Again, this is Joe Colaccino of the staff again. Again, this is a late-breaking change in the Part 52 and something that has to be reconciled within the DG-1145 guidance.

CHAIRMAN KRESS: And it's not your guys' issue. It's the Part 52 issue, right?

MR. COLACCINO: That's right.

CHAIRMAN KRESS: You have to make this guidance consistent with the Part 52.

MR. COLACCINO: That's right.

CHAIRMAN KRESS: So we shouldn't be fussing at you. We should be fussing at the Part 52 people, right?

MR. COLACCINO: And I should be explaining, there are three -- there are three major activities that are moving in parallel; the Standard Review Plan update, the revisions to Part 52, and this COL application Reg Guide DG-1145. And so when one gets ahead, the other two have to conform.

MEMBER SHACK: The rule rules.

MR. COLACCINO: The rule always rules.

MEMBER CORRADINI: So one point of clarification then. So let me put an example. So let's say applicant comes in under following C-3. That is they have a design certification. Whether or not they have an ESP, I don't think matters just yet for my question, but they have a design certification. That design -- that certified plant design has a PRA.

MR. HARRISON: Yes.

MEMBER CORRADINI: So that if one were to be curious about the PRA of the COL, one would probably see that PRA extended to the particular site.

MR. HARRISON: Correct.

MEMBER CORRADINI: And therefore, I wouldn't expect to see any changes in internal events.

I would probably expect to see changes in external events.

MR. HARRISON: You might see some internal events because there's some parts of the design, even at design certification stage, that aren't complete. So you could have a balance of plant related transients. You could have switch yard interface issues with the --

MEMBER BONACA: I would expect that the PRA would change continuously as you build a plant.

MR. HARRISON: And it's supposed to be as well in the processes as design changes are made.

MEMBER BONACA: Who is going to -- yeah, who's going to maintain it and how do you update it, you know?

CHAIRMAN KRESS: Is that the reason the industry doesn't want to submit it, so they can keep it as a living and update and not have a frozen version?

MR. HARRISON: I think it's more a convenience issue.

MR. RUBIN: Let me provide a little additional information on what the legal requirement is. Part 52 does require a COL applicant to update the PRA with site specific characteristics that are

necessary to make it an accurate risk assessment, including any changes to the portions that were originally done by the FDA applicant and so incorporate them into the PRA but no longer submit the entire document to the staff.

However, there is no requirement that it be maintained as a living document or be updated. So I wanted to be clear because I heard that mentioned. That it's not a requirement in Part 52.

MEMBER CORRADINI: So let me get to my selfish question. So if I wanted to look at it, how could I?

MR. HARRISON: As a member of the public you mean, as an ACRS member?

MEMBER CORRADINI: Start with a member of the public. I guess what I'm kind of reflecting in Graham's question is scrutability (sic) and auditability. I mean, if everything else is available to a member of the public, can a public member ask to see it?

MR. HARRISON: No.

MEMBER CORRADINI: Can an ACRS member ask to see it?

MR. HARRISON: You could probably arrange to have that done.

MEMBER CORRADINI: We would then have to travel to the site?

MR. HARRISON: If you want to see the full PRA, including the thermohydraulics and the data, yes, you would have to --

MEMBER WALLIS: In the electronic age, that's ridiculous.

MEMBER CORRADINI: Well, that's planned then.

MEMBER WALLIS: But it's not -- it's putting barriers in the way of accessibility of a PRA, even to the staff.

MEMBER CORRADINI: But more than that, it puts barriers in the way of auditability or what I would consider to be an open environment. That seems very unusual, at least.

MR. HARRISON: Well, I guess as a perspective though, I may be speaking out of turn here, but I don't think our current generation PRAs for the plants that are currently there are available to the public either right now.

MEMBER WALLIS: But even for staff inspection. If the staff wants to see it, they can't say, "E-mail it to me". They have to go there and look at it.

MEMBER BONACA: But, you know the point I want to make is that everything that supports the design and construction of this plant, for example, the accident analysis, the LOCA analysis, the staff does not expect to get the LOCA models from the vendor inside here and put them in a computer and maintain them and run them, et cetera. They're available, they can be audited. I would expect you would treat the PRA the same way.

MR. HARRISON: Right, now, I guess the one caveat I would say is most of your design basis analysis have topical reports that have approved methodologies that follow the guidance that is established. Within the PRA arena, that's an evolving area where we're trying to establish PRA standards that we can follow and we're not there yet.

MEMBER BONACA: Rather the location, I had more a problem with not being regulatory requirements imposed on the maintenance of the PRA. For example, take the human factor section here, it relies heavily on the PRA inputs to determine procedures, which procedures, the priorities, the importance and so on and so forth. And so it is, in fact, for the human factor portion a design support document, and it seems to me that to say that there is no specific regulatory

requirement on that, that troubles me.

MR. HARRISON: Yeah, that --

MR. RUBIN: Excuse me, Donny.

MR. HARRISON: Yeah, go ahead.

MR. RUBIN: Mark Rubin again. There is the dichotomy of reality versus a legal regulatory requirement that is properly worth mentioning. Many, if not all of the plants use the PRA as a maintenance rule tool to implement A4, which requires that the assess and manage risk but you don't have to. Or you could use an old version of the PRA, perhaps, using insights where there have been plant changes since the last validated update. There's no regulation that requires that the plant even have a PRA, per se.

Consequently, there's no regulation that says the PRA must be updated. All I wanted to point out to you is that Part 52 is the first place in our regulations that actually requires that a PRA be done, but -- and it is used during the licensing process but it does not require that it be maintained or updated. I just wanted to be clear on that.

MR. HARRISON: And from a practical standpoint, you need to maintain the PRA for its uses. So if I have -- and you'll see this in the RTNSS process and the RAP process for human factors, how the

PRA is being used, that aspect has to have -- meet the PRA quality technical adequacy requirements to -- that's needed for that application.

MEMBER CORRADINI: Further inquiries should be addressed to whom? We keep on asking you questions that you don't -- really shouldn't answer. Where should we address these inquiries?

MR. RUBIN: I would -- Mark Rubin again. I would suggest you start with the New Reactors Projects Group and they'll direct you to the proper location if they're not the ones.

MEMBER WALLIS: Can I ask you something here. It says that the applicant doesn't have to submit the PRA but keeps it available for review at his office or something. Suppose you have a reason sensible applicant who wants to give it to you; is he not allowed to do it now? He can't send it to the agency if he wants to be open?

MR. OESTERLE: The rule does not prohibit the applicant from giving it to you.

MEMBER WALLIS: Doesn't prohibit him from giving it to you, okay, that's a good thing.

MEMBER SIEBER: On the other hand, if you get one, I'm not sure what you're getting because it's a living document and it's changing.

MEMBER WALLIS: It depends on how live it is.

MR. HARRISON: It might be, it might be living, it could be dead.

MEMBER SIEBER: Well, it can be under the current rules for current plans.

MR. HARRISON: The other aspect I want to mention is with the change in NRC position on that public comment to remove the requirement, there were conforming changes made throughout the rule that -- and I'll just point out that the design certification requirement to submit a design specific PRA was also removed. So for design certification, we have a parallel requirement that they submit a PRA. That requirement is not there as well. That's been deleted.

MEMBER CORRADINI: You're getting to this, I'm sure, so how does that relate to physical phenomena that would occur in PRA space but not in design space, like severe accidents?

MR. HARRISON: The severe accident requirements are still there. So in addressing the issues that have come up through SECY papers and SRMs regarding severe accidents are still required to be addressed --

MEMBER CORRADINI: Separately.

MR. HARRISON: -- separately, within -- and we'll see there's a separate section within the FSAR that has --

MEMBER SIEBER: This document has a separate chapter.

MR. HARRISON: No, we've integrated it now so that you have PRA and severe accidents so it's a separate subsection within this section.

MEMBER SIEBER: Yeah, but there is also a PRA section.

MR. HARRISON: Right, there's a PRA section and then there's a severe accident --

MEMBER SIEBER: There's a PRA and severe accident section.

MR. HARRISON: Right, right.

MR. RUBIN: But there is no significant change in the way we're assessing PRA and severe accidents as compared to the previous advance reactor reviews.

MEMBER WALLIS: Let me get back to the public. I mean, the PRA, a good PRA is the best statement of the risk level of a reactor of an installation, it's the best we have, otherwise meeting the regulations doesn't really mean anything in terms

of a measure of how risky the thing is and yet it's not available to the public. It seems to me extraordinary. Here's the best measure we have of public safety and it's not available.

MR. HARRISON: Right, and I would say the specific analysis aren't available. In Chapter 19, you will have the results and the insights from that analysis document.

MEMBER WALLIS: But the document could be garbage.

MR. HARRISON: And that's the job of the staff to make sure it's not.

MEMBER WALLIS: And they have to go to the plant and look at it.

MR. HARRISON: You're correct and that's the implication of that change in staff position is that the staff will -- to be able to implement this correctly, the --

MEMBER WALLIS: I'm very surprised the industry takes this. They ought to put their best foot forward and say, "This PRA is our statement of how safe our plant is and here it is, put it in the New York Times."

MEMBER SIEBER: They won't do that.

MR. HARRISON: Well, and there's other

implications with the PRA analysis that would make --

MEMBER SIEBER: You can take the same statement and say, "Look at how dangerous this plant is, look at these numbers".

MEMBER CORRADINI: So if I might ask -- well, you said to address it -- is this an appropriate time, Mr. Chairman, that we ask somebody in NRO about the rationale for this?

CHAIRMAN KRESS: No, I don't think so.

MEMBER CORRADINI: Okay. Thank you.

CHAIRMAN KRESS: But we might want to --

MEMBER CORRADINI: I thought I'd ask permission first.

CHAIRMAN KRESS: Well, we might want to put that on our agenda because that seems to be an issue that we ought to deal with.

MEMBER CORRADINI: Okay.

MEMBER BONACA: I still believe that, you know, the implications of making the full PRA available to anybody who can come in and begin to question every single --

CHAIRMAN KRESS: Yeah, I think you have a good point, Mario.

MEMBER BONACA: You're putting the owner of the plant and the PRA in a defensive position and

they will have to continue to defend anything and now the NRC reviews these PRAs. In fact now with the SPAR (phonetic) models they go in and compare. So therefore, the reason -- the assumptions are generally reasonable within these PRA within the context of the technology and so on. And that's a different process than the one of making these available to anybody who has whatever intention and goes in and it's just --

MEMBER WALLIS: Is it a proprietary thing that you might reveal something that's proprietary that would give your competition an advantage?

MEMBER BONACA: No, no, you could question any member there is inside the PRA. You can start right away to raise questions and say, "Oh, you see now how risky it is", or, "This assumption" --

MEMBER WALLIS: Well, look at the hydraulic codes, we look at thermohydraulic codes. We look equations and we look at assumptions.

MR. RUBIN: I can respond to Dr. Wallace's question directly. In the past, vendors have come in with proprietary claims on various portions of the PRA from claiming everything including some high school physics equations to being proprietary to selected portions of the PRA being proprietary. And when they do that, we go through and make appropriate agreements

or disagreements with the claims. I usually don't accept the high school physics equations.

And there are also potentially safeguard issues to some degree that might come into play though not necessarily. It would have to be considered on a case-by-case basis. But that doesn't -- that doesn't necessarily restrict the staff from having it because we deal with material that we can withhold for those two reasons all the time.

MEMBER SIEBER: On the other hand, the regulatory basis is if you aren't required to have the document, there should be no requirement to have the document you aren't required to have public.

MR. OESTERLE: The is Eric Oesterle from Division of New Reactor Licensing. I just want to expand upon that comment. That's true and what we're doing with DG-1145 is we're trying to conform with the rule and so if the rule does not require submittal of the PRA by the applicant, DG-1145 will not ask for it. However, the Part 52 rule does ask the applicant to describe how the insights and the results of the PRA have been used and that's what the guidance document does also.

CHAIRMAN KRESS: I think if and when there is a technology neutral regulatory framework, that the

PRA will probably then become part of the licensing basis and I think that's an area where we might want to bring this subject up again; is it going to be part of the licensing basis; is it going to be required that it be made public and submitted to NRC? I think that's where it's going to come up.

MEMBER SIEBER: But that would require rulemaking.

CHAIRMAN KRESS: Oh, yeah, but technology neutral regulatory framework would be a new rule.

MR. OESTERLE: The rule is under review by the Commission as we speak. So whatever they decide, that's what we'll go with.

CHAIRMAN KRESS: Yeah, so I think that's where we, as a committee, might want to readdress this question.

MR. HARRISON: And I think it's worth repeating Eric's caveat there is the proposed rule as it is right now where 5280(a) that required the PRA submission is with the Commission. Things can change. I would not say this is, you know, a definite result at this point. Things could change during the Commission review to reinstate it. So this is to let you know that this has occurred and the impact of that revision in staff position is that we're going to have

to look at what we wrote in C.II.1 which was the guidance for the PRA submission information.

CHAIRMAN KRESS: Once again, our argument is not with you guys. You have to conform with --

MR. HARRISON: This will be a conforming change. It's just reality.

MEMBER WALLIS: This bullet you have here, this second bullet, sort of implies that the staff has to look at the PRA, doesn't it?

MR. HARRISON: Well, what this is saying is that you need to recognize that Chapter 19 of the FSAR on PRA and severe accidents is qualitative descriptive material that describes the results and the insights on how the --

MEMBER WALLIS: Well, we understand review and confirm the basis for the results really means you have to look at the PRA.

MR. RUBIN: Yeah, let me -- this is Mark Rubin, let me respond to that, Dr. Wallace. I mean, that's an outstanding point. Yes, the various requirements were compiled to result in a synergistic final conclusion in both risk and severe accident. And when we make the conforming changes to comply with whatever the final version of Part 52 ends up being, we'll relook at the individual pieces of 1145 to see

if maybe we need to shift some emphasis into some of the other sections to provide a little more detail or maybe a little more quantitative information, some of the summary sections to help us get some more basis from the stuff that comes in on the record.

MEMBER WALLIS: So this TG should or the final Reg Guide should say the staff should travel to the applicant's offices and examine the PRA.

MR. RUBIN: That would be in the staff's set of review plan guidance rather than the Reg Guide, yes, sir.

MEMBER WALLIS: Yes. But it will be --

MR. HARRISON: Yes, as a matter of fact it's in the draft version.

MR. RUBIN: That happens to be one of my review notes, Dr. Wallace.

MEMBER WALLIS: But he's not allowed to get it to come to his office and read it here. He has to go there and look at it.

MR. HARRISON: Yes, sir.

CHAIRMAN KRESS: They probably ought to go anyway because they need to see if it conforms to the plant actually as built.

MR. RUBIN: We'll have to wait a long time for that.

CHAIRMAN KRESS: Yeah.

MEMBER SHACK: But just to come back to this design certification, so the AP1000 submitted their PRA but the ESBWR won't.

MEMBER CORRADINI: I just read the --

MR. HARRISON: That I'm not sure, I don't know what ESBWR --

MR. RUBIN: Yes, I can tell you, the ESBWR to the best of my belief, did submit the PRA because it was -- it came in prior to this proposed change to 52.

MEMBER SHACK: EPR will not then.

MR. RUBIN: EPR potentially will not. And the interesting thing about EPR is it's a combined FDA COL application rather than predicated on a previously approved design certified plant.

MR. HARRISON: It makes the review more difficult for the staff, just a personal rationale.

MEMBER CORRADINI: Just to -- we're off topic a bit but so what you just said is they're custom.

MR. RUBIN: No, sir, if they were custom they'd be coming in under Part 50. They're coming in under Part 52 with --

MEMBER CORRADINI: Well, but C.1 of Part -

- of 1145 is for a custom design. So it's a custom design by the way you just described it.

MR. KOENIG: It's not a custom design but the review, in essence, you're going to be reviewing this information at the same time and it will be a unique first time doing the review in that process.

MEMBER SHACK: But it's not a custom design because they're planning to come in for a design certification.

MR. KOENIG: Yes.

MEMBER SHACK: So if they were just submitting this plant, it would be a custom because they're going for both.

MEMBER CORRADINI: So they're a C.I/III?

MR. HARRISON: Something like that because it's a parallel review.

MR. RUBIN: It's just a standard design that has not been certified yet.

MEMBER BONACA: Standard design not certified yet.

MR. HARRISON: Okay, this was probably the most important part of the presentation because I wanted to make sure you all were aware of the change and the implications of that, so to understate my comment.

Okay, for what's in the Regulatory Guide, again the ramification of that change is that the guidance that's currently in C.II.1 some of that information, if not a lot of it, will need to be transitioned over into C.I.19 as needed for the FSAR. So if we thought we needed something and we were using the submittal guidance for the PRA as a basis to get the information, if we truly think we need that information submitted to us, we're going to have to incorporate it directly into our FSAR requirement.

MEMBER CORRADINI: So I have a question. I can wait if it's not right. On page 3 of C.II, top paragraph, it says, "Determine how the risk associated", blah, blah, blah and it then quotes SECYs, SRMs and gives a containment failure probability. Is that going to move to 19? Is that going to be discussed later? I'm willing to wait.

MR. HARRISON: Actually, that's listed as one of the objectives of the use of the PRA in severe accidents and one of the guidance that's already in C.I.19 is a section called -- there's an introduction section and then there's a conclusion section. Within our guidance, we said that in the conclusion sections, we expected applicants to explicitly state how they've addressed the objectives. So within at least 19.1

they would talk about the objectives, these nine objectives we've listed. In 19.6 they would then discuss it -- if they haven't discussed it before that, explicitly how they met the objective.

MEMBER CORRADINI: And these objectives are enumerated in this paragraph.

MR. HARRISON: So they will address -- that's 1 of 9.

MEMBER CORRADINI: Excuse me.

MR. HARRISON: I think there's nine objectives in that section.

MEMBER CORRADINI: Yeah.

MR. HARRISON: So they'll have to address how they -- again, the information they provided didn't make an explicit conclusion as to how that objective has been met.

MEMBER CORRADINI: Thank you.

MR. HARRISON: Okay, and again, this gets to the basis of what's in the Regulatory guidance. The Reg Guide Chapter 19 is based on existing experience, if you will. It's the policy statements that have been written since the mid-'80s through '90s, the SECY papers and SRMs that have been taken and approved by the Commission in response to the reviews that have been done. So some of these SECYs

deal directly with passive plants for AP600 for example. It's -- the guidance is derived from the experience with the CE System 80 plus, the ABWR and the two AP's, the AP600, AP1000 reviews of design certification.

There's also the requirements within 10 CFR 52.79 that requires PRA and severe accidents. Again, there's about four requirements, five requirements within the rule. The one we've been talking about mostly is currently proposed 52.79(A)46, which is to provide a description of the plant's specific PRA and its results. There's other requirements dealing with Three Mile Island, action items that deal with severe accidents and description and analysis of design features or prevention and mitigation that are severe accident issues that are within 52.79.

MEMBER WALLIS: This is probably the most important part of the whole guidance from the public point of view because it's only severe accidents which present a threat to public safety. Other accidents, I mean, design basis accidents, they don't cause any release of radiation and all that sort of stuff. It's severe accidents. This is the most important part of this whole guidance from the public's point of view.

MR. HARRISON: Right.

MEMBER WALLIS: Isn't it?

MR. HARRISON: Well, I personally would agree but that's because I'm in this section.

MEMBER WALLIS: So it ought to be as open and transparent as possible.

MR. RUBIN: That's our intent. Unless a design basis accident has some complexities, you're --

MEMBER WALLIS: Then it becomes a severe accident.

MR. RUBIN: -- then it becomes a severe accident. Now, of course, the assumed source term that's used even the alternate source term, is essentially a severe accident source term and the Part 100 dose limits and all are much higher than what probably would really happen when a design basis accident occurs. But yeah, the early fatalities, latent cancers from the severe accidents is what really controls risk but that doesn't mean that the design basis accidents and all the criteria you're seeing in especially Section 6 on the ECCS is unimportant, because as you well know, those requirements is what has resulted in the excess margins and defense in depth that gives us the severe accident capability that results in --

MEMBER WALLIS: Is it important because they reduce the severity of severe accidents.

MR. RUBIN: Yes, sir.

MEMBER WALLIS: But otherwise they have no importance whatsoever.

CHAIRMAN KRESS: Well, yeah, the reason they're not important is because you deal with them in regulatory specs. You have requirements. You design them out of it.

MR. HARRISON: Yes.

MEMBER WALLIS: But now is your opportunity with these new reactors to put more emphasis on things that really effect public safety which is namely the severe accidents.

MR. RUBIN: One of the key things we're asking the new reactor submitters to demonstrate is that they use the PRA as part of a design tool. And ask them to document it.

MEMBER WALLIS: Do they have design objectives with this PRA like --

MR. RUBIN: They look for opportunities to reduce risk.

MEMBER WALLIS: All right.

MR. RUBIN: And also during our review, we look for places where we think risk can be reduced.

I can give you a couple of examples. During ABWR review, the staff identified a couple of areas they thought could be enhanced. One was to change the base mat from limestone to basaltic concrete to reduce the non-condensible generated, the other was to increase the structural strength of the knuckle region, in fact, Mr. Fischer might have some knowledge of that, and as a consequence, the ultimate failure capability of the drywell was definitely increased.

MEMBER CORRADINI: Is this the right time to ask a question about the nine things you mentioned or should I wait?

MR. HARRISON: You can bring them up on this slide. This is going to touch on that and if that's in the proper context.

MEMBER CORRADINI: Okay, so since at its minimalist form, this is a checklist, there is a place somewhere else in the regulation that essentially says a probalistic goal that the conditional containment failure would be less than one in 10 for all the composite core damage sequences. So if it's a checklist, that means it's somewhere else. Can you point to me where else that requirement is?

MR. HARRISON: That comes out of a SECY paper that was approved by the Commission in an SRM,

I think it's 93.

MEMBER CORRADINI: It's the 93 SRM?

MR. HARRISON: -087, I believe is the --

MR. RUBIN: Probably 90-016.

MR. HARRISON: Right, it started there, it was reconfirmed 93-087, I believe.

MEMBER CORRADINI: Okay, and the next one is, the one times 10^{-6} per year for large release frequency versus large early release frequency, because that one kind of popped up on the NEI hit list.

MR. HARRISON: Right. The large release frequency is also in a SECY paper and again, it was reconfirmed in another SECY paper that was approved by the -- actually, I think it was explicitly stated by the Commission that the probability of a large release should have a frequency of less than one in a million, that's 10^{-6}. So that's where that's derived from.

MR. RUBIN: This is Mark Rubin again. I can give you a little additional history. I was unfortunately one of the usual suspects when those reviews were being done and the staff was seeking guidance from the Commission. In fact ACRS was heavily involved and there probably are some members who were here then though, I'm not sure they're here

today. Since these were the first time that PRAs were being really used as part of the design review process, we didn't have acceptance criteria so we wanted to develop some acceptance guidelines and we proposed a number of them in a number of SECY papers which ACRS was a party to reviewing and giving us feedback. We went to the Commission with some proposals, including a rather low CDF for the new reactors so that they would be noticeably less risky, safer than current operating reactors and the Commission disagreed. And they gave us a different set of metrics.

MEMBER WALLIS: Try again, you keep trying.

MR. RUBIN: Keep trying, yes, sir, will do. In fact, the reactors that came in, came in much, much safer than the metrics the Commission gave us as regulatory review guidelines. So I think we actually achieved more than the staff had suggested. But the guidance that came back from the Commission was quite different than what the staff set up and as part of it, we were given a CDF guideline. We were given a Conditional Containment Failure Guideline that we had not originally proposed to insure containment integrity and I believe the staff thought that was a

valuable addition to the review guidance. And they also imposed a large release frequency guideline and this is the only place in our review that large release rather than LERF, large early release, is used and industry has, as you pointed out, commented on this but it was a Commission directive. The difference is it is timing independent. The issue of evacuation doesn't come into play.

MEMBER WALLIS: Very important. Containment failure matters a lot when it happens.

MR. RUBIN: It does but this metric accounts for both early and late failures. The conditional containment failure metric accounts for containment integrity and CDF, a low CDF value controls latent effects also. So taken all together, it's a good set of metrics. It's actually more inclusive than what the staff originally sent up and it's what the Commission wants.

MEMBER CORRADINI: So just to interpret it just to see if I've got it right, so one might come in with an advanced design, one of these that you've been speaking of, and the CDF would be significantly lower than 10^{-4}. Nevertheless, they must demonstrate by some method in their PRA and this is one of the question, PRA or severe accident analysis, that the containment

still would have a conditional probability failure of one in 10 even though they may have a CDF of 10^{-6}.

MR. RUBIN: This is in the Level 2, severe accident part of the PRA assessment, not the Level 1 evaluation. Yes, but I have to caveat it with these are severe accident guidelines, not legal acceptance criteria meaning the .1 is an objective goal and as you see in the 1145 page C.111-3 at the top of the page, there's a note that says --

MEMBER CORRADINI: "It should be noted that these are goals and not regulatory requirements.

MR. RUBIN: "And applicant should not artificially or intentionally increase PRA results associated with one metric simply to meet the goals associated with another metric. And let me explain what that means. As you drive CDF further and further down, you're left with residual sequences that are nastier and nastier, that have a higher likelihood of failing containment. Does that mean the plant is getting less safe? No, the plant is getting safer.

And we don't wish to penalize a designer because of that. We want them to still maintain a robust containment capability and come as close to meeting that Plant 1 guideline as possible but we -- for example, when one of the advanced reactors was in

for submittal for review, I think they had a 12 percent conditional containment failure probability. Well, they could have changed their design and driven their CDF up higher so that when you looked at all the sequences you weighted them by their likelihood. The conditional containment failure was nine percent but the CDF was higher, so the plant was less safe but they met the metric. They met all the metrics. Does that make sense, no, of course, not.

So what we're saying is do the right thing, be good engineers and these metrics are guidelines. They should be applied in a rational smart way and not in a dogmatic way but to the extent that is feasible, they should be achieved.

CHAIRMAN KRESS: I thought the .1 conditional containment failure guidelines already had a weighting factor on the CDF in it that automatically took care of that issue.

MR. RUBIN: It has a weighting factor, but it doesn't -- it doesn't eliminate --

CHAIRMAN KRESS: It's weighted by the percent of that particular frequency to the overall CDF and that -- you know, if you've got a very low CDF, it's not -- the weighting factor automatically seems to take care of that issue to me.

MR. RUBIN: It biases it towards the higher frequency sequences but it doesn't ignore the lower frequency, high conditional containment failure sequences.

CHAIRMAN KRESS: Yeah, but it's weighted by the percent of that frequency -- of that sequence to the CDF which would seem to me like, you know, would seem to take care of that particular issue.

MEMBER CORRADINI: Are you saying, Tom, that if you pick a particular sequence that is one percent of all the CDF but it dominates the containment failure probability --

CHAIRMAN KRESS: But you multiply that containment failure by that percentage before you add it into the conditional and, you know, that's a way to handle it. I don't know if it properly does it or not.

MEMBER CORRADINI: But that is how it's handled.

CHAIRMAN KRESS: Yeah. Yes, sir.

MR. RUBIN: Yes, it is and it resulted in a very safe design that slightly exceeded the .1 metric.

CHAIRMAN KRESS: The other thing, the comment on LRF versus LERF, if you put the say 10^{-6} on

the LRF instead of the LERF, it only drops the LERf down a little bit because you're adding up all the frequency of all the containment release frequencies. You just add them all up. You don't get many contributions from the late. I mean, it's the earliest that -- it doesn't drop your LERF down much lower than 10^{-6}.

MR. RUBIN: Instead of hearing from someone of my limited knowledge, let me invite Dr. Palla up here to really give you the good information.

DR. PALLA: Well, just looking back at, for example, AP600, what you would find is predominantly, I think you'll -- many -- you'll still pick up late failures. There's -- if you use the LERF -- the LRF metric, you're -- as Westinghouse implemented it, they did not really define large in the sense that we think of it in the LERF context, where we're looking at early fatalities, for example. Westinghouse simply took all frequency that did not result in an intact containment to contribute to LERF.

So they said it's CDF minus --

CHAIRMAN KRESS: There's wasn't a large in the definition then.

DR. PALLA: They did not use a large. They called it large but they did not try to

distinguish between the magnitudes that would cause fatalities and that which would not.

CHAIRMAN KRESS: See, most of the late containment failures are not large. If they had a proper definition event, it would not --

DR. PALLA: That's right, the later it gets, the smaller it gets.

CHAIRMAN KRESS: -- your LERF would be the major contributor to the LRF.

DR. PALLA: Right.

CHAIRMAN KRESS: Well, you're right, if they didn't have a definition of large in that, well, then --

DR. PALLA: They had the luxury that the numbers were so low, they didn't have to slice it and dice it.

CHAIRMAN KRESS: That may be true, too.

MEMBER CORRADINI: So one last question; so everything you just said, I think I got. Where will I find it if I want to verify that I believe it, in the PRA, where?

MR. RUBIN: That they meet the criteria?

MEMBER CORRADINI: No, it's a guideline that I want to check them out relative to the 10 percent. Where do I look?

MR. RUBIN: You'll see the documentation in the staff safety evaluation report. You'll see --

MEMBER CORRADINI: It won't be reported in the FSAR or the COL?

MR. RUBIN: In 19.1 there will be a summary that they meet the severe action and the PRA guidelines.

MEMBER SIEBER: That's all they have to say. They don't have to give you a number. They just say that --

MR. HARRISON: Right, they may not tell you the number there, however --

MEMBER SIEBER: They were good.

MR. HARRISON: But again, in doing that, then the staff would under the current system, would do an audit at the vendor or the applicant's site.

MEMBER CORRADINI: And that's where we would see that.

MR. HARRISON: And at that point, we would verify that the calculation was done to show that they meet the requirements, or if they don't meet it, that they've addressed it. And again, that's -- this goes into the second bullet on this slide about the first tick. The whole purpose of doing that calculation, at least my perspective, is that you're trying to

identify and assess the balance of preventive and mitigated features such that the plant demonstrates that it's an improvement over the current generation of operating reactors and again, based upon the issuance of the policy papers and that would be reactors of the 1985 vintage.

So that's one aspect. Again, when you look at the nine objectives that we identify, six of the objectives go after that first sub-ticked item of identifying assessed balance to show that you're an improvement. You use it as a design tool, you do these calculations on CDF and large release frequency and conditional containment failure probability. You specifically addressed how you balanced it so if someone comes out at 12 percent as opposed to .1 for the conditional containment failure probability, they tell you why that's still okay. They're going to have to give you the story. That's six of the nine objectives.

The other three objectives that we identified, deal with the use of that PRA and the use of the PRA results and insights. So this would be examples of using the PRA in support of the RAP program, in support of the RTNSS program, in support of ITAAC, development of ITAAC, COL action items,

interface requirements.

To address Dr. Shack's question about RTNSS and the disconnect between this chapter and that chapter, you're right, it's an error. When you look at the metrics that we judge against, the CDF, the large release frequency, none of those require you to go to a Level 3 PRA where you're doing dose calculations. So there's not a necessity for a Level 3 PRA to meet our metrics, and therefore, the RTNSS guidance needs to be revised. I think what happened there, what was really meant was the analysis needs to cover the full scope. It went beyond that and took it from full scope to level 3. And it really needs to address all the initiators but it doesn't have to do Level 3 analysis.

MEMBER SIEBER: In fact, you don't have to use PRA techniques for your seismic analysis either. You can use seismic margins, fire protection.

MR. HARRISON: And again, just to clarify, yeah, for seismic analysis, you can do what they call a PRA base seismic margins analysis. It's not -- it's more than what you get in seismic margins analysis for the current generation plants but because at design stage in particular, you don't have a site. You can't put a site specific seismic hazard curve to the

analysis. Once you have a site, you could do that but they're not required to perform that integration. What they are required to do is show that the design specific seismic margins analysis was bounded so the site parameters that they're at are bounded by the generic site parameters that were used in the design basis or design cert. If that's not the case, they would have to do a site specific upgrade of that analysis.

MEMBER SIEBER: If the certified design assumed hard rock site, then you would have to have a hard rock site to make that determination that the seismic margins analysis applied to your COL.

MR. HARRISON: Right, or you'd have to do a site specific update of that analysis. Again that's within the rule, the 5279 --

MEMBER SIEBER: But that's almost like redesigning the plant because if you had a soil liquidfication, that applied to that which amplified the seismic response, you may have to change hangers, supports, building structure, what have you, which sort of takes you out of bounds as far as certified design is concerned.

MR. RUBIN: Let me clarify the Level 3 issue where the confusion came from. There's no

requirement that a Level 3 analysis be provided. And we have no review guidance for a Level 3 analysis in our review material, though some of the licensees may submit a bounding Level 3 evaluation. So it's not part of the safety review.

However, as part of the NEPA requirements, our evaluation of the FDA requires that a SAMDA assessment, Severe Accident Design Alternative Study be conducted. It's similar to the SAMA assessment that's done for license renewal and for that you need to do a risk benefit calculation, you need it in the max code. Obviously, without a site, you can't do a real Level 3 but what a lot of the vendors have done is sort of a bounding Level 3 assessment.

They do the SAMDAs assessment, look at possible improvements, and either they're worth doing or they're not, and then it's incumbent on the COL applicant to show that whatever input assumptions that went into the SAMDA assessment, myrology and population density, are bounding for their site and if so, there's closure, because the SAMDA only has to be done once and if it's done during the FDA phase, they're finished as long as it truly applies to the site.

MEMBER WALLIS: When they're talking about

SAMDAs, the AP-600 is a SAMDA analysis?

CHAIRMAN KRESS: Yes.

MEMBER WALLIS: And I think one of the things in there was whether or not they should have a stronger containment. I'm trying to remember the details of this, and if you actually followed that analysis, you could conclude that the present containment that they had was worth something like 600 bucks a year. You know, if you actually logically took their analysis of what the containment was worth in terms of the SAMDA analysis, in terms of public safety and then they were saying, "Do we need a stronger one and so on", well, they could just extrapolate and they're back to having none at all. You found out that it was worth a few hundred bucks a year, which is extraordinary --

MR. RUBIN: Well, you --

MEMBER WALLIS: -- because their CDF was so low.

MR. RUBIN: Well, you looked at the -- the way a lot of the analyses were started was based on you do a bounding analysis assuming that the function or the component is -- essentially has zero availability and so what is its risk worth?

MEMBER WALLIS: The risk of not having a

containment turned out to be essentially nothing.

MR. RUBIN: Right, right.

MEMBER WALLIS: So you don't need a containment at all.

MR. RUBIN: No, sir, we need a containment.

MEMBER WALLIS: Well, the -- if you believe the risk analysis, you believe the SAMDA analysis. If you believe the SAMDA analysis, it's not worth spending much money to upgrade the robustness of the containment as presented in the initial design. However, for defense in depth and margins reasons --

MEMBER WALLIS: Other reasons, for other reasons, yes.

MR. RUBIN: Yes, yes, yes.

MEMBER WALLIS: But not based on risk analysis.

MR. RUBIN: Well --

MEMBER WALLIS: You're going to face this some time down the road about whether or not a containment itself is needed and that's a different question.

MR. RUBIN: I'll make one comment and then shut up. It served us well at TMI.

MEMBER WALLIS: Oh, no, if there had been

no containment, he'd have looked out the window and seen the seam leaking and would have fixed the valve right away.

MEMBER BONACA: I have a question.

MR. RUBIN: I stand corrected.

MEMBER BONACA: You made a comment regarding the lack of a requirement for a Level 3 PRA. Now, if we go to the COL stage, we have a site and the question I have is, in the '80s for high population density sites, there was a requirement placed on licensees to perform a Level 3 PRA. So I imagine that there would be some similar requirements here for power plants in heavy or in high population density sites.

MR. RUBIN: There is nothing in the regulations requiring that. Such a requirement, I believe, could result from the hearing process, the licensing process.

MR. HARRISON: I think what you're referring to though is coming out of 10 CFR 100 and again, it doesn't say you have to perform a PRA. It talks about addressing the risk to the members of the public from siting of a reactor.

MEMBER BONACA: Most -- all the reactors up north, northeast, I mean, they had the -- they were

requested to have a PRA as part of the construction process. I mean, Seabrook, Indian --

MR. HARRISON: I'll be honest, I don't know of a PRA requirement --

CHAIRMAN KRESS: Isn't it part of the requirements for the Environmental Impact Statement?

MR. HARRISON: You're required to address in the EIS or EA the risk to the public. And again, that's part of the SAMDA effort that does a Level 3 PRA or a generic level PRA to support that analysis. But again, it's an assessment of risk and severe accidents. If Dr. Palla wants to help me out.

DR. PALLA: I guess all that I'd say is within environmental space, there's the requirement to look at severe accident mitigation alternatives, so the Level 3 PRA would support that. There could be ways to develop the same kind of information. What you're trying to do basically, is assess -- assign a population dose to accidents at the site so that you can convert the risk into dollars essentially. So when you get to the levels of risk that you see with these kinds of plants, you know you're dealing with very small numbers and there may be ways to kind of bound these effects without actually doing a Level 3 assessment. You might be able to --

MEMBER BONACA: I think you guys are too young, you see. You don't remember, I mean, but these were very specific requests on the docket for those plants that said either you develop this and provide a PRA or else you're not going to get your operating permit. I mean, it was as simple as that.

MR. RUBIN: Unfortunately, I'm not too young to forget those periods. Those were the late near-term operating license plants as you said, in the high population areas. They were required to do PRAs but they were not an integral part of the safety review process.

MEMBER BONACA: I agree with that.

MR. RUBIN: And see, that's the difference here. But they were done to generally show that there weren't overwhelming risk outliers and excessive severe accident risk to the public. It was like sort of a high level demonstration. And it was a useful --

MEMBER BONACA: Yeah, there were statements in writing that said that they were based on the results of the PRA would determine what else needs to be done to the plant. I mean, so there was a linkage being made there. Now, I'm only saying this because I'm surprised that you come up with a new design with a very low CDF out there and that would

allow you to justify a new power plant, maybe two in high population density site as we know now.

CHAIRMAN KRESS: Well, the question is, are the guidelines on population density and distance to population centers sufficient to prevent that? Are those guidelines sufficient?

MR. HARRISON: And there are some SECY papers and SRMs that were written mid-'90s discussing the idea of would you exclude based on population density certain sites. The Commission did not approve that approach if I recall right.

CHAIRMAN KRESS: Well, the problem I have with it is the population densities are restricted to certain distances and you know, if you really looked at a severe accident, those distances to me are not inclusive to the total impact and you really ought to have a Level 3 but you know, that's another issue. I don't think that -- my problem is, I don't think the guidelines on population density are sufficient but you know, other people may disagree.

MR. HARRISON: Okay, just moving on to the guidance that's in Chapter 19 is broken out into these six subsections. Again, 19.1 is an introduction. It should be the place where the applicant identifies the objectives. They should be similar to the objectives

that we've stated in the Reg Guide. 19.2 is where the discussion of the PRA results and insights are. This would also identify their uses and applications of that PRA for other things. For example, if someone came in, in parallel with asking for a COL, also wanted to implement a risk informed ISI program or risk informed IST or wanted to implement 10 CFR 5069, which is a risk informed treatment process, they would identify those applications here.

Those applications may require a Level 3 PRA or it may require a fire PRA analysis whereas for the COL itself, they may have been able to do just the five analysis. So those applications may actually put additional requirements on a submittal.

MEMBER SHACK: Should he use 5069 then as part of his COL?

MR. HARRISON: He can submit a COL application that identifies that he's going to implement 5069 as part of the procurement process, yes. That is allowed by the regulation, specifically called out in 5069 that you can do that. 5069 does not allow you to do that at the design certification stage. So a vendor cannot propose it but a plant applicant can.

The rationale for part of that is, is that

design certification, you don't know the siting aspects. Therefore, external event phenomena wouldn't be known and the impacts that that would have on your risk ranking of components could be important. So that's why it's not in the design cert, but it is allowed at COL stage.

Section 19.3 addresses the severe accident evaluations. These date from the SECY papers and SRMs in the '90s on preventive and mitigated features for severe accidents. You'll have the in-vessel, ex-vessel containment analysis. You'll have out with station blackout, IS LOCA evaluations incorporated in 19.3.

MEMBER CORRADINI: All this will be moved from C.II.

MR. HARRISON: This is the current 19.1. This is what's in the --

MEMBER CORRADINI: There's nothing --

MR. HARRISON: Well, this is the guidance that's right now in FSAR that says this is the information that needs to be there. What we have to do is look at the detail guidance that we have over in Part 2, if I can call it that, CIII.1.

MEMBER CORRADINI: Seventeen pages?

MR. HARRISON: However many pages it is.

MEMBER CORRADINI: Yeah.

MR. HARRISON: How much of that information needs to be actually brought into the FSAR. This is actually what was thought of as the Chapter 19 FSAR applicant submission. So this would have been what we get in C.I, but yes.

MEMBER CORRADINI: But what I'm reflecting on is what -- the draft, at least I was looking at, there was a lot of titles.

MR. HARRISON: Right, a lot of topics.

MEMBER CORRADINI: A lot of topics.

MR. HARRISON: Right.

MEMBER CORRADINI: Nothing there.

MR. HARRISON: No discussion, right. There's -- well, to be fair, it may say, "Internal events evaluation", and it would say, "Here's what I want to know. I want to know your risk significant initiators, I want to know your risk significant sequences. I want to know your important sensitivity uncertainly analyses results". So it's bulletized, if you will, of the information we're seeking under each of those topics. Some of that information that's in Part II needs to be brought into the FSAR now because we're not going to have that information available because the NRC also has uses for the PRA information

in helping us in doing our reviews. So some of that information we need. And again, you have one of two options. Either you bring it into Part 1 or the day you get your application, you put a team on a plane and send them to the site to go get that information so that we can actually do our review.

MEMBER CORRADINI: Okay, thank you.

MR. HARRISON: The fourth subsection is PRA maintenance. Again, depending on the uses and applications of the PRA, you have to tell how you're maintaining the PRA so it reflects the plant that's being -- to be built, to be designed so that you have to -- that part of the PRA maintenance needs to be done for its uses and applications.

The last one is the identification of just ITAACs, COL action items, commitments that are needed. You're going to find that at the COL stage, you've done your fire analysis or fire PRA and you've made assumptions about the routing of cables and at some point before operation, you're going to need to confirm that information. So you're probably going to have a walk-down commitment that says, "I'm going to walk down my cables and walk down the plant to verify the assumptions and the fire PRA are accurate." So this section is going to capture those commitments

that the applicant needs to make to -- prior to operations.

And the last section again, is a conclusion section. This is where they need to wrap it all up, coming back to the objectives that were proposed and discuss how those objectives have been met. This would be a good time for any other questions on this section.

CHAIRMAN KRESS: I think we've asked enough. I suggest at this time we break for lunch and start right after lunch at 1:00 o'clock with the Reliability Assurance Program presentation. Does that sound good? Okay. So let's be back at 1:00 o'clock.

(Whereupon at 11:53 a.m. a luncheon recess was taken.)

AFTERNOON SESSION

1:02 P.M.

CHAIRMAN KRESS: Let's come back into session, please. We're at the point on the agenda where we're going to talk about the Reliability Assurance program and then one slight change in the agenda, I can't find my agenda. We're going to move the Operational Programs up and have it right after the Reliability Assurance Program.

Okay, you're on.

MR. TINGEN: I can start now. My name is Steve Tingen. I'm with NRR and the Quality Assurance Branch. What this presentation is on, the Reliability Assurance Program, and we call that RAP and I think you saw that mentioned in Donny Harrison's before me. He mentioned RAP in there also. And we're covering -- we're in DG-1145. It would be Section C.I.17.4 and C.III.117.4. Those are the sections where I'm kind of summarizing what we have in.

The Reliability Assurance Program is based on the Commission directives in a SECY paper and it happens to be Item E Reliability Assurance Program, and the purpose of this program is -- one, is to design reliability into the plant and then the second part of it is, is to maintain reliability. And it

includes safety and non-safety related systems. And as I mentioned before, there's a design phase that really goes up until fuel load and after, during operations there's an operational phase where they maintain the reliability.

Scope includes plant, the plant type, the particular reactor plant type and site specific SSCs and reliability assurance activities for operational phase are integrated into existing programs. And this was on the comments we got from NEI and the public on DG-1145. They're very touchy about that. They want it clear that there's not a new separate program for the operational phase. We use existing programs to implement it. So we're going to make some changes to DG-1145 just -- that was our intent all along, but we'll make changes to make sure that there's no question there.

And DG-1145 kind of asks for the information that we need to do reviews per our SRP chapters and the particular sections we're using the SRP that would -- to review the Reliability Assurance Program would be Section 17.4 which is Reliability Assurance Program, and Section 19 which is the PRA section of the SRP. And I mentioned before, but Donny Harrison was in here before and RAP was on one of his

slides. And so just I'll summarize this on the next slide but we get the PRA group to look at the PRA stuff that's associated with the Reliability Assurance Program.

Okay, what we're really specifically asking for in DG-1145 is the scope and the purpose and the objective of the RAP. And the second thing we're looking for is the SSCs that are within the scope of the Reliability Assurance Program and there's three or more methods you can use to determine what SSCs are in the scope of your Reliability Assurance Program. You can use probabilistic and if they do use probabilistic, then we would -- our SRP section is set up so we would get the PRA group to evaluate that.

Also they can use deterministic or other methods to put components in the program and if they use those, then our section would look at that. If it was a real technical type analysis, then we would ask for -- you know, we'd get the technical branch and RR to look at it.

CHAIRMAN KRESS: Any guidance on how to use the probabilistic methods? How to use it?

MR. TINGEN: Yes, there is.

CHAIRMAN KRESS: Is importance measures?

MR. TINGEN: Yes, that's in 19, but yes.

CHAIRMAN KRESS: Is there a fixed cutoff on importance measures?

MR. TINGEN: I really need Donny Harrison here. We originally -- there was a cutoff.

CHAIRMAN KRESS: We had a problem with that when we reviewed it and I don't know if that's --

MR. TINGEN: There's a story there and what's confusing is they're using -- it gets confusing and I'm not prepared to speak on that, but I was hoping Donny Harrison would be here and he could speak on it, but he didn't meet it. That would be in Chapter 19 so the PRA group would make that determination. Also the quality control -- we asked for the quality controls they used for the development of the design part of the program. And we asked for like organization, design control procedures, instructions, corrective action, and audit plans. And for the design phase there's also an ITAAC and we asked for the ITAAC so we can review that with the COL application.

And I believe that's all I have. Any questions?

CHAIRMAN KRESS: I guess now we'll go to the operational programs.

MR. COLACCINO: Good afternoon, my name is

Joe Colaccino and I'm here to talk to you about operational programs. I'm the staff member who worked on the resolution of the operational programs and so I came back here to just discuss that a little bit. Just to give you some background and -- of what this issue is and how it came to be resolved and then integrated within DG-1145.

What it really is, it's -- the SECY is the result of two previous SECYs by the Commission where there was an issue of whether operational programs should have ITAAC associated with them, and so the staff had submitted a couple of SECY papers, 020, 67, 04, 0032, associated with, you know, their plans for having ITAAC for operational programs. The Commission in a couple of instances, in both of those instances, asked the staff to go back and relook at that. And so in parallel with the staff's meeting with the Nuclear Energy Institute on their initial COL application guideline document, NEI 0401 we also embarked on a parallel effort to look at operational programs and there's a list further on in this presentation.

During that, we looked at each of these operational programs to see if, in fact, those programs could be fully described in the application.

If they could and we could put in the then COL applicant need not include an ITAAC associated with those operational programs.

So ultimately, we issued SECY-05-0197 and we laid that process out. You'll note that it's a generic emergency planning ITAAC. By statute, EP has ITAAC and so we acknowledge that in the SECY paper and actually included generic emergency planning ITAAC.

CHAIRMAN KRESS: What's a generic emergency planning, I mean, as opposed to a site specific one.

MR. TINGEN: That's a good question and the staff and the Nuclear Energy Institute worked together to arrive at a set of ITAAC, initial ITAAC for emergency planning. Now, granted there are site specific aspects to emergency planning but within the SECY paper, they put out a template, if you will, of what they thought could be a set of emergency planning ITAAC that would be included in a combined license application.

MEMBER CORRADINI: So is this what eventually now is in the SRP, there's a Table 1, 2, that says essentially each of the particular items and then the allowable --

MR. TINGEN: And the answer is, yes, I

believe that the information that was included in 05-0197 is now included within Part 1, C113.

MR. OESTERLE: Yeah, the SRP on emergency planning is being updated and I'll ask Bruce Musico, who is one of the principal authors for that update to address your question.

MEMBER CORRADINI: This is really semi-unfair, since we're going to talk about this next week anyway, but since Tom, the Chairman brought it up, it becomes allowable, I guess.

CHAIRMAN KRESS: Yes, in fact, nothing is off limits in this. Anything you want to bring up.

MR. MUSICO: To answer your question with respect to the ITAAC that was approved -- oh, I'm sorry, I'm Bruce Musico. I'm the Senior Emergency Preparedness Specialist with the Office of Nuclear Security and Incident Response, NSIR. We used to be in NRR. We were absorbed. The ITAAC that is in SECY-05-0197 was developed after about a period of a year in consultation with NEI, other interested stakeholders and the Department of Homeland Security.

The thrust of NEI's and industry's efforts were to -- was to minimize the number of ITAAC that existed for EP. We weren't quite sure what was behind that. It may have been to reduce the exposure to

litigation. However, we accepted their desire and worked with them. We came up with what we viewed as a minimal list of ITAAC, generic ITAAC meaning not site specific that is reflected in SECY 05-0197. That particular document, which went up to the Commission, was the first time that anybody outside EP officially had seen the proposed ITAAC that our group came up with and the SRM that came down from the Commission basically said it was acceptable.

Now, to answer your question further, the ITAAC that currently exists in DG-1145 as well as the Section 13.3 of the Standard Review Plan, has additional proposed ITAAC in it, which goes slightly beyond what's in SECY-05-0197. And the basis for that was that the concept of expanding the use of ITAAC beyond COL to ESPs, to allow EP ITAAC for ESPs was conceived after the SECY went up.

In essence, for combined license application, ITAAC had always been associated with a COL. ITAAC, specifically EP ITAAC, had never been associated with early site permits, ESP applications. We found that for an early site permit application where an applicant may propose complete and integrated emergency plans, it was impossible for us to come up with a reasonable assurance finding because the plant

is physically not there. They cannot possibly submit a complete and integrated emergency plan at the ESP stage equivalent to a COL stage where the plant is physically not there. Hence, you need ITAAC as so-called place holders. So we thought it was a good idea to expand the concept of ITAAC from allowable at a COL to be allowable at an ESP.

Initially, when we looked at that, we sort of scratched our head and we wondered is that an appropriate thing to do? And the short answer was, there is nothing in the current regulations that precludes doing that and being well-versed on the basis for the EPI tech in the first place, we were not aware of anything that prohibited that extension. So the supplemental ITAAC table, which, again, is in the SRP, and DG-1145 currently reflects the original minimal set of EPI tech that we negotiated with NEI and DHS, FEMA, and we augmented that with additional proposed ITAAC that had not been fully vetted or discussed with industry and hence, you saw a comment from NEI regarding the augmentation of the ITAAC table and we had some comments on that, some thoughts on that.

MR. COLACCINO: Thanks a lot, Bruce, appreciate that detail.

MR. MUSICO: Sure.

MR. COLACCINO: When we talk about fully describing operational programs in a COL application, we're talking about and FSAR level description and the application guideline, you know, that's consistent with the DG-1145 philosophy that we're looking at, FSAR level information in the application. With the exception of EP, operational programs are defined -- I say with the exception because EP have ITAAC. They have -- we agreed on three criteria. That these are required by regulation, they're reviewed in a COL application, and then inspected to verify its implementation.

And so that's reflected in the SECY paper. If you could fully describe the operational program in a COL application, you didn't need ITAAC for implementation if you could describe the implementation in the application also. Again, we noted that EP contains programmatic ITAACs so you don't have to describe the implementation of ET in your application. Of course, since, you know, we're in Part 52 process, Part 52 licensing process, these operational programs are going to be fully described before a plant is built and that hasn't been done previously, you know, when we were under Part 50. So

a lot of the details of these programs are going to be developed after the COL -- after the license is issued. So we wanted to -- one of the things that will be included in the application is the implementation, and the implementation, and specifically the implementation milestones of when certain pieces of the operational programs are going to be implemented in phases in particular.

I believe this is the final list of programs that we came up that are included within DG-1145 and if I can point you back to slide -- the second slide of this, we say that guidance is contained in C.I.13.4 which should be a table pointing to where all these operational programs are located. So you'll see within Part 1 and within C.III.1 of DG-1145, the actual information needs that will fully describe the operational program and its implementation.

Some of these programs have been lumped together. For instance, you'll see a number of programs that are associated with security, such as physical security, safeguards, contingency. There's fitness for duty in here someplace. Those have been -- I think there are five or six security programs that are together and those are all included in 13.6.

After the license is issued, the NRC intends to inspect the implementation of the operational program. In the -- in Part 52, one of the things that we try to do is in the final Part 52 rule, was codify as many of the implementation requirements as we could, implementation milestones as we could within the regulations. We just didn't have the time to do all of them. Many of them are now implemented in the latest version of Part 52.

One of the things that wasn't covered and is covered in the SECY paper is there's what's called an implementation license condition. There's two licensing conditions that are referred to and two sets of licensing conditions in 52.70 in SECY 05-0197, and it's a schedule and an implementation condition, license condition. Two of the operational programs in particular, security and fire protection, already had implementation license conditions within current operating reactor licenses and so -- and so we just brought them forward there.

We also had a scheduling license condition where we wanted the licensee at that point to report on when these programs were, in fact, implemented. And it's a periodic reporting requirement and that's so that the NRC would know when they could go out and

inspect them, inspect the implementation.

That's all I have in operational programs. Any questions? Thank you.

CHAIRMAN KRESS: Thank you.

MEMBER SHACK: What kind of milestones are going to be incorporated in the rule?

MR. COLACCINO: Have been -- what kind of implementation? I don't know. I'm trying to think of an example. Do you know of an example, Jerry?

MR. WILSON: Jerry Wilson, Office of New Reactors. We'll pick an operational program. Let me pick security. What you're going to find is that certain programs you may want to have different timing on when the program should be fully implemented or perhaps partially implemented. So back to security, in the past, we have required utilities to have their security program partially implemented at the time fuel is brought on site, but fully implemented at the time that we load the fuel into the reactor.

Now, those milestones may change under current environment but that's an idea of what we would do. Operational training is another one that you have to have that program up and running. I think it's -- thank you, 18 months before fuel load. So those are the kinds of things that we're talking

about.

MR. COLACCINO: The SECY paper does talk about one. I don't think this one was codified for radiation protection. That's Section 12.5. And it gives the phased implementation of that program. We talk -- we use four milestones; sources on site, fuel on site, fuel load and first shipment of waste. And those were logical milestones where certain aspects of the program would have to be implemented. And note, in that particular example, one of those can happen well after operation and so this -- the licensing condition, the schedule license condition we have is in existence, is a condition on the license until all the implementation milestones have been met.

Any other questions? Thank you.

MR. OESTERLE: If you could remind me what's on the schedule next.

MR. FISCHER: I think you have the next agenda item as ITAACs and DACs.

MR. OESTERLE: Okay. All right, good afternoon. I'm still Eric Oesterle and I'm still with the Division of New Reactor Licensing. Around here that --

MR. FISCHER: I thought there was a reorganization.

MR. OESTERLE: Around here things can change quickly. For the next few minutes, I'll talk about ITAAC and DAC. I wanted to provide this presentation before we talked about operational programs because I wanted to introduce the concept of ITAAC before that but I think everyone is reasonably familiar with that and we wanted to make sure that Joe got out of here on time. ITAAC is required by 52 -- 10 CFR, Part 52.80(a) in the revised rule that went up to the Commission last month. Previously it was required by 52.80(b). ITAAC was first mentioned way back when in 1986 in a Atomic Industrial Forum Report on Standardization of Nuclear Power Plants in the US. So this concept has been around for quite some time.

The requirements for ITAAC have been codified in 1989. For DG-1145, we provided generic guidance on ITAAC in Section C.II.2. All of the certified designs are also required to include ITAAC and we have included guidance on ITAAC for COLs that reference certified designs in another section of the guidance document. Guidance on ITAAC development and the methodology by which the applicant determines which structure, systems and components they're going to include in the ITAAC are supposed to be included in the application. We had talked about putting it into

Chapter 14 of the FSAR.

As part of that information, we were looking for cross-references between key aspects of analyses and PRA, safety analyses and features of the design, including risk significant structure systems and components to be included in ITAAC. The COL applicant must include ITAAC for the entire facility. And the reason I say it that way is because if a COL applicant references a certified design, that certified design includes ITAAC just for that certified design. There may be additional ITAAC that are required for site specific portions of the design and there's ITAAC required for emergency planning as we had discussed earlier.

Also, not included as part of the certified design in full blown detail are ITAAC for security design features. Those could be considered as site specific design features that aren't necessarily included in certified designs. ITAAC are not created equal. There are some very complex ITAAC and there are some very simple ITAAC. And here's a table that demonstrates some of the differences in the ITAAC going from complexities like developing an engineering analysis or an ASME code report, all the way down to a simple inspection.

This slide also shows the agreed to format for ITAAC, the first column requiring the design -- identifying the design commitment, the second column identifying the inspection, test or analysis that the licensee intends to perform to demonstrate that the SSCs meet the acceptance criteria which are identified in the third column.

We've also included specific guidance on ITAAC for COL applicants referencing a certified design and/or early site permit. And that's included in Section C.III.7. It's important to note that the ITAAC are proposed by the licensee and they're reviewed and approved by the NRC and either as part of the design certification effort, as part of the early site permit effort and definitely as part of the COL application review. Completion of ITAAC is, as Joe mentioned, part of a license condition. All of the ITAAC get lumped in under one license condition and all of the ITAAC need to be successfully completed before the Commission can make a finding on allowing the plant or the licensee to operate.

For design areas that included rapidly changing technology or required as-built or as-procured information, a concept called Design Acceptance Criteria was agreed to, I think as early as

the ABWR certification review stage. We refer to it as DAC and it is part of ITAAC and as such, Design Acceptance Criteria are not required to be completed until prior to operation, so licensees or applicants that reference a certified design that include DAC are not required to complete those designs until after the license is issued. However, our guidance tells licensees and applicants that it is very prudent on their part to do as much as they can to complete these designs included in DAC prior to submitting the application or during the application review phase.

Some of the areas that DAC was applied to included digital I&C as an example of one of the rapidly changing technologies that you wouldn't want to, you know, pinpoint at a specific point in time because you ran the risk of implementing some outdated methodology by the time you got around to building your plant. The control room design was also included in DAC. Leak before break was included in DAC and radiation shielding for certain plants was included in DAC. DAC is not approved across the board. It's approved on a case-by-case basis and goes up to the Commission for approval and there are a number of SECY papers and associated SRMs the document these approvals.

Design Acceptance Criteria is limited to certified designs at this point. The staff expects that for COL applicants that do not reference a certified design and we don't think there's going to be many of those, we expect that there won't be any DAC associated with those applications. And as such, DAC has unique treatment in light of that because it includes two elements. One element is completion or verification of completion of the design and then the other element is similar to the other ITAAC and that is verification of the implementation of the design and insuring that the as-built conforms with the design.

The first element includes an approved design completion process. The second element, as I mentioned, includes verification of the design implementation and as indicated before, DAC are approved on a case-by-case basis. The certified designs that we currently have, ABWR, System 80 plus, AP6000 and AP1000 all include DAC.

MEMBER SHACK: Again, do you get to review the design after or it's the completion process that's reviewed and approved?

MR. OESTERLE: That's a good question and that gets into my next slide. Both the completion

process gets reviewed as part of the post-licensing inspection, okay. And that's the last bullet on this slide. The NRC will inspect completion of all DAC, both the design and the implementation, as opposed to other ITAAC which our construction inspection program will employ what we call a smart sampling inspection methodology. DAC will not fall into that category. We expect to inspect all of the DAC.

As I mentioned before --

MEMBER SHACK: Okay, but this will be limited to essentially seeing that they meet the criteria that were set out.

MR. OESTERLE: Yes, that's correct.

MEMBER SHACK: So there's no additional review. It really is an inspection.

MR. OESTERLE: Right, it's a verification that the design has been completed in accordance with the approved design process. And as part of that design process there are certain standards, industry standards, like IEEE standards that are committed to as part of that design process.

As I mentioned before, it's prudent for the applicant to close out as many DAC as possible as part of the application, but by regulation, it's not required because DAC are part of ITAAC. Certain areas

that are governed by DAC are being worked on by the certified reactor design vendors right now. We've tried to close these out and they are submitting topical reports or technical reports for us to review on those.

And as I said, DAC is included in ITAAC. NRC will inspect completion of DAC. I think that's all I had on DAC. Any questions?

CHAIRMAN KRESS: Well, seeing none, you're still on the program it looks like.

MR. OESTERLE: I'm still on the program. I'm still Eric Oesterle and I'm still with the Division of Nuclear --

CHAIRMAN KRESS: You're going to be here for awhile, it looks like, so you're going to do that COL action items now?

MR. OESTERLE: Yes, I'll do COL action items next.

MEMBER SIEBER: You're right, you're the same guy.

(Laughter)

MR. OESTERLE: It says so on the slide, I must be.

MEMBER SIEBER: I'd better right that down.

MR. OESTERLE: The next topic is on Combined License Action items and the guidance that we included in DG-1145 on these items is contained in Section C.III.4. Also it's discussed in Section C.III.1 which as you recall from this morning, is guidance for a COL applicant that references a certified design and in Section C.III.2, which is guidance for a COL applicant that references both a certified design and an early site permit.

COL action items are specific items that have been deferred to COL applicants that reference either the certified design and/or the ESP. They may include operational aspects which are the purview of the licensee but may have also included certain aspects of design that are site specific. COL action items are included in both certified designs and early site permits. As mentioned, these items are associated with items that are outside of the scope of the certified design and outside the scope of the ESP. They are typically always documented in the final Safety Evaluation Report for the certified design and the ESP. For the AP1000 the staff may have taken some of those action items and split them up into a number of different information items so at times we use the terminology Information Items and Action Items

interchangeably.

COL applicants referencing a certified design are required by Section 4.A.2 of the applicable Part 52 appendix which codifies a certified design to provide information that addresses those COL action items. It is anticipated that for early site permits that the terms and conditions for an ESP will include the need to address COL action items. And I say anticipated because that language is still under draft and being finalized as we speak.

Here's some examples of COL action items from the AP1000 FSER. Applicant will provide site specific information on soil bearing capacities, information on mobile and temporary equipment used for storing or processing liquid rad waste, making sure it conforms to Reg Guide 1.1.43. That was too many 1s. And a very complicated one with respect to DNBR. But like ITAAC COL action items range in their level of complexity.

CHAIRMAN KRESS: Can we go back to that one?

MEMBER CORRADINI: That one we might know something about.

MR. OESTERLE: Just provided as an example to demonstrate the varying levels of complexity of

these action items. In addition, here are some examples of action items, COL action items from the Clinton early site permit FSER, typically dealing with environmental parameters and the interaction of the proposed facility with the environment.

The COL action items must be addressed by COL applicant referencing a certified design and/or an ESP. It's prudent for COL applicants to provide resolutions for COL action items as part of their application. In addressing these COL action items, resolution is not necessarily required. So COL -- in the process of addressing a COL action item, the applicant may identify that the resolution to the action item cannot be completed until after the license is issued. So we -- in the guidance, we have identified a number of mechanisms by which completion or resolution of these action items can be carried out or verified and those are either by ITAAC, by a license condition or via operational program. At the very end, COL action items must be resolved prior to operation.

When we began developing Sections C.III.1 and C.III.2, again, these are the guidance sections for COL applicants referencing certified designs and ESPs. The development of those sections were informed

in large part by the COL action items because for those sections we were trying to identify, what additional information a COL applicant would need to provide if they did reference a certified design, or an ESP. Now, in these sections, we provide guidance on where the applicant should identify where they have addressed the COL action items. So there will be, we expect a table to be included in the FSAR section which will identify where say for example, COL Action Item 3.6-1 could be found.

And that concludes my remarks on COL action items. Are there any questions?

CHAIRMAN KRESS: I don't see any, so you may continue. This is public workshop is next.

MR. OESTERLE: Public workshop is next.

CHAIRMAN KRESS: Yes, we have a question.

MR. FISCHER: Can I ask a question about COL action items. Is there any clear way in knowing which COL action items need to be completed by the COL applicant or which ones can be deferred until prior to operation? You say they all needed to be completed obviously before operation, but are some of them, like -- you know, need to be done by the COL applicant?

MR. OESTERLE: It's either the COL applicant or the licensee and they're going to be the

same party. It just depends -- the timing and issuance of the license.

MR. FISCHER: My question wasn't with regard to timing. Are there any that are clearly -- you know, you have a COL action item that's part of the design certification. Are those due by the COL applicant or can they be -- or are some of them going to be deferred by the COL applicant until prior to operation? That's really the question.

MR. OESTERLE: Yeah, there's doing to be some that can be deferred to after -- or prior to operation, sure.

MR. WILSON: Eric, this is Jerry Wilson, again. What you'll find is that the COL action items aren't categorized in the manner in which Mr. Fischer is pointing out. But all of the applicants for a combined license have to address them. Now, what you'll find when we get into the details of looking at them, there may be some of them that can't be completed until you have as-built information and obviously, those are going to have to be deferred until the construction period. So they will reveal themselves as the staff looks at them during the combined license review period.

MR. FISCHER: So am I to understand that

those are still under negotiation between the staff and the applicants which ones, you know --

MR. WILSON: Yes, and we'll resolve that during the COL review.

MR. OESTERLE: So the COL applicant will have to take, for example, that set of action items from a certified design that they reference and identify where they're addressed in the application and how they're -- whether they're resolved or not, and if not, when they're going to be resolved. Does that help?

MR. FISCHER: I think it would be nicer if it was clear where, you know, when they were due to the staff so that everybody understood, so the COL applicants all understood that this item needs to be addressed at the COL applicant stage versus this one we can all defer until you know, prior to operation, so that the staff and the industry knew what the information requirements were specifically at the COL applicant stage. That was my --

MR. OESTERLE: I think maybe I'm splitting hairs between addressing the action item versus resolving the action item. The applicant is required to address all the COL action items at the application stage. Resolution may occur after -- on some of them

may occur after issuance of the license. But we would expect that to be identified in the application.

(Pause)

Okay, the next topic is Public Workshop Issues. As I mentioned earlier this morning, the development of this Reg Guide began in earnest in 2006. Draft work in progress sections were posted on the NRC's website following completion to facilitate public workshop discussions. And I want to emphasize that there was a very high level and consistent involvement and engagement of the industry and NEI in these workshops to assist in developing the guidance.

MEMBER WALLIS: Were these public workshops merely negotiating sessions between the NRC and industry?

MR. COLACCINO: This is Joe Colaccino. I wouldn't characterize them that way at all. They were Category 3 public meetings. It's where the staff would present -- would first roll out draft work in progress sections of individual sections. For example, the first one we had in March was C.I.12 on radiation protection. And so the staff would come out and present the information that was included in that section and then the industry would come and have questions. Actually, I think that first one we got it

out only a couple of days before the meeting but we got better as we got further on in the process where we had the sections out when the meeting notice went out, so the industry had a couple of weeks and I emphasize the industry. It's not just NEI because we did them in Category 3 workshops so it was anyone that attended could provide input to the workshops.

So but the industry combined, they used NEI and they would send us advanced questions, which was actually quite helpful because it allowed us to premeet with the staff, discuss what their issues -- you know, discuss amongst ourselves what our the issues were and then come out in the public workshops. This is an extraordinary effort I would -- by the staff to really present very, very high -- you know, draft information that we normally wouldn't put out in the public but in consideration of the schedule that we were -- that we did meet, you know, that we were striving for, we felt that this was the only way that we could serve the industry. And quite frankly, it served as an early feedback loop for information that we would subsequently include in the guide.

MEMBER WALLACE: But you were serving industry. It wasn't really -- was there public participation or was it really just you and the

industry worked --

MR. COLACCINO: We had workshops of up to 100 people that were there and so we certainly had the vast majority of the individual COL applicants there.

MEMBER WALLACE: Did you get any useful input from non-industry people?

MR. COLACCINO: Useful input from non-industry people.

MEMBER WALLACE: Well, you always talk about public workshops and it turns out that the people who go there are from industry.

MR. COLACCINO: These were Category 3 meetings. They were noticed appropriately 10 days beforehand. The public certainly --

MEMBER WALLACE: I'm just wondering if anybody came except industry.

MR. COLACCINO: Well, and I don't remember -- I can't tell you. Some consultants came certainly that were not associated with any COL applicants. We saw some individual utilities sent people who were not even COL applicants but were coming to observe the process. And the workshop wasn't the only method by which they could provide feedback to us. We also had a public website which we had these sections out there and we had a "Contact Us" page and we go lots of

comments from people that did not even attend the workshops on the -- you know, from the website.

MR. OESTERLE: We started these workshops in March of '06 and continued with multi-workshops all the way through September of '06 which was even after the draft was issued for comment. So some of the major issues that were discussed at the public workshops we have an opportunity to discuss here as well. The first bullet is called Design Finality.

Workshop discussions focused on areas of the guidance document, in particular, C.III.1 where additional information was requested in the guidance document for designs that had been certified. For example, in the radiation protection area where design acceptance criteria had been applied, and the issue was that the staff was requesting information on design on a design that had already been certified and the issue was that it was not something that the staff had an opportunity to re-evaluate during the COL application phase.

We had worked through some of those issues and some are still yet to be resolved. This is one of the most challenging areas for the staff in terms of being able to negotiate the paradigm shifts from the Part 50 licensing process to the Part 52 licensing

process, as many of the tech reviewers were used to having the level of detailed information that was available during the Part 50 licensing process which is not available during the Part 52 licensing process.

Part 52 relies upon a lot of design information and the verification program largely contained within ITAAC. One of the other major areas of discussion included COL information availability. Due to the use of Reg Guide 1.70 as the basis for DG-1145, and the predominant experience in licensing plants using the Part 52 or Part 50 process, excuse me. Workshop discussions also focused on areas of the guidance document in which information was requested that would not be available at the time of COL application submittal. These included things like material properties, as-built piping designs, things of that nature.

That type of information would normally have been available during the operating license review under the Part 50 process and staff would have had a chance to go out and kick the tires of a plant that was under construction at that time, but under Part 52, we have a different process. We largely rely upon ITAAC as a verification program to insure that the as-built plant conforms with the licensed design

of the plant.

Another area that we had some major discussions on and the workshops included verification activities. And these included inspections, construction inspections, as opposed to ITAAC. There were certain levels of activities where industry and staff did not mutually agree upon in terms of what activities rose to the level of ITAAC versus what activities would remain within the construction inspection program. And as we've seen earlier, when things get -- when activities get included in the ITAAC verification program, there is a higher level of regulatory focus on those.

Another area of discussion in the workshops included first of a kind engineering. These discussions focused on the definition of first of a kind engineering which we intended to be the translation of high level design in design certification documents and COLs to construction and procurement documents and the timing for these type of inspections and whether or not issuance of the COL license was dependent upon the results of these FOAKE inspections.

Another area of discussion in the workshops included engineering design verification.

These discussions also focused on the definition of EDV and that included COL applicants and their QA or QC programs to insure quality engineering.

MEMBER WALLACE: Could you define first of a kind engineering a bit better for me? I mean, all these reactors are first of a kind.

MR. COLACCINO: Eric, this is Joe Colaccino. I would define that and I don't know if Eric's got a figure. We included a figure in the discussion part of the guide and it's a multi-color figure and I don't know if you have it, but first of a kind, how we look at that is that our translation from the FSAR level information that the staff has reviewed into the detailed design and construction documents. That first time that that's done for this new design is what we look at.

I think what the vendors would look at is their first of a kind engineering and the issue, if I can go on, is that the -- and this is a level of detail question and Eric characterizes it very correctly when he talks about what level of design information did the staff need to see in order to make their reasonable assurance finding that's codified in Part 52? And so obviously some issues require a lot more design information than other issues and you

know, if we're going to look at the thermohydraulic, you know, characteristics of the AP1000, we need some -- we need a certain level of design information versus if we're going to look at a simple safety system or simple system that's required by regulation.

So in working through, I don't know if negotiation was the right -- the term that I would use but certainly coming to an understanding between both sides on what the staff needed to see in order to make its safety findings. And the information beyond that, what the vendors would be doing and when NRC, how we would look at that. We would look at that as we would do any construction. That's what we've always said about our construction inspection program. We're not going to do it any differently than we did before, but we're going to have ITAAC as part of it and when it comes to design, we're going to look at the process of translating that FSAR level information into the detailed design documents and then we'll look at certain products of that process. So that's -- you'll see it as FOAke inspection if you look at NRC Manual Chapter 2503, I believe it's called FOAKE.

If you look at 2504, it's engineering design verification. They're really the same thing and the only thing was the timing of it because those

NRC manual chapters focus on ITAAC inspections and non-ITAAC inspections. Hopefully, that helps you understand that a little better.

MEMBER WALLACE: What is the first of a kind part? Do you treat things differently in some way when they're first of a kind? That's what I'm not quite sure about. What does this qualification, first of a kind imply about what you do, because what you've just described seems to be what you do about almost any engineering.

MR. COLACCINO: But once we'll do that, once we do -- if there's no change when we're looking at the next plant, we won't go back and look at that design if there isn't any change from the first one. So that was an important point that I missed, thank you.

MEMBER WALLACE: That makes a difference.

MR. COLACCINO: That's right.

MR. OESTERLE: The first one on FOAKE really looks at the new designs whereas EDV is more like a QA check of the applicant's design engineering.

MEMBER CORRADINI: So you would do more of a contrast and compare after Utility X had a particular AP100 and Utility Y had an AP1000. Then it was contrast and compare on a number of systems; is

that your point?

MR. OESTERLE: Yeah, that would be part of it. Yeah, to insure that there was standardization also in translation of those designs. We would expect that it would be the same.

MR. COLACCINO: In standardization, you expect it to be the same but if the reference plant was of one configuration, and then the subsequent COL came in with a design that had a slightly different configuration, then we would only look at the differences between the two configurations.

MEMBER WALLACE: So FOAKE would be a large item on the first plant and then not on the next one. How much would this make a difference? Would this make a big difference in the review work?

MR. COLACCINO: No, and that's the important point here is that this is not part of what -- this is an activity that's taking place -- that's going to take place by inspection and that's really what the industry's issue was is that our inspection activities would have an impact on our licensing activities; whereas, the inspection activity that we were doing was beyond what the certification required. And so we -- and there's a figure in there that it's like our license would be based on what -- you know,

a certain level of information, whatever we needed.

Now, having said that, if we obviously, found something during inspection, you know, while the license was still being evaluated that impact licensing, you know, we're not going to unknot what we find out and you know, it's just in the timing of whether it's the license or not. And you know, so that's just -- and it would be a matter of timing. And quite frankly, now, with the acceleration, I mean, the vendors are well into much of this work now, and so much of this work is, you know, is available for us to go and inspect. I don't think we would have any plans to do it.

I asked once in a public meeting of one of the vendors if they would be ready, you know, next year to do these type of inspections and they said, yes, they would be.

MR. OESTERLE: So moving on to Slide Number 4, to talk about some of the other issues that come up during the public workshops, the first bullet on Slide Number 4 is guidance for passive designs, for example, offsite electrical power. The intent of DG-1145 always was to provide generic guidance for all LWRs and there was some discussion about how detailed it should get with respect to specific guidance for

AP1000 versus ESBWR or APR. The discussion on guidance for passive designs brought it back up to another level, so to speak of generic guidance where it was requested that we provide guidance in certain areas where the passive nature of a plant design would significantly impact the requirements for certain systems and equipment, for example, electrical power. AP1000 --

MEMBER WALLACE: You're talking here about passive safety designs?

MR. OESTERLE: Passive safety systems, correct, where a plant design would not rely upon a safety related Class IE emergency diesel generators, and instead would rely upon 72-hour capacity batteries with non-safety related backup diesel generators. And this issue of guidance on passive designs extended int other areas of the guidance document as well. So the staff is taking a look at including some generic guidance in some of those areas.

MEMBER BONACA: It is already clear what the NRC requirements would be for offsite electrical power for passive designs? I mean, is the regulation that far established already? I don't think so.

MR. OESTERLE: I don't think there is a change in the regulations and our electrical group is

evaluating what type of guidance to provide in this section with respect to offsite power. Obviously, there is some limited control over the offsite power system designs for plants and so the focus is more on reliability and redundancy.

MR. COLACCINO: This is Joe Colaccino again. I just wanted just to point out that for the AP1000, they had a partial exemption, I believe, from GDC-17 for offsite power. The extent of what that is, I couldn't describe to you. Maybe you know a little bit more, Jerry.

MR. WILSON: Jerry Wilson. Yes, it's specified in the Design Certification Rule and in detail discussed in the FSAR for AP600 and 1000.

MEMBER BONACA: And so the requirements are already established.

MR. WILSON: Yes.

MR. COLACCINO: Again, it was an exemption, exemption to the current regulations, so when the application came in, they requested an exemption from the regulations.

MEMBER BONACA: I understand the exemption. I'm trying to understand what the requirement is right now.

MR. COLACCINO: I think it's two

independent sources of offsite power.

MEMBER BONACA: Yeah.

MR. WILSON: Well, that's the requirement. They're not fully meeting it.

MR. COLACCINO: The requirement, that's what they requested the exemption from.

MR. WILSON: You'd have to get back and read the details of the exemption to understand exactly what the requirement is now.

MR. OESTERLE: And the staff is doing that as part of going back to take a look at developing generic guidance, more generic guidance for passive plants in the electrical power system chapter.

One of the other areas that had some significant discussion during the workshops was the maintenance rule. In fact, we had a breakout session separate from the main workshop in which external stakeholders could discuss the maintenance rule specifically. One of the issues that was expressed or one of the concerns that was expressed was that we provided way too much guidance on the maintenance rule in DG-1145. In fact, it was a -- we virtually included everything we knew about the maintenance rule and what operating plants would need to do to maintain their maintenance rule after they got the license. And so

based on some discussions with industry, we feel that we have reached a mutually agreeable point where we can incorporate and resolve industry comments and come out with a good guidance on the maintenance rule.

Another area that had some considerable discussion in the workshops was the environmental report format and content. The guidance document really just focused on the format and content that was discussed in the Reg Guide 4.2 and the -- it was noted that 4.2 was rather dated, similar to Reg Guide 1.70 and so that format and content for an environmental report was not up to speed and up to date. So we are working on that to try to improve the guidance and bring it up to speed.

Another area that had some considerable discussion was related to the environmental report was the finality of an Environmental Impact Statement associated with an ESP that a COL applicant chooses to reference. And the big ticket item there was new and significant issues. At the time we issued the guidance document as a draft, there was significant discussion and development of new criteria and requirements as part of the Part 52 rule-making update. Actually, this is part of Part 51. And so the guidance document at that point really was

required to wait until the Part 52 rule-making got issued and sent up to the Commission. So we have a clear direction on finality of an Environmental Impact Statement associated with an ESP now and we are improving -- updating the guidance of DG-1145 accordingly.

The last bullet on this topic, certainly this didn't end all of the workshop discussions but this is one of the major ones as well was on PRA. Again, the workshop discussions focused on the format and content of the PRA. At the time, this guidance document was written to reflect the requirements in the proposed Part 52 rule issued in March of this year and that proposed rule required a PRA to be submitted, so the question was, well, what should be the format and what should be the content. So significant discussions came up regarding that issue.

Also, some issues with respect to the timing of the PRA submittal with respect to COL application submittal, whether or not there could be a lag time in submittal of the PRA due to the requirements for peer review of the PRA. Now that the proposed rule that has gone up to the Commission has deleted the requirement to submit a PRA, some of those issues are -- have gone by the wayside. One of the

larger ones that remain was discussed earlier with respect to the metrics in the PRA that would be included considering large release frequency and conditional containment failure probability.

And that concludes my remarks on public workshop issues. Any questions?

CHAIRMAN KRESS: Well, let's see. This would probably be a good time to take a 15-minute break. You have another one called --

MEMBER WALLACE: You've gained a lot of time.

CHAIRMAN KRESS: -- characterization. Yeah, I think we're gaining lots of time. This would be a good time to finish your section on characterization of public comments.

MR. OESTERLE: Oh, excuse me, I had one more slide on public workshop issues. I was getting hopeful. We had some discussions on human factors engineering and they focused on the 12 elements of the human factors engineering being addressed as part of design acceptance criteria in a certified design and how and when these design acceptance criteria get completed. The concern there was that some of those elements are design elements and some of those elements are implementation. Also in human factors

engineering some of the discussions focused on insuring that the guidance in DG-1145 did not extent what was already provided in NUREG 0711.

Another item that included some discussion was the definition of the concept of minimum inventory.

MEMBER WALLACE: This rad waste treatment, I would think the public would have something to say. It used to be that you had a spent fuel pool with the expectation that you then -- the government would take it away. And now it looks as if you having essentially indefinite storage on the site of rad waste. Is this used fuel or just is this rad waste of the low level --

MR. OESTERLE: No, this is like low level waste.

MEMBER WALLACE: Low level, okay, so it's not used fuel?

MR. OESTERLE: It's not spent fuel.

MEMBER WALLACE: -- spent fuel, but what is the spent fuel approach for these new reactors? Are they just going to store it on site indefinitely?

MR. OESTERLE: The certified designs that we have seen so far have included, you know, certain number of years of capacity of spent fuel storage and

the options available to new plants are the same options that are available to existing plants.

MEMBER WALLACE: How many years capacity do you ask for?

MR. OESTERLE: We don't -- I don't think we ask for any minimum capacity to my knowledge.

MEMBER WALLACE: You'd think you'd ask for them to be able to handle the used fuel for the period of the entire license, since that's what they're probably going to have to do.

MR. COLACCINO: Yeah, this is Joe Colaccino. I don't think that we have that information here today.

MR. OESTERLE: Yeah, I don't --

MEMBER WALLACE: If there's anything that the public is interested in, this would be one, I should think, the fuel. It's not on your slide but --

MR. OESTERLE: The issue of spent fuel storage and capacity for spent fuel storage never really came up as an issue during the public workshops.

MEMBER WALLACE: Never came up at all.

MEMBER SIEBER: Well, that's a different license, too.

MR. OESTERLE: Right. They have -- like

I was saying, the same options are available for new reactors as existing reactors and that is if you wanted to, if the licensee wanted to, they can apply for a license for an independent spent fuel storage facility.

MR. COLACCINO: Dry cast storage.

MR. OESTERLE: Dry cast storage. But that's a different license. This issue on rad waste treatment was really with respect to bringing in mobile or temporary rad waste treatment equipment, skid mounted stuff and how you insure that use of that equipment remains within the bounds of the license in terms of offsite dose exposures and leakage.

One last area to talk about was digital INC. We had some separate breakout sessions on digital INC. We've had two so far. We even had some presentations to the Commission with respect to digital INC and those discussions and work are still going on. Those discussions included updates proposed by the staff to SRPs and inclusion of this info in DG-1145. Other items included discussions on bi-directional communication between computers and different safety channels or between computers and safety channels and non-safety channels. Refinement of cyber security guidance in Reg Guide 1.12 and

adjustment of technical specification surveillance based on self-testing or monitoring for this type of equipment.

So as we come to resolution on some of these digital INC issues the guidance will be updated to reflect resolution of those issues.

MEMBER SIEBER: But how will you do that unless you go to the code committees and have then revise their codes? I mean, you can't do that by regulatory guide. It's either by rule-making or code and standard, right? I mean, that's not a simple process.

MR. COLACCINO: This is Joe Colaccino. I agree it's not a simple problem and, you know, it's been -- I should remind everybody that instrumentation and control is DAC for all the certified designs that we have right now and it's being recommended for DAC for ESBWR. I do not know what extent that AREVA will be asking for DAC for the EPR but it's clearly an elevated issue as was mentioned earlier about the most recent Commission meeting on it just a couple of weeks ago. And it's one that the staff is working very hard.

MEMBER SIEBER: I think one of the critical questions that involves preliminary design is

the degree to which one requires separation between protection channels and control channels and between accident instrumentation and protection channels. You know, do you use the same sensor and run different wires or do you run everything through a single processor and then branch off? Where do you draw the line or do you have a Christmas tree on a pipe that has a bunch of different detectors on it for pressure sensors and each one feeds a different part of the -- a different system? Those are fundamental questions that you've got to answer right up front.

MR. OESTERLE: And we have members of the staff here from INC if you'd like to make a response to the comment or not. No?

MEMBER SIEBER: Well, I think there are so many issues involved in INC that if you answered this one, I could come up with 200 more and by the time we're done, we would all be old men and we would have a fine set of regulations.

MR. OESTERLE: I appreciate that. And so now, I'm done with my prepared remarks on public workshop issues.

CHAIRMAN KRESS: Now, do you want to talk about characterization and public comments and then we'll have a break?

MR. OESTERLE: Oh, okay, sure. Okay, this is my last presentation for today. I know you're all thankful for that.

CHAIRMAN KRESS: No, we're glad you caught us up in time.

MR. OESTERLE: Yeah, we've done very well this afternoon in getting back on time. This presentation is more or less a characterization of the comments that we received on DG-1145. Following an intensive and open effort to develop the many sections of DG-1145 and to respond to approximately 500 public workshop comments, the staff formally issued DG-1145 for a 45-day public comment period on September 7th of 2006. Prior to that, we made DG-1145 available to the public electronically on the NRC's public website and that was on September the 1st.

The public comment period closed on October 23rd, 2006 and we received approximately 700 public comments. The bulk of comments came from NEI as they acted as the focal point for compilation and consolidation of industry comments. In addition, we received public comments from AREVA, General Electric, Burns and Rowe, ANS and a few nuclear industry consultants. Among the many other new reactor efforts in which the staff is currently engaged, including

ESBWR design certification review, review of AP1000 technical reports and the Vogle ESP review, the Clinton ESP hearing, and pre-application meetings with AREVA and Mitsubishi on their certified designs, SRP updates and Part 52 rule-making, the staff is also working on resolving the 700 public comments on DG-1145 and conforming DG-1145 with the updated SRPs and the proposed final Part 52 rule.

Characterization of public comments may sound a little bit redundant to the previous presentation because we have some of the same issues that came up during the public workshops that were submitted as public comments. Part of the reason for that is because we had another workshop in September after DG-1145 was issued for draft, but that is only a small set of the reason.

So the first item -- the first type of comment that we received which I'll discuss is what I call the COL information availability comment. This comment was made in several areas where the guidance document requested information that would not be available at the time of COL application submittal or even during the COL application review phase. For example, the guidance in Section C.I.1.8.3.2 for onsite DC power systems requested battery

characteristic curves. These battery characteristic curves will not be available until after batteries have been procured which will be after submittal of the COL application and could likely be after issuance of the license.

As another example, the guidance in Section C.I.3.6.2 for determination of pipe ruptured locations and dynamic effects associated with the postulated rupture of piping requested that applicants provide in addition to their design criteria detailed information on containment penetrations and protective assemblies or guard pipes to be used for piping penetrations in the containment areas. This detailed information is not expected to be available at the time of COL application submittal.

MEMBER WALLACE: We know the guidance to the batteries, why don't you just have specifications of the functional performance required and then you get the appropriate battery?

MR. OESTERLE: Our thinking was in line with yours and that was one of the ways we discussed resolving this issue. Another characterization of the comments is what I'll call the passive plant comment. This type of comment requested specific or additional guidance in areas where the requirements for structure

systems and components in plant designs that incorporate passive safety systems differ significantly than those plant designs that incorporate the traditional active safety systems. For example, the guidance in Chapter 8 did not provide any specific requirements for offsite AC power systems for passive plant designs that rely on Class 1E batteries for emergency power and non-safety related diesel generators for battery recharging.

Likewise, the guidance in Chapter 9 did not provide any specific requirements for the diesel generator support systems such as the fuel oil storage and transfer system, cooling water systems, starting air system, lubrication system, air intake and exhaust systems for passive plant designs that rely on Class 1E batteries for emergency power.

MEMBER SIEBER: But diesels are not safety-related, right?

MR. OESTERLE: Right, right, but the discussion that was included in the guidance document reflected the assumption that the diesels were safety-related and that was the comment, that they were non-safety related diesels.

MEMBER SIEBER: Yeah, safety-related diesels and safety-related building and there's a ton

of money goes into building and redundant auxiliaries and all kinds of stuff.

MR. COLACCINO: This is Joe Colaccino. Part of the challenge of putting this guide together, one of the things that we wanted to do is make it as generic as possible. And so it was a conscious choice not to distinguish between active and passive safety systems because if you look at our certified designs, they area combination of both active and passive safety systems. So for instance, for an AVWR which does have safety-related diesels, that information is needed. For a passive safety system plant, that information wouldn't necessarily need to be provided necessarily during the certification. So there's a couple of ways, I think, that the team is going to look at how they do this. And you know, it's either -- you know, one thing you could do is to either provide guidance, that's separate guidance in these areas on passive and segregate, you know, bifurcate and provide parallel guidance for passive safety system plants, you know, in parallel with the guidance that you have there.

Another way would be to define a process for if you don't -- if you have a passive safety system plant and how you don't need to provide certain

types of information. The industry is looking for more detail which, you know, in some ways, I think is a good thing because they're trying to facilitate the staff review. I think that's their ultimate goal.

MEMBER SIEBER: I think the whole thing should hinge on what the QA classification is. For example, Category 1A diesel is safety-related obviously and therefore, it gets all the bells and whistles and if you write the requirement, you have to provide this information for Class 1A diesels or Class 1A equipment, then you're automatically making the distinction between passive safety systems and active safety systems, and also the civil works that go with it and auxiliaries. That's one way to do it.

MR. COLACCINO: Yeah, I agree. I think there are -- you know, it's like how the distinction is made and in their comments, the industry expressed that they wanted specific guidance on where -- in certain areas and I believe they gave us a number of those areas and so the staff is going to go back and look at what's the best way to do that in the limited time that we have.

MEMBER SIEBER: Well, if you adopt the QA category method, then the argument becomes is it 1A or not 1A as opposed to does a passive system require a

safety-related diesel or not. You can deal with more individual pieces of equipment by the categorization. Your choice is whatever you choose to do.

MR. OESTERLE: Okay, moving on, the next bullet is on design finality and that was a similar issue as previously discussed. This type of comment was specific to Sections C.III.1 and C.III.11 which provide guidance to COL applicants that reference a certified design in ESP. The design included in the scope of the certified design achieves finality in accordance with 10 CFR 52.63. However, the guidance document requested in certain areas, design information from the COL applicant, for some areas that had already been certified.

For example, guidance in Chapter 9 of Section C.III.1 requested information that should already have been addressed in the certified design for -- such as diesel generator certification.

MEMBER ARMIJO: On that issue of design finality, that works both ways. What does the applicant have to do in the event that he wants to change something substantive in a certified design?

MR. OESTERLE: There's a design change process that has been codified in the regulations in what we call the design certification rule and they

are included in the appendices to Part 52 that identified the process that an applicant has to go through to make a change to information included in the certified design.

MEMBER SIEBER: You have to modify the application then because you can't have a safety evaluation that reflects something that you actually didn't build. You built something else and so for the application to be valid, it would seem to me you have to modify it to match what it is you actually bought and installed in the plant.

MR. OESTERLE: The next item again, you've heard before, it's on inspections versus ITAAC. This comment was associated with Section C.I, which contained guidance for a COL applicant that does not reference a certified design or an ESP. In areas where the guidance document requested information that was either not available at the time the COL application was submitted or required an update to verify that as-built or as procured information to conform with the design, the guidance document also requested the applicant to insure or identify that appropriate ITAAC existed or was proposed.

Commentors suggested that construction inspections rather than ITAAC were the more

appropriate verification mechanism for that information.

The last bullet on this slide is the plant-specific PRA which we heard a lot of discussion on earlier. Several comments were related to the guidance provided on plant specific PRAs. As discussed earlier today, the guidance on plant specific PRAs will be revised based on the changes in the Part 52 rule that was sent to the Commission. By and large, the guidance provided in DG-1145 on PRAs is consistent with Commission policy with respect to those areas that we heard about on the large release frequency and conditional containment failure probability.

We had numerous comments on ITAAC, the guidance provided in Section C.II.2. These comments generally focused on the use of ITAAC for verification of items that were considered more detailed than top level performance requirements or design requirements that ITAAC were originally intended to verify. Many ITAAC comments were focused on the guidance provided for development of ITAAC for instrumentation and control systems.

The next bullet is on the Environmental Report and finality of an EIS. The comments that we

received, again, focused primarily on the outdated nature of Reg Guide 4.2 and that we needed better guidance on the use of NUREG 1555. Other comments focused on the importance of resolving the issue of finality of an Environmental Impact Statement associated with an ESP. And we have more definitive language that was part of the Part 52 rule that went to the Commission now which included a clarification on the new and significant information issue with respect to EIS'.

The last comment that I'll discuss is what I call the buried guidance comments. During development of the draft work in progress guidance document which was posted on the NRC's public website, as I mentioned before, we received approximately 500 public workshop comments. The staff developed responses to these comments and included these responses in Appendix I to DG-1145 or Appendix 1, however you want to look at it.

And the reason for doing that was to include those as a historical record of the development of the guidance document. In areas where the staff agreed with the comment and agreed to change the guidance documents, either the document failed to get revised or the basis for the staff agreement

failed to get incorporated into the document or both. And example of this is as follows.

The guidance in Section C.I.2.3.3 on meteorological data requested at least two years of data to be submitted with the COL application. Workshop questions requested whether it was acceptable for an applicant to provide one year's worth of meteorological data at the time of COL application submittal and supplement that data with an additional year's worth of data from the same site after it had been collected and prior to issuance of the license.

This was intended to apply to a Greenfield site that did not have a meteorological tower and a meteorological program comparable to the Reg Guide 1.23 program in place for a sufficient period of time to acquire all this data. The staff agreed with the comment and -- but failed to provide the flexibility in the guidance document for allowing the supplemental submittal with the additional year's worth of data.

And that concludes my prepared remarks on characterization of public comments on DG-1145.

CHAIRMAN KRESS: Thank you very much. Are there are questions?

MEMBER WALLACE: Well, I don't have a question. I just read -- I didn't read all the public

comments, there are too many but I read some of the replies and my general sense was that you were being very responsive and professional in the way that you replied to these comments. That was my general sense. I just wanted to say that.

MEMBER CORRADINI: There's two sets of comments, though. Somebody clarified that for me, the ones in the appendix is from the workshops and then the big thick thing we got --

MEMBER WALLACE: The big thick thing we got --

DR. SAGGESE: -- is after -- is post-September.

MEMBER WALLACE: Those are the ones, have they been responded to or not? Not at all, no.

MR. COLACCINO: No, we're still working on them.

MEMBER WALLACE: So I'm looking at the other responses then.

MR. COLACCINO: Yes, the public workshop comments.

MEMBER CORRADINI: As you said, a lot of them are coordinated from something that they saw there and then it still stayed in the draft and they essentially again --

MR. OESTERLE: In addition, one of the timing issues that we had to deal with was the workshop that we had in September was held after the draft had already been issued. So any comments that came up during that public workshop, we requested that the commentors submit those as public comments, during the public comment period on 1145.

MR. COLACCINO: This is Joe Colaccino. Another point, you know, with regards to the two sets of comments, we used those comments initially in our development of the draft work in progress comment, the product that ultimately became the draft. We didn't stop working after we issued the draft. Eric put together a team and they went through and they read 1145 cover to cover. And my last number that I heard, is they -- it was about one-third of the comments out of the 700 that you identified, those typos and things that were wrong.

And so we appreciate -- I mean, we can't -- you know, we work with the industry on -- this was a collaborative effort, if you will, on helping us produce a high quality document, but we kept right on working and you know, we caught a lot -- a fair amount of what the industry had highlighted. So I look at that you know, the 700 is probably comments that, as

Eric said, were not able to be resolved in September that we weren't able to address, plus some additional things, things that we've heard throughout the seven public workshops. So in all, you know, 700 sounds like a pretty big number and if you add 700 and 500 it's 1200 and that's a lot, but I mean, actually, you know, we really were pleased with the public participation in this whole development process.

MEMBER SIEBER: You were able to boil down 500 comments --

MR. COLACCINO: Major ones in lots of little areas.

MR. OESTERLE: Five groups of 100 each.

MR. COLACCINO: Yeah, I mean, yeah, that's right, and that -- you know, and we like that level of detail, too, because I think it's really important as we go forward and review this application section by section, that we have discussions. One of the purposes of having these public workshops also was to engage our COL applicants well in advance of receiving an application. Initially, what they were telling us one year ago was that each applicant wanted to have a meeting with the NRC staff on each chapter. So if you multiplied 19 times 19, that becomes a big number of meetings. And so we were able to gain some

efficiencies by developing the guide and having public workshops at the same time.

CHAIRMAN KRESS: So at this time I propose we take 15 -- let's take a break until 3:00 o'clock and then we'll hear the industry comments at that time.

(A brief recess was taken at 2:38 p.m.)

(On the record at 3:00 p.m.)

CHAIRMAN KRESS: We will now hear the industry comments. Ms. Kass?

MS. KASS: Yes, good afternoon. I am Leslie Kass with NEI. Russ Bell sends his apologies he could not be here and sends me in his stead. And as you can tell, we appreciate the opportunity to be here to address you today because we do love to comment. I will thank Eric Oesterle for doing such a good job describing our comments. I feel I have very few things to tell you this afternoon but first I wanted to start with, we really appreciate that efforts of the staff. To push out an 1100-page guide in nine months is a tremendous effort. We also appreciate the workshops along the way because when you're doing something that quickly, I think it certainly benefitted us and benefitted them to have the feedback to make a better product and we really

worked together to do that.

Also, you know, on our side we had the industry participants from several utilities, vendors. We tried to do our best and this has been an effort that brings us all towards standardization. We appreciate the guidance because it's something that we needed to help us to form these applications but anything that we can do to make them more standard, of course, is going to make the whole process go smoother and help us all to focus on the critical areas of safety as opposed to being bogged down by the administration of so many thousands of pages of work.

So with that, we just had a few comments for today. I wanted to clarify what Mr. Matthews said this morning regarding no new regulatory requirements in DG-1145. We would agree with that because it is guidance. It's not a rule, therefore, it can't be a new regulation. However, we did find that in some areas there were items requested that extended beyond the current regulation. I think, as Eric mentioned, Chapter 18 was a classic example of that where we went beyond 0711. However, they're aware of it. We've provided extensive comments on that and would expect to see that probably come around in the next version.

Also with all of the comments and

information, I wanted to let you know, don't let the size of this think in any way it mars the quality of DG-1145. These comments range from everything as an extra spell-checker, as you mentioned, to some of the issues that were probably addressed in workshops but didn't get a chance to get in there, just by its size and the amount of information. This reflects our commitment to a thorough review and our commitment to adopt this and use this guidance.

So we feel like this is a lot of hard work we've put into this to try to help. It's not a criticism of what was provided. Other than that, anything, as they mentioned today in several cases and our ears were perked, that there were things that are being changed. Anything, of course, that we can see in advance, we are always begging for. We have people right now working on their COL applications in real time and have been adjusting to these changes as they come but anything that they can see in advance to help them get in the right direction would be appreciated.

But we are looking forward -- I believe you're planning a workshop once the final guidance comes out with Russ where --

MR. OESTERLE: Yeah, we've had some discussions with Russ and the staff is considering

some additional public forums to share information on our progress on DG-1145. And initially we had talked about a possible workshop in January, but those plans have not been finalized at this point.

MS. KASS: Anything like that, we are always happy to work on and participate. So with that, are there any questions for --

MEMBER ARMIJO: Yeah, on the part of the industry, what are the remaining major issues, contentious issues that you have with the current guide?

MS. KASS: Actually, I'll have to say Eric's presentation addressed them point for point. I can't think of anything else that was big. There were -- if you look back, I believe it was related to some of the things relative to finality of EIS, finality of the DCD. We have a few areas where we're looking for clarification of the language where we've agreed on something in a workshop that just didn't make it into the final guidance or into this current draft, not to be confused with the other drafts that they've been kind enough to share. The information -- a big thing for us, of course is information that we're just not in a position to provide at the time of COL, which makes perfect sense and then some of these

passive versus active plant systems, you know, those just need to be clarified. And then the PRA, again, I think we've dealt with here and with the new rules coming out some things changing, but that, of course, we had three big comments in that area. And then the ITAAC, that will be ongoing. We're working on some language in Part 52 for ITAAC right now as a matter of fact, just trying to make sure that that process, everyone is aware of what's happening, preparing for it so that we kind of get to the end and once we're building and it all makes sense and fits together.

MEMBER WALLACE: Your comments are so friendly, I think we'll have to have you back here again as a representative of NEI.

MEMBER ARMIJO: Yeah, there's no contention, everybody is happy.

MEMBER SIEBER: It seems to me that in the preparation of the first COL application and the staff's review of that, there's going to be a lot of lessons learned out of that and I would encourage both the industry and the staff to write down the lessons that are learned and pass that on so that we only make mistakes one time and as opposed to having everybody make it and then everything slow down and a lot of extra work. I think that would be something that you

ought to think about doing as you move forward.

MS. KASS: And then I think --

MEMBER BONACA: The bigger issue, I think is going to be the amount of information available at the time of COL and, you know, you can make a big effort right now to figure it out but I think there will be still surprises out there and you know, I don't know how flexible the process is going to be to accommodate those issues.

MS. KASS: I think our best defense with that will be that we are trying to work very closely. One of the benefits we do have is some of the consortia participating in the first COL application so we have multiple utilities participating in those which gives us a little broader exposure so that everyone can kind of learn together as opposed to one utility learning in isolation and then trying to share those lessons.

MEMBER SIEBER: Actually, that process worked very well, I think in the plant license renewal programs because they now appeared to me to be pretty efficient they way they're done and I think you can do the same thing with this kind of a program.

MR. OESTERLE: Yeah, this is Eric Oesterle from the staff again. The staff is already having

some internal discussions about future revisions to Reg Guide 1.206 which is what DG-1145 will become, you know, in anticipation of lessons learned and other guidance that may need to be incorporated into it as a result of rules becoming finalized. Currently, there are a number of rulemakings that are going on out there that are in various stages of the process. So we recognize that there are going to be some revisions required to Reg Guide 1.206 and we don't plan on letting that solidify and stay stagnant like Reg Guide 1.70 did for so many years.

MEMBER BONACA: Have the vendors commented through NEI or independently?

MS. KASS: I'll let Andrea --

MS. STERDIS: I'm Andrea Sterdis and I'm the AP1000 licensing manager from Westinghouse. We have been very involved with the NEI review process. We have supported all of the workshops as Eric will tell you, and we're continuing to work on the issues and I have to commend Eric. The list of hot topics that he gave you are definitely the topics that Westinghouse and the utilities through NEI have focused on.

MR. JOHNSON: Now that we've focused on them, are we coming to resolution?

MR. OESTERLE: Yeah, I guess I wanted to get that --

MEMBER ARMIJO: Are you at an impasse or is it kind of converging to --

MEMBER CORRADINI: You identified them. Let's just take the PRA ones here. So on page 67, 68, 69 there is an extended discussion of the NEI comments and the staff response. So do you agree to disagree? Do you agree? Where is the commonality, that's what I think Bill is wondering about.

MS. STERDIS: I think that you know, Leslie is relatively new on the scene so I'm going to try and help just a little bit here. I think, and Eric and I were kind of chatting a little bit about this at the break, we know that we're coming to a convergence on several of these issues. I don't know if Charlie is still here. He's not. Chapter 12 was the very first chapter that we discussed in one of these workshops and we went ballistic because we felt there was no respect for design certification finality.

In the revision that came out in September, that issue was resolved favorably. We had no additional comments on Chapter 12 regarding design certification finality. We have not seen yet the

revisions that Eric eluded to reflecting the comments that we've put in since -- in the October time frame, so we're anxiously trying to work through these additional public forums so that we know where we still have problems and then you will hear from us or the staff and the staff management will hear from us on those issues.

MEMBER WALLACE: Well, it's not as if you have to converge. It seems to me in the final analysis, the staff decides. It's not as if convergence is always necessary.

MEMBER CORRADINI: I didn't expect that convergence is necessary. I'm just curious what are the remaining --

MEMBER WALLACE: I just don't want to give the impression that convergence is something which has to happen.

MEMBER BONACA: No, my reason for asking if the vendor participated is that you know, just seeing comments from NEI subsumes that everything has been filtered through and yet, I appreciate this answer from you, Westinghouse AP1000, rather than somebody else because you're going through the process. You know what you put on the table and you are -- I know what you're going to try to defend. So

I think it would be worthwhile at times to know, you know, who generated also the comments.

MS. KASS: I think in the case of, for instance, Digital INC, that's something where we are still working very hard with the staff to find some common ground but there have been -- we had a very good interaction, I think, at the Commission briefing where now there's a common project plan that they're going to be putting together and creating a path forward that we would do that in any area where we still have issues.

MR. OESTERLE: This is Eric Oesterle and I might add to that, that again remember that Digital INC is included in designing acceptance criteria on certified designs. So the focus for getting those design issues resolved appears to be driven by the potential COL applicants. It's in their, you know, vested interest to get some resolutions of those design issues and they're working closely with the reactor vendors and engaging the staff in trying to come to resolution on some of these design issues.

I don't want to say that we have plenty of time out there because we don't. One of the benchmarks or milestones, if you will, that we -- that was identified to us was that COL applicants need to

begin ordering their simulators in 2009, so at least that's one driver to getting these issues resolved.

CHAIRMAN KRESS: Thank you very much. We have one more item on the agenda and that's our summary and plans for the full committee. I wish to have you disregard my earlier comment that we won't have a presentation to the full committee. I've been told also that we probably ought to have a letter because this is the last we'll hear of this one and we need some sort of sign-off on it or other.

So in order to have a letter, we will have a full presentation to the committee. So our role, our problem right now is to decide how much and what part of this extensive discussion we'll bring forth to the full committee, which includes five other people, I guess. So my thought is, we've got two hours scheduled on the agenda for it and my feeling is we still want that overview that we had for about a half an hour and although it's not too much a part of this, I thought the discussion on the PRA parts was pretty interesting and George wasn't here and it would be a good chance to -- I thought also -- well, we have two hours but we have a half an hour for that and then I thought we ought to -- and I thought we ought to leave a half an hour for the industry comments.

MEMBER WALLACE: How about all the people that weren't here today that have comments on those sections? And is Sanjoy going to talk about his comments on accident analysis and computer codes or not at all?

CHAIRMAN KRESS: I think we could have that on there, too.

MEMBER WALLACE: That may take forever though.

CHAIRMAN KRESS: Yeah, we may not -- yeah.

MEMBER BONACA: I think somehow, you know, the four major comments from the industry should be presented.

CHAIRMAN KRESS: Oh, yeah, I think that would be --

MEMBER BONACA: That's in the concern with whatever is generated there. I mean, one is --

CHAIRMAN KRESS: I definitely what that one on there.

MEMBER BONACA: Do you have anyone coming in or --

MEMBER WALLACE: The same person, too.

CHAIRMAN KRESS: Yeah.

MEMBER BONACA: And then a mountain of information available at COL. You know, is this

representing that properly. So those are big issues that seem to be have to be dealt with, you know, to converge and the other thing I would like to communicate again, the impression that at least I got that this is a quality effort which really it's almost a compendium of all requirements that have been developed for close to 40 years.

CHAIRMAN KRESS: Yeah, I think when we write the letter, we'll write the letter, that that may be a comment that goes in the letter. I think the letter will be a favorable one. I don't think it will have any of our comments.

MEMBER WALLACE: It will be short. None of the comments, okay.

CHAIRMAN KRESS: No, it will just be a short thing.

MEMBER WALLACE: Okay, because if you put the comments in, it may be very long.

CHAIRMAN KRESS: Oh, yeah, I don't think we'll do that.

MEMBER ABDEL-KHALIK: If I may make a comment, Tom.

CHAIRMAN KRESS: Yes.

MEMBER ABDEL-KHALIK: You know, as others have said, of course, the staff is to be commended for

developing this massive document in such a short and timely manner but by necessity, the development of the document has been done piecemeal. Different people developed different parts and also the review of the document has been done piecemeal. Simply different people reviewed different pieces, whether it's on the industry part or on ACRS part. And therefore, it would seem to me that before a final document is to be issued, there needs to be two things.

Number one, a consistency check so that you know, somehow a process has to be done so that the different parts of this document are internally consistent. And the second part that needs to be done is a completeness check because there are several options, whether it's a custom design or a certified design or an ESP and presumably at the end of the day, each one of these options has to provide the same totality of information to the NRC in order for them to make a decision. And therefore, you know, regardless of whether that information is provided through this mechanism or had already been provided earlier through the certified design or the SP process.

But somehow we need a consistency check and a completeness check.

CHAIRMAN KRESS: I think you've just supplied me with a couple of bullets for a possible letter that we're going to have.

MEMBER SIEBER: You could task him with writing the letter.

MEMBER SHACK: Just so you don't have to do the completeness check.

CHAIRMAN KRESS: So that's where those sort of comments, I think will belong in a possible letter.

MEMBER ARMIJO: Yeah, top level.

MEMBER WALLACE: The completeness is difficult to assure, isn't it?

CHAIRMAN KRESS: Oh, yeah, that's always a tough problem, the completeness check.

MEMBER CORRADINI: But I guess from the standpoint of just -- if we're just in open discussion, Said's point I think is well-taken, but I guess you could use, Said, an empirical way of doing this. You can take -- I can't remember, I think it was Jack that said it is you can take, what did you call it, a 1980s plant and their FSAR and do a mapping to make at the very least that the guide and I'll use your terminology, checklist, that the guide has a kind of one-to-one correspondence of the things you'd

expect to see in that FSAR on top of that, the requirements relative to the PRA.

CHAIRMAN KRESS: You guys are discussing what should be discussed in the full committee.

DR. SAGGESE: Sorry.

CHAIRMAN KRESS: Well, that's all right, we can make recommendations to the full committee but this is what we would discuss when we talk about making recommendations for a letter.

MEMBER BONACA: But we really are presuming that they didn't do this. I mean, we should ask at least a question to the staff whether or not this verification was done. I mean, clearly we -- we did the review and so we've done done it and give something away but we were looking at general characteristics and not completeness. I don't think we were doing that.

CHAIRMAN KRESS: Oh, yeah, we didn't do that.

MEMBER SIEBER: Well, I looked at it from the standpoint of completeness because you recall some of my earlier e-mails, I started to identify what I thought was missing and then people were writing me back, "Well, it's not missing, it's in this other section". And so in order to be able to do a

completeness check, somebody's got to understand the entire document, where everything is.

MEMBER BONACA: One of the things that the ACRS should be involving itself in performing this, we should verify that the effort done, okay, is a quality effort which is the question, have you done a completeness check?

CHAIRMAN KRESS: Yeah, but we shouldn't do the check ourselves.

MEMBER BONACA: But I think we should at least ask the staff because they may say to us, "Yes, we did". So why should we put the recommendations to do it when they've done it.

CHAIRMAN KRESS: Yeah, we don't want to recommend they do something they've already done.

MEMBER SIEBER: Well, they started off with the base document and just updated it, right?

MR. OESTERLE: Well, we started off using Reg Guide 1.70 as the basis, right, and updated that with a lot of other information.

MEMBER SIEBER: I don't think that they approached it from the standpoint of completeness the way -- and there's a variety of ways that one could do it. The question is, you know, for example, you can take an old FSAR and compare it and say, do I end up

with the same kind of application out of the new set of rules that I got out of the old set of rules.

CHAIRMAN KRESS: I think the trouble with that is, you can take the old set of rules and end up with a wide range of FSARs.

MEMBER SIEBER: That's right.

CHAIRMAN KRESS: And so it doesn't really tell you anything.

MEMBER SIEBER: Well, you'd have to take a late model as opposed to an early model, because the late models are about twice the size of the early ones.

MR. OESTERLE: This is Eric Oesterle from the staff. One thing that I'll expand upon that Joe Colaccino mentioned earlier was that while the draft DG-1145 was out for public comment, the staff initiated its own internal review. We call it the DG-1145 reading team, and we started in early October and our purpose was to read each chapter, each section of DG-1145 from cover to cover and do exactly what you were recommending to do and that is to review it for consistency from section to section, review it for completeness. In fact, we have -- as Joe mentioned, we have identified some of the same comments that NEI submitted to us and we have also identified additional

comments that they did not submit to us that will go towards making this a more complete and consistent document and, in fact, the instructions that I wrote up for the team to review this thing recognized that a lot of different people contributed to writing this document on a section by section basis and so we need to review it as -- holistically, if you will, as a whole document but the fact of the matter is, when an application does come in to get reviewed, it will be reviewed on a section by section basis in accordance with the SRPs.

MR. JOHNSON: You might add a view graph to that effect to your overview.

CHAIRMAN KRESS: Yeah, that might be --

MEMBER BONACA: Because the point that Said raised was a good point. But I think we want to give you the chance to address it and I think what you're saying is that it was done. So you might want to put it in a view graph.

MR. OESTERLE: We're still working on it.

MEMBER ARMIJO: I'm less concerned about completeness than I am about redundancy because I think there's going to be the same information or similar information requests in different chapters.

CHAIRMAN KRESS: Redundancy is a good

thing.

MEMBER ARMIJO: Well, not if the -- not if the applicant prepares it the same way. A bunch of guys submit these material properties, a bunch of other guys working on another section submit this stuff and it's not the same.

MEMBER SIEBER: That's the way I would do it.

MEMBER ARMIJO: Yeah, but if you're not --

MEMBER SIEBER: As an applicant, I would take it piece by piece and --

MEMBER SHACK: He's going to do his consistency check. That's a consistency check.

CHAIRMAN KRESS: That's a consistency check.

UNIDENTIFIED SPEAKER: You think so.

MEMBER SHACK: Well, I mean, you know, that's part of the team's effort is completeness and consistency. I mean, you know, clearly when you've got people doing different things you do have to come back and make sure that they're consistent and again, they may not be perfect but I'm sure after -- first you have to have the total document together before you can make the --

MEMBER ARMIJO: Oh, that's true, that's

true.

CHAIRMAN KRESS: So far I've got suggestions for the full committee on overview, discussion of the amount of information available at the COL stage, perhaps we'll talk about the PRA part and definitely the industry comments. And there was a suggestion about missing comments from our committee members that weren't here. I would not be in favor of having those.

MEMBER WALLACE: If there's anything significant, I think they ought to be able to bring them up.

CHAIRMAN KRESS: Well, they ought to have them on the record and written. We're still going to give the staff our written comments and those can be appended --

MEMBER WALLACE: If anybody has a real, real hangup about some area, then it should come through, shouldn't it? I mean --

CHAIRMAN KRESS: Well, what I'm thinking is we will have a letter and if somebody has a real problem, a real issue then they ought to come out and say --

MEMBER WALLACE: Well, I want reassurance. I've heard from people here about maybe 40 percent of

everything, but I haven't heard anything about these other areas, so I have no idea about how good they are. I'd like some reassurance from these people who we haven't heard from, that their areas are okay. It doesn't have to be a long statement.

CHAIRMAN KRESS: Powers and Sanjoy?

MEMBER WALLACE: Well, Maynard has quite a few. Maynard has a lot, Powers has a lot, Sanjoy has several, Aposrolakis.

CHAIRMAN KRESS: Well, my feeling is not to fit those into the two-hour period that we have allocated to the full committee but we have that as part of the discussion period right at the end.

MEMBER WALLACE: At the end, you could do that, you could do that.

MR. JOHNSON: Actually, though, we seen responses from both of those people.

CHAIRMAN KRESS: Yeah, that's why I think it's unnecessary to do it during the July period.

MEMBER BONACA: Because, I mean, some of the issues we're dealing with content of existing regulation. The question, you know, we discovered today that there's nothing new here. Okay, we're referencing existing regulations. In fact, a central point of debate has been, hey, don't generate new

requirements here because there is nothing new. And some of the comments I saw that came from some of the members, we're arguing about some issues which are really in the regulations right now. They're only referenced here, so you might want to change it but that's not really the place to do that.

MEMBER CORRADINI: Meaning the comments.

MEMBER BONACA: Comments, yeah, in the comments, that's right. When I think about some of the comments, were more comments about the regulation which is referenced here in this document than the document itself which is nothing else but, you know, a guidance document based on existing regulations.

MEMBER WALLACE: Well, Banerjee, I think, one of his comments said one of the areas should be rewritten. Now, that's a major comment. Now, is there going to be any response from the staff to that at this meeting so we know --

MEMBER SIEBER: If he never gets a chance to present it, he'll never get a response.

MEMBER WALLACE: This is just going to be an open-ended thing. We don't really know whether Banerjee is right or not. No response from the staff?

MEMBER SHACK: Well, since they haven't seen his comments, yet, if they put them in, they're

going to have -- the staff will respond to them.

MEMBER SIEBER: They haven't seen them so they can't reply.

MEMBER SHACK: If they put them in, the staff will respond to them.

MEMBER CORRADINI: I'm sure they've seen them. They printed up some of the things I thought I was just sending an e-mail, so I'm sure they saw Sanjoy's too.

MR. FISCHER: Yeah, we just got Mr. Sanjoy's comments yesterday, so we really haven't had time to look at them.

MEMBER WALLACE: So you don't have a response to that yet, okay.

MEMBER SIEBER: You've got a lot of time.

MEMBER WALLACE: I'm just concerned about a show-stopper.

CHAIRMAN KRESS: I don't think that Sanjoy and Powers and Maynard comments, we'll talk about that.

MEMBER SIEBER: If you put in a slide on completeness and consistency, you could avoid a recommendation.

(All speaking among themselves.)

MEMBER WALLACE: You'd have to restrain

George on the PRA.

MR. FISCHER: Eric, did you get the four items that you wanted covered during the meeting?

MR. OESTERLE: Yeah, just let me read this back to you. The first item I have is the DG-1145 overview. PRA is what I have as the second item. COL information availability, industry comments and then I have the last one as the 3Cs, completion consistency and conformance with the Part 52 rule.

CHAIRMAN KRESS: Yeah, that may only take one bullet on a view page.

MEMBER BONACA: Just a view graph to show what you did.

MEMBER SIEBER: Now, let me understand. PRAs are not required, right? So what is --

CHAIRMAN KRESS: They're not, but they are.

MR. OESTERLE: Well, again, a PRA -- and I apologize if I sound like I'm splitting hairs but a PRA is still required. It is not required to be submitted.

MEMBER SIEBER: All you have to have is the bottom line number. Right.

MR. OESTERLE: You have to have something that the staff can come and inspect and audit.

MEMBER SIEBER: You need some of the shortcuts.

MEMBER WALLACE: It's available for audit.

MEMBER BONACA: You look at the human factor for example, there are a lot of requirements there which are based on PRA results and insights.

MEMBER CORRADINI: Can I ask a question now, since I thought I knew the definitions, Mr. Chairman? So Level 3 implies accident sequence analysis, containment analysis, consequence analysis. Full scope implies internal and external.

CHAIRMAN KRESS: Yes, sir, and shutdown.

MEMBER CORRADINI: And shutdown sequences.

CHAIRMAN KRESS: Yeah, and --

MEMBER CORRADINI: Shutdown events, I should say.

CHAIRMAN KRESS: You got it right.

MEMBER CORRADINI: Thank you. So a three by three matrix -- so what's required for the application since I just developed in my mind that way and that way.

CHAIRMAN KRESS: Just Level 1 and Level 2 without fission problems.

MEMBER CORRADINI: So Level 1, Level 2 that is accident sequence analysis. Some --

CHAIRMAN KRESS: I don't think a full Level 2 is required.

UNIDENTIFIED SPEAKER: Enough to get you to alert.

CHAIRMAN KRESS: To alert which doesn't really --

UNIDENTIFIED SPEAKER; I don't understand how they do it, but that's okay.

CHAIRMAN KRESS: They set up the frequencies of large early failures which doesn't involve fission problems.

MEMBER SIEBER: It doesn't have to be early.

MEMBER CORRADINI: I've got that row quasi filled. And the role of internal/external, it's internal events, external events but not necessarily shutdown.

MEMBER BONACA: Yes, there is a shutdown.

MEMBER SHACK: It's full scope. Typically, you have detailed internal events less detailed external and even less detailed shutdown.

MEMBER SIEBER: You have --

MEMBER CORRADINI: Since it's not in here and it's referenced somewhere, where does the detailed, less detailed and kind of detailed -- how

specific does that get because I still feel there's a lot of mushiness in those boundaries.

CHAIRMAN KRESS: The only place you'll see those is in the PRA standards for license -- changes to the licensing basis. They're not requirements in any other part of the regulations.

MEMBER SIEBER: And it's been taken out of the rules.

CHAIRMAN KRESS: It's been taken out of the rules. So you don't really see those. There's no reg guides on those yet. They're part of the ongoing -- they're part of the ongoing discussions on risk informing the regulations and changes to the licensing basis.

MEMBER CORRADINI: Well, I mean, I'm partly teasing. I want to make sure, if it's not part of a reg guide and it's not a code standard, then there must be some sort of acceptable process. Where does that code found? How do you know when you're doing it wrong?

MEMBER SIEBER: Your peers tell you.

MEMBER WALLACE: They tell you.

MEMBER SHACK: Yeah, I mean, you sort of go to what seem like good practices, you know, but there's not -- there's not standards for parts of

those yet. They're still working on those.

MEMBER SIEBER: Right.

CHAIRMAN KRESS: They're still working on the standards.

MEMBER BONACA: There are standards for some parts.

MEMBER SHACK; Yeah, there are standards for some parts.

MEMBER SIEBER: And that's why the regulations are sort of mushy is they aren't far enough along yet to make it solid.

CHAIRMAN KRESS: Okay, I mean, those are good questions for a new member to ask.

MEMBER SIEBER: Yeah, one slide ought to do it, Mike.

MEMBER WALLACE: An old member would never have thought of them actually.

CHAIRMAN KRESS: Yeah, we forgot about it long time ago. I am about to bang the gavel. I am about to bang the gavel. Any other comments? Okay, I declare this subcommittee session adjourned.

(Whereupon, at 3:33 p.m. the above-entitled matter concluded.)

CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Advisory Committee on Reactor Safeguards Future Plant Designs Subcommittee

Docket Number: n/a

Location: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Toby Walter
Official Reporter
Neal R. Gross & Co., Inc.

Advisory Committee on Reactor Safeguards
Future Plant Designs Subcommittee
Draft Regulatory Guide DG-1145
November 30, 2006
T-2 B3, Rockville, MD

-REVISED AGENDA-

Cognizant Staff Engineer: David C. Fischer DCF@NRC.GOV (301) 415-6889

	Topics	Presenters	Presentation Time
I	Opening Remarks	T. Kress, ACRS	8:30 am - 8:40 am
II	Staff Introductory Remarks	D. Matthews, NRR	8:40 am - 8:45 am
III	DG-1145 Overview - Purpose - Format and Structure - Developmental Basis - Status Member Comments (Chapter-by-Chapter)	E. Oesterle, NRR T. Kress	8:45 am - 9:15 am 9:15 am - 9:45 am
IV	PRA / RTNSS/ RAP	D. Harrison, NRR P. Prescott, NRR	9:45 am - 10:30 am
	BREAK		10:30 am - 10:45 am
IV	PRA / RTNSS/ RAP	D. Harrison, NRR P. Prescott, NRR	10:45 am - 11:30 am
V	ITAAC / DAC	E. Oesterle, NRR	11:30 am -12:00 pm
	LUNCH		12:00 pm - 1:00 pm
VI	COL Action Items	E. Oesterle, NRR	1:00 pm - 1:30 pm
VII	Operational Programs	E. Oesterle, NRR	1:30 pm - 2:00 pm
VIII	Workshop Issues - Design Finality - COL Information Availability - Inspections / ITAAC - FOAKE / EDV	E. Oesterle, NRR	2:00 pm - 3:00 pm
	BREAK		3:00 pm - 3:15 pm
IX	Characterization of Public Comments	E. Oesterle, NRR	3:15 pm - 4:00 pm
X	Industry Comments	Leslie Kass, NEI Russell Bell, NEI	4:00 pm - 4:45 pm
XI	Summary / Plans for Full Committee	T. Kress, ACRS	4:45 pm - 5:00 pm

NOTE:

- Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.
- 35 copies of the presentation materials to be provided to the Subcommittee.

ACRS Subcommittee on Future Plant Designs

Presentation on DG-1145

November 30, 2006

ACRS Subcommittee on Future Plant Designs

David Matthews, Division Director
NRO/DNRL

Draft Regulatory DG-1145, "Combined License (COL) Applications for Nuclear Power Plants (LWR Edition)"

Developed in response to external stakeholder need for timely guidance

High level of external stakeholder participation during development

Draft Regulatory DG-1145, "Combined License (COL) Applications for Nuclear Power Plants (LWR Edition)"

Intensive, expedited, and committed staff effort

High level of NRO/NRR management support

High level of Commission interest

Draft Regulatory DG-1145, "Combined License (COL) Applications for Nuclear Power Plants (LWR Edition)"

Eric R. Oesterle, Lead PM
NRO/DNRL/NGIF

DG-1145 Overview

Purpose

- Provide guidance to potential applicants on format and content for a combined license (COL) application pursuant to 10 CFR 52
- COL referencing neither a certified design (CD) nor an early site permit (ESP)
- COL referencing a CD but not an ESP
- COL referencing a CD and an ESP

DG-1145 Overview (cont'd)

Background and Developmental Basis

- Industry guidance for COL applications (NEI 04-01)
- NEI 04-01 provided guidance for "base case" COL application
- NRC interactions with external stakeholders identified several COL application scenarios
- Staff recognized the need for more comprehensive guidance for COL applicants

DG-1145 Overview (cont'd)

Development Basis

- RG 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)
- Updated SRP revisions (including draft 1996 updates)
- Draft NEI 04-01 guidance for COL applications
- NRC design certification and ESP experience
- SECY papers and associated SRMs

DG-1145 Overview (cont'd)

Development Basis (cont'd)

- Proposed Part 52 rule issued on March 13, 2006 (71 FR 12782)
- Monthly public workshops (March 2006 – September 2006) ~ 500 comments
- All draft work-in-progress sections publicly available via NRC's website by June 30, 2006
- DG-1145 issued for 45-day public comment period on September 7, 2006 (71 FR 52826)

DG-1145 Overview (cont'd)

Format and Structure

- Part C.I – guidance for a COL applicant that references neither a CD nor an ESP (consistent with proposed 10 CFR Part 52.79)
- Part C.II – additional technical information (consistent with proposed 10 CFR Part 52.80)
- Part C.III – COL applicants referencing CDs and ESPs
- Part C.IV – Miscellaneous Topics

DG-1145 Overview (cont'd) Format and Structure – Part C.I

C.I.1 Introduction and General Plant Description*
C.I.2 Site Characteristics
C.I.3 Design of Structures, Systems, Components and Equipment
C.I.4 Reactor
C.I.5 RCS and Connected Systems
C.I.6 Engineered Safety Features
C.I.7 Instrumentation and Control
C.I.8 Electrical Power
C.I.9 Auxiliary Systems
C.I.10 Steam and Power Conversion System
C.I.11 Radioactive Waste Management
C.I.12 Radiation Protection
C.I.13 Conduct of Operations
C.I.14 Verification Programs
C.I.15 Transient and Accident Analyses
C.I.16 Technical Specifications
C.I.17 Quality Assurance and Reliability Assurance
C.I.18 Human Factors Engineering
C.I.19 Probabilistic Risk Assessment Information and Severe Accidents*

DG-1145 Overview (cont'd)

Format and Structure – Part C.II

C.II.1 - Probabilistic Risk Assessment (PRA)
C.II.2 - Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)
C.II.3 - Environmental Report

DG-1145 Overview (cont'd)

Format and Structure – Part C.III

C.III.1 - Information Needed for a COL Application Referencing a CD (consistent format with C.I)

C.III.2 - Information Needed for a COL Application Referencing a CD and an ESP (consistent format with C.I)

C.III.3 - Finality of an EIS Associated with an ESP

C.III.4 - COL Action Items

C.III.5 - Design Acceptance Criteria

C.III.6 - COL Application Timing

C.III.7 - ITAAC for COL Applications Referencing a CD and/or an ESP

DG-1145 Overview (cont'd)

Format and Structure – Part C.IV

C.IV.1 - COL Application Acceptance Review Checklist

C.IV.2 - Submittal Guidance for COLs

C.IV.3 - General Description of Change Process

C.IV.4 - Operational Programs

C.IV.5 - General and Financial Information

C.IV.6 - Limited Work Authorizations and Site Redress Plan*

C.IV.7 - Pre-Application Activities

C.IV.8 - Generic Issues

C.IV.9 - deleted

C.IV.10 - Regulatory Treatment of Non-Safety Systems (RTNSS)

C.IV.11 - relocated to App. I (responses to public workshop questions)

C.IV.12 - Applicability of Industry Guidance*

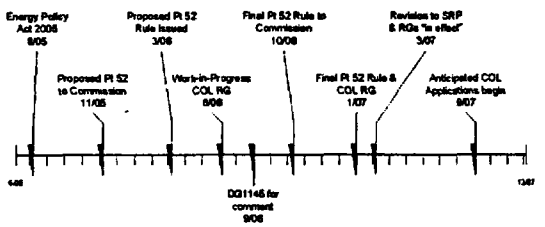
DG-1145 Overview (cont'd)

Status

- Comment period on DG-1145 closed on October 23, 2006
- Approximately 700 total comments received
- Staff is currently working to resolve public comments and revise DG-1145, as appropriate, and conform to proposed final Part 52 rule
- Process in place to ensure consistency between DG-1145 and the SRP and Reg. Guide updates
- Plan to publish final (RG 1.206) after incorporation of public comments and final issuance of the Part 52 rule
- Staff considering additional public forums to update external stakeholders on RG 1.206 prior to publication

DG-1145 Overview (cont'd)

New Reactor Licensing Infrastructure Timeline



DG-1145 Overview (con't)

ACRS Subcommittee questions on individual DG-1145 sections

DG-1145
PRA & Severe Accident Evaluations

ACRS Presentation

Donnie Harrison
Senior Reliability & Risk Analyst
NRR Division of Risk Assessment (DRA)

November 30, 2006

Discussion Topics

- Recent Change to Proposed 10 CFR Part 52
- Bases for Regulatory Guidance
- Objectives of PRA & Severe Accident Evaluations
- Chapter 19 Regulatory Guidance

2

Recent Change to Proposed 10 CFR Part 52

- Proposed 10 CFR Part 52 rulemaking included new 52.80(a) requirement for COL applicants to submit plant-specific PRA
- After completion of DG-1145, the NRC position changed to accept the industry comment to delete this requirement - PRA maintained available for staff inspection at the applicant's office
- Requirement deleted throughout Part 52, including the existing requirement for design certification applications

3

Impact of Change to Proposed 10 CFR Part 52

- DG-1145 will need to be revised to reflect the change in NRC position
  - Majority of guidance presented in C.II.1 (PRA) will need to be incorporated into C.I.19 (FSAR Chapter 19)
- Since FSAR Chapter 19 is a qualitative, summary description of the PRA, results, insights, uses, etc., staff audits will be necessary to fully understand, review, and confirm the bases for the PRA results and insights and adequacy for the PRA uses/applications

4

Bases for Regulatory Guidance

- NRC Policy Statements and SECYs/SRMs
- Experience with Design Certification reviews for CE System 80+, ABWR, AP-600, and AP-1000
- 10 CFR 52.79 PRA/Severe Accident Requirements

5

Objectives of PRA & Severe Accident Evaluations

- Derived from NRC Policy Statements and SECYs/SRMs
- Two Groups of Objectives
  - Identify and assess the balance of preventive and mitigative features (including operator actions) such that the plant design reflects a reduction in risk compared to existing plants(contemporary with Severe Accident Policy Statement of 1985)
  - Specific uses and applications of the PRA results and insights in support of other programs (e.g., RAP, RTNSS, ITAACs, COL and interface requirements)

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Chapter 19 Regulatory Guidance

19.1 Introduction
19.2 PRA Results and Insights
19.3 Severe Accident Evaluations
19.4 PRA Maintenance
19.5 PRA-Related ITAACs, COL Action Items, & Other Commitments
19.6 Conclusions

DG-1145, Section C.IV.10 Regulatory Treatment of Non-Safety Systems (RTNSS)

Eric R. Oesterle, Lead PM
NRO/DNRL/NGIF

DG-1145 - RTNSS

- Plant designs that incorporate passive safety systems should define the active systems relied upon for defense-in-depth and necessary to meet passive ALWR plant safety and investment protection goals
- Process to identify these systems and equipment and determine regulatory treatment is referred to as RTNSS
- Guidance provided in Section C.IV.10

DG-1145 – RTNSS (cont'd)

- Commission policy on RTNSS described in SECY-94-084 and SECY-95-132 and associated SRMs
- High level of confidence that active systems having a significant safety role are reliable
- Process described in Section C.IV.10 taken from NUREG-1793, Volume 3 (AP1000 FSER) and is consistent with above SECY's

Sections C.1.17.4 and C.III.1.17.4 - Reliability Assurance Program

1

Reliability Assurance Program

- SECY-95-132, Item E, "Reliability Assurance Program"
- Design phase/operational phase
- Scope includes plant and site-specific SSCs
- Reliability assurance activities for operational phase integrated into existing programs

March 2007

2

Reliability Assurance Program

- COL application
  - Scope, purpose, objective of RAP
  - Deterministic/other methods for prioritizing SSCs
  - Probabilistic methods for prioritizing SSCs (Section 19)
  - Quality controls (organization, design control, procedures and instructions, corrective action, and audit plans)
  - ITAAC for implementation of design phase

March 2007

3

DG-1145
Inspections, Tests, Analyses, and Acceptance Critieria (ITAAC)
Design Acceptance Criteria (DAC)

Eric R. Oesterle, Lead PM
NRO/DNRL/NGIF

DG-1145: ITAAC

- 10 CFR 52.80(a) requires COL applicants to include ITAAC to ensure facility has been constructed and will operate in accordance with the license
- Generic guidance on ITAAC has been provided in Section C.II.2
- Guidance on ITAAC development and methodology for inclusion of SSCs in ITAAC by COL applicant
- Cross reference of key aspects, analyses, and features of the design for inclusion in ITAAC

DG-1145: ITAAC

COL applicant must include ITAAC for facility:

- ITAAC from referenced certified design
- EP-ITAAC from referenced ESP
- Site-specific ITAAC for design features not included in certified design
- ITAAC for security design features

DG-1145: ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
ASME Code piping retains pressure boundary integrity at design pressure	Report demonstrating piping meets ASME Code	A report exists and concludes piping meets requirements of ASME Code
RCP Flywheel can withstand design overspeed condition	Offsite test	Each flywheel passes overspeed condition of 125% of operating speed
RCS provides automatic depressurization during design basis events	Onsite inspection	Minimum elevation of ADS outlet valves is greater than plant elevation of 110'
RCS provides circulation of coolant to remove heat from core	Test with analysis	Calculated post flood load RCS flowrate is ≥301,670 gpm
Safety related displays identified in table can be retrieved in MCR	Simple Inspection	Safety related displays identified in table can be retrieved in MCR

DG-1145: ITAAC

- Specific guidance on ITAAC for COL applicants referencing a certified design and/or early site permit provided in Section C.III.7
- ITAAC reviewed by NRC in conjunction with with COL application
- Completion of ITAAC to be license condition
- COL holder must successfully complete all ITAAC and prior to operation
- Commission finding per 10 CFR 52.103(g) required for facility operation

DG-1145: DAC

- For design areas that included rapidly changing technology or required as-built or as-procured information
- Digital I&C, control room design, leak-before-break, radiation shielding
- DAC limited to certified designs
- DAC has unique treatment in ITAAC

DG-1145: DAC

- DAC contains an approved design completion process
- DAC includes verification of design implementation
- Approved on a case-by-case basis by Commission
- DAC included in ABWR, System 80+, AP600, and AP1000

DG-1145: DAC

- Guidance provided in Section C.III.5
- Prudent for COL applicants to resolve DAC as part of application but not required
- Certified design vendors are currently working on completion of DAC
- DAC is included in ITAAC, therefore, must be completed prior to operation
- NRC will inspect completion of all DAC

DG-1145, Section C.III.4
Combined License Action Items

Eric R. Oesterle, Lead PM
NRO/DNRL/NGIF

DG-1145
Combined License Action Items

- Guidance on Combined License (COL) Action Items is provided in Section C.III.4 and is also discussed in Sections C.III.1 and C.III.2
- COL action items are specific items that have been deferred to COL applicants that reference the CD and/or ESP
- COL action items are included in both certified designs (CDs) and early site permits (ESPs)

DG-1145
COL Action Items (cont'd)

- COL action items include items outside the scope of the CD and the ESP
- COL action items are documented in FSER associated for the CD and ESP
- COL applicants referencing a CD are required by Section IV.A.2 of the applicable Part 52 Appendix to provide information that addresses the COL action items
- It is anticipated that the terms and conditions for an ESP will include addressing COL action items

DG-1145
COL Action Items (cont'd)

Examples of COL Action Items from FSER on the AP1000:

2.5-10: "The COL applicant will provide site-specific information on allowable soil bearing capacities for static and dynamic loads."

3.6-4: "COL applicants referencing the AP1000 certified design will develop an inspection program for piping systems that are qualified for LBB."

11.2-1: "The COL applicant will provide information on how any mobile or temporary equipment used for storing or processing liquid radwaste conforms to RG 1.143."

DG-1145
COL Action Items (cont'd)

Examples of COL Action Items from AP1000 FSER (cont'd)

4.4-2: "Following selection of the actual plant operating instrumentation and calculation of the instrumentation uncertainties of the operating plant parameters, the COL applicant will calculate the design limit departure from nucleate boiling ratio (DNBR) values using the revised thermal design procedure with these instrumentation uncertainties and confirm that either the design limit DNBR values remain valid, or that the safety analysis minimum DNBR bounds the new design limit DNBR values plus DNBR penalties, such as rod bow penalty"

DG-1145
COL Action Items (cont'd)

Examples of COL Action items from Clinton ESP FSER:

2.3.2: "A COL or CP applicant should, as part of detailed engineering, assess the potential impact of natural and/or mechanical cooling towers on the design and operation of the new facility."

2.4.7.3: "The COL applicant should design the ESP facility UHS intake to maintain a minimum water temperature of 40°F at all times to preclude formation of frazil and anchor ice on the intake inlet."

11.1: "A COL or CP applicant should verify that the calculated radiological doses to members of the public from radioactive gaseous and liquid effluents for any facility to be built on the Exelon ESP site are bounded by the radiological doses included in the ESP application and reviewed by the NRC."

DG-1145
COL Action Items (cont'd)

- COL action items must be addressed by a COL applicant referencing a CD and/or ESP
- Prudent for COL applicants to provide resolutions for COL action items as part of their application
- Section C.III.4 provides guidance on mechanisms available for resolution of COL action items following issuance of combined license (e.g., ITAAC, license condition, operational program)
- COL action items must be resolved prior to operation

DG-1145
COL Action Items (cont'd)

- Development of Sections C.III.1 and C.III.2 was informed by the COL action items for CDs and ESPs
- C.III.1 provides guidance for COL applicants to cross-reference where in the application COL action items from a CD are addressed
- C.III.2 provides guidance for COL applicants to cross-reference where in the application COL action items from an ESP are addressed

DG-1145, Section C.IV.4
Operational Programs

Joseph Colaccino, Acting Branch Chief
NRO/DNRL/NCPM

DG-1145
Operational Programs

- Guidance on Operational Programs provided in Sections C.I.13.4 and C.IV.4
- SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria"
- COL applicants can fully describe operational program and its implementation

DG-1145
Operational Programs (cont'd)

Operational programs meet 3 criteria:

1) Required by regulation
2) Reviewed in a COL application
3) Inspected to verify implementation

DG-1145
Operational Programs (cont'd)

- ITAAC not required for implementation but may be appropriate for some programs (EP contains programmatic ITAAC)
- Substantial portion of operational program development will occur after COL issuance
- Program description should include implementation milestones in application

DG-1145
Operational Programs (con't)

- Containment Leak Rate Testing
- Emergency Planning
- Fire Protection
- Maintenance Rule
- Operator Training
- Operator Requalification
- Plant Staff Training
- Physical Security
- Safeguards Contingency
- Training and Qualification
- Radiation
- Reactor Vessel Material Surveillance
- Process and Effluent Monitoring and Sampling
- Quality Assurance Operation
- Preservice Inspection
- Inservice Inspection
- Preservice Testing
- Inservice Testing
- Equipment Qualification
- MOV Testing

DG-1145
Operational Programs (cont'd)

- NRC intends to inspect operational program implementation during construction
- Proposed final Part 52 rule has included implementation milestones for some operational programs
- License conditions on operational program implementation not covered in rule

DG-1145
Public Workshop Issues

Eric R. Oesterle, Lead PM
NRO/DNRL/NGIF

DG-1145
Public Workshop Issues

- Development of DG-1145 began in earnest in January 2006
- Draft work-in-progress sections posted on the NRC's website following completion to facilitate public workshop discussions
- Monthly public workshops on DG-1145 held from March 2006 to September 2006

DG-1145
Public Workshop Issues (cont'd)

Major issues discussed at public workshops:

- Design finality
- COL information availability
- Verification activities (inspections vs. ITAAC)
- First-of-a-kind-Engineering (FOAKE) inspections/audits
- Engineering design verification (EDV)

DG-1145
Public Workshop Issues (cont'd)

Major issues discussed at public workshops:

- Guidance for passive designs (e.g., offsite electrical power)
- Maintenance Rule (breakout session)
- Environmental report format and content
- Finality of an EIS associated with an ESP
- PRA guidance

DG-1145
Public Workshop Issues (cont'd)

Major issues discussed at public workshops:

- Human factors engineering
- Radwaste treatment facilities
- Digital I&C (breakout sessions)

DG-1145
Public Comments

Eric R. Oesterle, Lead PM
NRO/DNRL/NGIF

DG-1145: Public Comments

- DG-1145 issued for 45-day public comment period on September 7, 2006
- Public comment period on DG-1145 closed on October 23, 2006
- Approximately 700 public comments received
- Staff is currently working to resolve public comments and revise DG-1145, as appropriate, conform it to proposed final Part 52 rule and updated SRPs

DG-1145: Public Comments

Characterization of Public Comments

- COL information availability
- Guidance on passive design features
- Design finality
- Inspections vs. ITAAC
- Plant-specific PRA (LRF, CCFP, COL PRA Information)

DG-1145: Public Comments

Characterization of Public Comments (cont'd)

- ITAAC
- Environmental Reports and Finality of an EIS associated with an ESP
- Including guidance contained in responses to public workshop questions