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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

ABWR SUBCOMMITTEE MEETING

OPEN SESSION

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THURSDAY

APRIL 21, 2011

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ROCKVILLE, MARYLAND

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The Advisory Committee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, at 8:30 a.m., Said Abdel-Khalik, Chairman, presiding.

COMMITTEE MEMBERS:

SAID ABDEL-KHALIK, Chairman

JOHN W. STETKAR, Member-at-Large

J. SAM ARMIJO, Member

SANJOY BANERJEE, Member

DENNIS C. BLEY, Member

CHARLES H. BROWN, Member

MICHAEL L. CORRADINI, Member

HAROLD B. RAY, Member

WILLIAM J. SHACK, Member

NRC STAFF PRESENT:

WILLIAM 'BUTCH' BURTON, NRO/DNRL/NRGA

DON DUBE, NRO/DSRA

MICHAEL EUDY, NRO/DNRL/NGE2

ROCKY FOSTER, NRO/DNRL/BWR

EDWARD FULLER, NRO/DSRA/SPRA

TODD HILSMEIER, NRO/DSRA/SPRA

ALFRED ISSA, NRO/DCIP

STACY JOSEPH, NRO/DNRL/BWR

EARL LIBBY, NRO/DNRL/NRGA

GARRETT NEWMAN, NRO/DCIP/CQVB

RAM SUBBARATNAM, NRO/DNRL/NRGA

OMID TABATABAI, NRO/DCIP

MARK TONACCI, NRO/DNRL/BWR

GEORGE WUNDER, NRO/DNRL/BWR

MAITRI BANERJEE, Designated Federal Official

ALSO PRESENT:

COLEY CHAPPELL, NINA Licensing, STP 3&4

EVANS HEACOCK, NINA Design Engineering Lead, STP 3&4

SCOTT HEAD, NINA Manager, Regulatory Affairs, STP 3&4

GENE HUGHES, NINA PRA STP 3&4/ETRANCO

BILL MOOKHOEK, NINA Supervisor, Licensing, STP 3&4

FRED PULEO, NINA Licensing, STP 3&4

RICKY SUMMITT, RSC

TIM WALKER, NINA Manager, Quality, STP 3&4

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

8:28 a.m.

CHAIRMAN ABDEL-KHALIK: The meeting will now come to order.

This is a meeting of the ABWR Subcommittee of the Advisory Committee on Reactor Safeguards.

I am Said Abdel-Khalik, Chairman of the Subcommittee.

ACRS Members in attendance today are: Charlie Brown, Bill Shack, Mike Corradini, Sam Armijo, Dennis Bley, John Stetkar, Sanjoy Banerjee and Harold Ray.

Ms. Maitri Banerjee is the Designated Federal Official for this meeting.

In today's meeting we are scheduled to discuss Chapters 1, 17 and 19 of the staff's Safety Evaluation Report related to the SOL application submitted by NINA for two ABWR units at their STP site.

These chapters were presented to us last year when the SERs had open items. In today's meeting the staff will discuss how they have resolved these open items. The staff and the applicant may also discuss follow-up action items from previous ABWR

Subcommittee meetings.

Earlier this week, the NRG the major U.S. partner in NINA announced that it will no longer invest in the project. To the extent possible, I would like for the applicant and the staff to briefly discuss the potential impact of that announcement on progression of this review and whether the further addition against issuance of a COL to a foreign-owned entity would come into play.

The rules for participation in today's meeting were announced in the *Federal Register* on April 4, 2011 for an open/closed meeting. Parts of this meeting may need to be closed to the public to protect information proprietary to the applicant or other parties. I'm asking the NRC staff an the applicant to identify the need for closing the meeting before we enter into such discussion and to verify that only people with the required clearance and need to know are present.

We have a telephone bridge line for the public and stakeholders to hear the deliberations. This line will not carry any signal from this end during the closed portion of the meeting.

To minimize disturbance, the line will be kept in listen-in only mode until the end of the

meeting when 15 minutes are allocated for public comments.

As the meeting is being transcribed, I request that participants in this meeting use the microphones located throughout the room when addressing the Subcommittee. Participants should first identify themselves and speak with sufficient clarity and volume so that they can be readily heard.

We will now proceed with the meeting, and I call on Mr. Mark Tonacci of NRO to being the presentation.

MR. TONACCI: Good morning, Mr. Chairman, Members of the Committee. We are delighted to be here and look forward to an engaging discussion today.

I did want to ask when would you like us to address the recent press release? Do you want to do that first off?

CHAIRMAN ABDEL-KHALIK: Yes.

MR. TONACCI: Okay. I would prefer to make my comments after South Texas has a chance to address it. Is that okay, Scott?

MR. HEAD: That's fine.

CHAIRMAN ABDEL-KHALIK: Mr. Head?

MR. HEAD: Yes, sir. I also appreciate the opportunity to brief the ACRS again today on the

topics. And, obviously, it's somewhat of a timely briefing given the announcements of this week.

I hope most of what I say today has been seen in print or been conveyed already. I will focus on certain aspects of it regarding the continued review.

Just for everyone's information, confirm that the NRC did announce that they're going to basically cease funding for the project and are, in fact, are writing off the investment.

MR. TONACCI: You mean NRG. You said NRC.

MR. HEAD: Well, thank you for that.

That represents or it's caused by a number of issues. One, obviously, some of the uncertainty surrounding the results or the impact of Fukushima. Fukushima did also, obviously, impacted one of our potential investors, and that's a significant impact of being able to continue the project.

And short of -- maybe not as obvious to maybe the discussions that you've seen before, but quite frankly natural gas prices has made it very difficult to get long term contracts in the State of Texas. And that altogether at this point in time has put NRG in a position that they announced.

What's crucial, though, is that the

corporate structure for NINA remains the same. At this point in time, NINA's 88 percent owned by NRG and 12 percent owned by Toshiba. The crucial aspect of the licensing review, though, is all of the funding right now is provided by Toshiba. Toshiba has providing the majority of the funding for the last number of months, but now it'll be a 100 percent Toshiba at this point in time.

Now what that will represent is that at some point in time later in the year we will be approaching the NRC regarding a change in the corporate structure and the ownership structure of the project. And we will at that point in time be dealing with the foreign ownership, the ramifications that come with significant foreign ownership of the project. So, that's something that we will presenting to the NRC in a new Part 1 later this year.

Like I say, for the review, for the licensing review and to support the COL effort that is funded. Toshiba has designated that they would like to move forward with the COL review and the efforts to obtain a COL. And so that's why we're here and why we're continuing to support the NRC review, and expect us to do that.

There are significant decisions, though,

that we have to make later in the year. We look forward to an understanding of the ramifications of, you know assessments of Fukushima and what that would or what expectations would come with that. So we would look forward to an understanding of that and what that would mean to the project.

And, obviously, we have the review that will be associated with the corporate structure that we present later in the year.

I think that summarizes pretty much where we are with respect to the review. Is there any questions for me at this point in time on the topic?

MEMBER ARMIJO: Well, I have a question.

MR. HEAD: Sure.

MEMBER ARMIJO: Just basically on what you told me, it implies that there could be a restructuring of NINA with Toshiba becoming the majority --

MR. HEAD: Yes, sir.

MEMBER ARMIJO: Or is that announced already, or have I missed that?

MR. HEAD: I think it's inherent that as we move forward that Toshiba is going to be providing all the funding that the ownership structure --

MEMBER ARMIJO: Will change, yes.

MR. HEAD: -- will change.

MEMBER ARMIJO: Yes. That's why this issue came up.

MR. HEAD: Actually, but that structure hasn't changed yet because, you know there are expectations regarding foreign-ownership and control that would be in play if it has changed. But that has not changed at this point in time.

MEMBER ARMIJO: No, I understand.

MR. HEAD: For it to change even as an applicant we have to invoke certain foreign-ownership and control features. We've already presented those features to the NRC and they've been reviewed. So we believe we have that in place and ready to invoke as those changes are made.

CHAIRMAN ABDEL-KHALIK: Okay. Would the staff care to add their comments on this topic at this time?

MR. TONACCI: Yes. Thank you, Scott, for setting the stage there.

The NRC has not stopped funding work on this project. We are continuing forward and the licensing work continues on at the same relative priority, the same depth of reviews and the same schedule. With respect to everything that we're doing

today, it was what we were doing yesterday and last week. And so we are continuing on as if there were no change for the licensing work.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. TONACCI: Thank you.

CHAIRMAN ABDEL-KHALIK: Thank you.

At this time we'll go to the applicant.

MR. HEAD: And we'll present Chapter 1. Our standard agenda, myself and Coley will be involved in the presentation on this. And I will turn it over to him at this time.

MR. CHAPPELL: Good morning, Mr. Chairman and other Members. I'm Coley Chappell of Licensing for STP 3&4. And it's a pleasure to be here today.

Just want to recap Chapter 1. We provided the initial presentation to ACRS Subcommittee on March 2, 2010. We have since provided an update on the change in licensee between South Texas Project Nuclear Operating Company and Nuclear Innovation North America. This transition is so that NINA can focus on design and construction of the units and South Texas Project Nuclear Operating Company, which is primarily an operating company, can then focus on operations. And this transition would revert back after the ITAAC are satisfied of the of the 103G finding.

Our direct base in Chapter 1 include our restructuring of the engineering procurement construction group. We've incorporate Shaw as the prime EPC contractor so that Toshiba America Nuclear Energy, Toshiba and Shaw are acting in conjunction with their subcontractors. Sargent & Lundy continues to provide architect and engineering services, and Westinghouse provides other services, including I&C supports.

Items of interest since our last meeting, We previously talked about all the Tier 1 departures in Chapter just as an overview. We've added three new Tier 1 departures in the course of the last 12 months or so.

We discussed at our last meeting on Chapter 10 a new Tier 1 departure that added the condensate booster pumps on the Tier 1 figure. And that was covered on April 6th.

We also revised the definition of "as-built" in our Tier 1 section of definitions. So this included more description about how physical properties are determined and how that can be impacted by testing at another location and then insulation on site. This change was done to be consistent with the definition that was agreed between staff and industry,

and as shown in NEI 08-01.

The third Tier 1 departure to discuss was presented with Chapter 6. The ABWR DCD certified design was based on Regulatory Guide 1.82 Rev 0. It provided a 50 percent blockage valve for suction strainers for emergency core cooling system, the residual heat removal system which provides a low pressure core flooder function, pressure core flooder and the reactor core isolation cooling net positive suction heads were revised in the descriptions in Tier 2 as well as in the ITAAC to reflect the adoption of Revision 3 of Regulatory Guide 1.72 which provides a mechanistically determined head loss for the net positive suction head calculations.

In summary for Chapter 1. We have addressed all the COL information items. There are no outstanding requests for additional information. And there were no STP associated action items for Chapter 1 from ACRS.

CHAIRMAN ABDEL-KHALIK: Are there any questions from the Committee. Okay.

At this time, perhaps the staff can present Chapter 1?

MS. JOSEPH: Good morning.

My name is Stacy Joseph I'm the Chapter PM

for Chapter 1.

I'm joined here today but I'm going to be giving the presentation, but Earl Libby, who is our resident expert on ISG-022 on construction and pacts at multi-unit sites is here to answer any questions and probably serve for moral support on any questions on Part 39.47 new licenses.

This is a list of open items at the end of the Phase 2 review. The items in bold are the items we're going to be discussing in a little bit greater detail today.

I do want to point out that I noticed in preparing this presentation that the numbering of the open items in Phase 2 SER as compared to the Phase 4 SER, they're not necessarily consistent. A couple of the open items are numbered differently. That will be reconciled in the final revision of the SER.

CHAIRMAN ABDEL-KHALIK: So you will not discuss Part 30.47?

MS. JOSEPH: We're not going to be discussing it. I can give you an update of where we are at this point.

CHAIRMAN ABDEL-KHALIK: Please. Thank you.

MS. JOSEPH: Okay. The first open item is

also an ACRS action item and it deals with plant aging management. The Members noted that aging management should be an issue that should be considered from the first day forward and not just before license renewal. And the staff agreed to go back and look at this item and determine if any additional information is required.

We went back, and after reviewing the FSAR and conferring with license renewal counterparts in NRR, the staff determined that the applicant has satisfied the COL license information item and that no additional information is required.

The applicant's FSAR described that in designing the plant to operate for 60 years the applicant will be taking steps in the design process, in component material selection, condition monitoring and maintenance programs to ensure that the plant will be operational for its initial license and any anticipated renewals.

When the time comes to apply for a license renewal, the applicant will need to show that they meet the requirements of Part 54 which includes being able to manage the effects of aging for an extended period of operation.

MEMBER STETKAR: Stacy, that's a very

carefully worded statement. And the statement in the SER is also carefully worded. It implies that they really -- although in the current version of the SER the applicant states that provisions described in NUREG-1801 Generic Aging Lessons Learned/GALL Report will be initiated to support license renewal submittal. And in the SER your closure of that open item says that you "find the response acceptable. If the applicant chooses to apply for license renewal the requirements of 10 CFR 54 will apply."

MS. JOSEPH: Correct.

MEMBER STETKAR: That to me says that they're not committing to implement any aging management programs today, on day one, and you agree with that? Is that true?

MS. JOSEPH: That is true. License renewal, staff wants to make sure that license renewal is handled appropriately in that license renewal.

MEMBER STETKAR: I understand --

MS. JOSEPH: And that we're not making any specific commitments at this point.

MEMBER STETKAR: -- the attorney interpretation. I just wanted to make sure I understood what they were committing to and what the staff was accepting.

MR. CORRADINI: What sorts of things do you worry about, John, that would occur at this stages in the final --

MEMBER STETKAR: Corrosion management. I mean, everything that we review on the license renewal process that we look at. For example, we pay attention to operational experience. In some cases during the 40 year operation of the plant they have operating experience that implies that had they implemented the aging management programs during the initial 40 year license period, they might not have had those operational issues with, well there's buried pipes or cables or, you know whatever issues come up.

MR. CORRADINI: But their maintenance procedures wouldn't necessarily look through that? That's what I guess --

MEMBER STETKAR: In principle they would in the same way as any other operating plant in principle would.

CHAIRMAN ABDEL-KHALIK: Does that answer your question?

MEMBER STETKAR: It certainly answers my question.

MS. JOSEPH: Okay. The next open item dealt with closing out the final issue for the

alternate vendor qualification. At the time of the AVG inspection in Japan, Toshiba had not yet completed their derivative documents for the hydrodynamic loads, so the staff went back and performed an audit earlier last year.

After auditing the Toshiba documentation last year, the staff determined that Toshiba did have access to the proprietary information required to reconstitute the forcing functions. And in addition, the staff also determined that Toshiba had access to the correlation data and drawings required to supply the X-quencher in the certified design.

Closure of this open item, the staff was able to determine that Toshiba is qualified to supply the certified design.

CHAIRMAN ABDEL-KHALIK: You're hitting the microphone.

MS. JOSEPH: You're right, I am.

CHAIRMAN ABDEL-KHALIK: Just move it out of the way.

MS. JOSEPH: All right. Moving on.

In Revision 4 of the STP FSAR the applicant incorporated by reference the STPNOC aircraft impact application to amend the ABWR certified design. In the staff's SER October 14th of

las year the staff found the STP application to amend the certified design acceptable and is currently undergoing rulemaking.

To complete their review of the COL the staff needed to determine if there were impacts of implementing the AIA on the COL and vice versa. So the staff asked the applicant to identify if there would be any changes to the COL needed to implement the AIA, to which the applicant responded "No, they would simply incorporate by reference the application with no other changes."

And next the staff asked the applicant to identify if any of the COL departures had an effect on the key design features credited in the aircraft impact assessment. The applicant responded "No, that the COL departures did not impact any of the key design features." The staff followed up just by asking the applicant to describe how they came to that conclusion. We asked them to provide a list of departures that they considered that could possibly have an impact on the assessment and also to describe the evaluation process that they took in looking at those departures.

Finally, the staff requested the applicant to document their conclusion in the COL application.

Through their responses the staff determined that the applicant did evaluate the impact of their departures on their assessment and that the COL application meets the requirements of 10 CFR 51.50.

Okay. Next open item has to do with the impact of construction activities on Units 1 and 2. At the time of the SER with open items the staff was working on staff guidance for the impact of construction of new plants on operating units at multi-unit sites. Since then the staff has issued the Draft Interim Guidance for public comment.

The SPT FSAR had already provided the evaluation of potential hazards to SSCs important to safety at Units 1 and 2 and the FSAR had also provided a description of he managerial and administrative controls.

To address the additional guidance in ISG-022, the applicant provided a copy of their procedure, interface evaluations of Units 3 and 4 on Units 1 and 2. This procedure contains guidance regarding the evaluation of construction impacts on the operating units which is consistent with the guidance the staff put out in ISG-022.

The staff reviewed both the FSAR and the procedure and determined that the requirements of 10

CFR 52.79(a)(31) have been met.

Okay. The next three open items have been removed from the Chapter 1 SER at this time and will be included as appendices at a later date.

The Tier 1 exemptions evaluations will be completed once all the FSAR sections -- Chapters are done.

The financial qualifications review, as you can understand, is still ongoing at this point.

And for the Parts 30, 40 and 70 licenses, at this time the applicant has withdrawn their application for a license under Parts 30 and 40. The Part 70 license application review is still ongoing. As of this point the applicant submitted a cross reference table to the staff identifying where the information required for the Part 70 license is throughout the application. And as of this point the staff has not yet completed their review.

CHAIRMAN ABDEL-KHALIK: But what is the impact of the withdrawal of the application for Parts 30 and 40?

MR. FOSTER: They're not seeking a 30/40 license at this time. They're evaluating possible alternatives and when the timing of that would be more appropriate for their needs. So, as far as the

operating license --

CHAIRMAN ABDEL-KHALIK: Any comments from the applicant in that regard?

MR. HEAD: Yes, sir. Depending on our schedule, we would submit the license application for that at a later date.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MS. JOSEPH: Okay. These last three open items in Chapter 1 dealt with nontechnical issues and were closed in this Chapter or in the case of Open Item 1-8, this item was resolved in Chapter 7.

And that concludes my presentation.

CHAIRMAN ABDEL-KHALIK: Thank you.

Are there any questions for the staff on Chapter 1?

Okay. Thank you.

MS. JOSEPH: Thank you.

CHAIRMAN ABDEL-KHALIK: We're just trying to find out if we had a follow-up questions on the hydrodynamics loads issue.

MS. JOSEPH: Oh.

CHAIRMAN ABDEL-KHALIK: So we'll revisit it when we talk about long-term cooling.

MS. JOSEPH: Yes. As far as I understand that's separate from the alternate vendor review.

CHAIRMAN ABDEL-KHALIK: Okay.

MS. JOSEPH: And that's part of long-term cooling.

CHAIRMAN ABDEL-KHALIK: Right.

MS. JOSEPH: And we're working with the applicant to determine on when they can address that specific portion. We're hoping at the next meeting.

CHAIRMAN ABDEL-KHALIK: Okay. All right. Thank you.

Okay.

MR. HEAD: Okay. We're going to continue with the presentation on Chapter 19. We'll go through introductions.

Joining us today is Gene Hughes assisting us in the presentation and, in fact, has been involved with a number of topics on the project.

A number of other individuals are here today also to help with the discussion. And Evan has joined us in case questions come up from the PRA standpoint that he could help us with.

I'll turn it over to Coley.

MR. CHAPPELL: Items of interest for Chapter 19 include a couple of items that have been addressed since our last meeting in June of 2010 dealing specifically with hurricanes and inadvertent

flooding in the lower drywell.

The South Texas Project site is still located close to the Gulf of Mexico. A quantitative assessment of hurricanes was performed to demonstrate the risk from hurricanes --

MEMBER STETKAR: Is inland versus --

MR. CHAPPELL: And it affects the shutdown risk are the external events analysis described in the DCD.

MEMBER BROWN: How close is it to the Gulf? I don't remember the answer to that as I recall.

MR. HEAD: Fourteen is the --

MEMBER BROWN: Fourteen miles?

MR. HEAD: Yes.

MEMBER BROWN: Yes.

MEMBER ARMIJO: Long as they got you, what's the elevation of the site? Is it ten feet above sea level or --

MR. HEAD: The project grade is 34 feet. I think most of what you walk around out is around 28 feet, like that.

MEMBER ARMIJO: Well, 14 miles is good.

MR. HEAD: Yes. There's other waterways in between the actual Gulf, but you know that's the --

MEMBER ARMIJO: Yes, I hear you.

MEMBER BANERJEE: Are there any significant storm surges in that area?

MR. CORRADINI: The cow's out of the barn, down the hill over the river and through the woods.

MR. HEAD: Yes, sir there have been. But, I mean --

MEMBER BANERJEE: Not 14 miles inland?

MR. HEAD: Well, you know Bolivar was basically wiped off during Iike, I believe was the storm. But it's a barrier island and so you would expect even a relatively small storm surge could have gotten hit. But that was a relatively large one and they were on the wrong side on the hurricane, which obviously is a big --

MEMBER BANERJEE: Right.

MR. HEAD: -- part of a storm surge.

I think Matagorda back in the '40s or somewhere in the '30s had a significant storm surge. And that's one of the reasons they built their dike around the city of Matagorda, which was part of our presentation on the storm surge discussion that we had.

So, obviously it's something that --

MEMBER BANERJEE: What was the maximum

storm serge in those events?

MR. HEAD: For those events? I don't recall. But the maximum that we came up with the answer evaluation that we did, did not get onto the site. Because that program modeled the featured very well and including the MCR embankment and the Matagorda dike. You know, just an enhanced model with respect to the topography and so it doesn't really approach Units 3 and 4.

For a storm that is significantly larger then we really would expect, you know a design basis type --

MEMBER BANERJEE: Is that for a Category 5 that storm or --

MR. HEAD: We called it a Category 7 in our vernacular.

MEMBER BANERJEE: Okay.

MR. HEAD: There's no such thing, obviously, but it's a very significant storm.

MEMBER BANERJEE: So it's got peripheral velocities much higher than 5? So what, 200 miles per hour, something?

MR. HEAD: I don't know the details. But it is a very significant storm. The pressures are -- you know, I say our discussions on it it's more like

the pressures you'd find maybe in a big Pacific storm that has a lot more area than the Gulf. You know, that's just our discussion level. And it, obviously, hits on the wrong side. You know, it's got to hit so that we get the bad side of the storm to even generate the storm surge that we saw in the analysis.

And, obviously, you know that's a crucial -- you know for our location hurricanes are a significant event for us. And in fact, here in a slide here we'll discuss more about how 1 and 2 and 3 and 4 would react to --

MEMBER BANERJEE: What was the storm surge model you used?

MR. HEAD: ADCIRC was the one we picked.

MR. CORRADINI: Since he started this, that's a commonly used technique for estimating effects?

MR. HEAD: Well, it's a latest -- I'm going to say more state-of-the-art then the one that we had originally used. And it's becoming more common, I believe.

MR. CORRADINI: Is it calibrated based on historical events to essentially match them as you then predict and extrapolate?

MR. HEAD: Yes. My understanding is that

all takes place as you go through. I think after every hurricane that people take their models and see how they did. And that's --

MR. CORRADINI: Sure. The name again, I'm sorry.

MR. HEAD: ADCIRC, A-D-C-I-R-C. And it's in our presentation.

MR. CORRADINI: That's fine. That's fine. We'll find it.

MR. HEAD: Lots of real interesting --

MEMBER BANERJEE: The problem with these is the shear stress on the ocean stress, that's not properly understood because there is this region where there's very high storms you get, you know a very strong droplet field. So it's very hard to know exactly what the stress is that drives the water.

MR. HEAD: It was not in common use because of the size and complexity of it. But as--

MEMBER BANERJEE: There's probably not much data in that range, that's the problem.

MR. HEAD: Well, I believe you could find a number of paper on it.

MEMBER BANERJEE: That's fine.

MR. HEAD: But we obviously assessed before we embarked upon it.

MR. CORRADINI: That's fine. I just wanted to know the name. Thank you.

MR. HEAD: All right. Go ahead.

MR. CHAPPELL: The focus of this particular discussion on hurricanes emerged from a RAI 19.01-31 that asked questions about the dual unit departure. STP 3 & 4 has a dual unit departure. The ABWR DCD design is for a single unit.

One of the systems that was a single system that supplies both Units 3 and 4 is the AC-independent water addition function, which is the fire water system, fire water addition system. The fire protection pump house and he fire protection system is shared between the units.

So we wanted to look at the impacts of hurricanes and high winds on the AC-independent water addition function. It's significant to risk for the ABWR. It produces the offsite and other core damage frequency events because it has AC-independent functions.

Skipping ahead to the last bullet it gives you an outline it give you an outline of what it is. It uses the installed fire water system. So rather then have just procedures to connect hoses or different -- it has installed piping, installed valves

and it uses a portion of the RHR system to be able to connect the diesel driven fire pump that's located in the fire pump house where we have the ability to connect up a portable pump, described as a fire truck or pumper truck in the DCD. And we also have a portable skid-mounted diesel driven fire pump that we describe in this RAI. So that provides an installed AC-independent pump and then two portable pumps.

MEMBER BROWN: The rating of the diesel driven pump, at least according to some of the documents; I can't remember if it was the SER or whether it was -- I guess it was you alls paperwork said that that thing was roughly about 600 gpm and could pump into the RHR system with certain back pressures. But part of the question is the rating of the pump itself in terms of its collates and the portable diesel skid-mount are they the same? I couldn't find any of these statements.

MR. CHAPPELL: The requirement for the AC-independent water addition function to provide a specified flow, a minimum of approximately 600--

MEMBER BROWN: Yes, .04 cubic meters per second to a .06.

MR. CHAPPELL: A .06. And that roughly is about 600 to 1,000 gallons per minute.

MEMBER BROWN: Yes. Yes.

MR. CHAPPELL: So it has to be within that range to satisfy the requirement for a portable pump.

MEMBER BROWN: Okay. So they will all meet that particular flow rate if it's not explicitly stated for the pumper truck or the portable diesel skid-mount as it is for the diesel driven pump that's co-located in the fire pump firehouse, whatever you call it, pumper house?

MR. CHAPPELL: In order to be credited for the AC-independent water addition function it has to be that flow rate.

MEMBER BROWN: Is there someplace where it says that?

MR. CHAPPELL: We can find the reference. There's an item in the DCD. I believe there's --

MEMBER BROWN: I look back on the Rev. 4 of the DCD and I have to admit, I struggled trying to find it. So --

MR. CHAPPELL: Right.

MEMBER BROWN: -- I was just curious.

I'll wait for my other question. You're going to be done with this, you're going to talk about high winds and that, so I'll just wait for my next question.

MR. CHAPPELL: Okay.

MEMBER STETKAR: Coley, before you leave this let me ask: We had quite a bit of discussion about hurricanes in the Chapter 2 review. Return periods and three second peak wind gusts.

As I understand it, the design basis three second peak wind gusts, I'm not talking about tornados right now bemuse it's a little different loading, is a 100 year return period of a peak wind speed three second gusts of 139 miles an hour. I'll call it 140 to round it off. That's roughly in the middle of a Category 2 hurricane, it's not a Category 7.

Category 7, as you characterize it, would be sustained wind speeds but you're really designed for three second wind gust loading.

So the question, you know from the PRA perspective if we get out of design basis licensing is did -- and I haven't seen the response to the RAI so I don't know what was submitted, unfortunately.

In the PRA did you look at the actual frequency with uncertainty of perking wind speeds and the fragility of offsite power, you know structures and such, to develop a likelihood of structural failures and offsite power failure? Did you do that kind of a formal analysis in that response?

MR. CHAPPELL: The response went through quite a number of revisions and it looked specifically at the structure that houses the AC-independent water addition function --

MEMBER STETKAR: Okay. But that's --

MR. CHAPPELL: -- is a nonsafety structure.

MEMBER STETKAR: Okay. That's the AC water. I'm talking about the entire plant to have a sense of --

MR. CHAPPELL: Okay.

MEMBER STETKAR: -- what the risk impact from hurricanes are.

MR. CHAPPELL: I know external events were looked at. I don't have that information right now.

MR. HUGHES: Yes. Excuse me. I'm Gene Hughes. I'm supporting NINA and have worked on this project for quite a while.

The response to the question includes a case in which the structures onsite that were nonsafety-related, the non-key structure were assumed to be lost. And the 200 year recurrence interval hurricane was taken as a case. And the core damage frequency was estimated to be in the three minus eight kind of range.

There was not an uncertainty analysis, but there was a series of different sets of assumptions and values within an order of magnitude or so of that value where it possibility created from different assumptions. And the conclusion of that was that the basic assumption that this did screen was still upheld.

So, it wasn't a detail rigorous analysis of all of the different spectrums of the hazard, but this particular case was chosen, looked at and submitted.

MR. HEAD: I might just add, and part of the reason that the numbers ended up the way it did is that the portable diesel driven pump will be in a Category 1 structure when the hurricane arrives.

MEMBER BROWN: That's the firehouse?

MR. HEAD: Yes, sir. WE assume the firehouse is, you know basically destroyed.

MEMBER BROWN: So the diesel driven pump will be someplace else?

MR. HEAD: Yes, sir.

MEMBER BROWN: Well, I got the flavor from reading the DCD and the other paperwork that it was co-located within the pump house.

MR. HEAD: Well it can be in many

different places. But when the hurricane is coming--

MEMBER BROWN: Not the portable one. I'm talking about the one diesel driven AC -- the first one up there.

MR. HEAD: Yes, sir. Yes.

MEMBER BROWN: That's the one? Okay.

MR. HEAD: That is in --

MEMBER BROWN: That's in the firehouse?

MR. HEAD: That's in the firehouse.

MEMBER BROWN: Okay.

MR. HEAD: And our calculations assume that a certain wind loading it disappears. The portable, the last pump described there, will be located in a Category 1 structure, which is the same thing that Unit 1 and 2 does with their portable pump to ensure its availability following a hurricane.

MEMBER BROWN: If the firehouse pump losing where your connections are to the RHR system itself, can you still get to it?

MR. HEAD: No, sir. Yes, the connections are located in a different place and they're robust and, you know basically piping. So we're --

MEMBER BROWN: Okay. So that's a Category 1 type structure as opposed to the firehouse, which is not?

MR. HEAD: Yes, sir.

MR. CORRADINI: And the logic is to bring the portable pump to that connection point?

MR. HEAD: Yes, sir.

MR. CORRADINI: Okay.

MR. HEAD: And the fire truck protection logic we haven't developed yet. And we expect in today's world that it will be, you know also protected. We've had times on Unit 1 and 2 where we protected the fire truck, but it's not normally in a Category 1 structure. But clearly that thinking will evolve so that we ensure its availability also.

MEMBER STETKAR: And you said you took the 200 year return period hurricane wind speed and assumed that the nonsafety-related buildings were destroyed. Got any idea what that wind speed is, or did you just assume that a 5 either to the minus three per year or --

MR. HEAD: It's not identified in the RAI response, I don't believe. And I don't recall.

MR. HEACOCK: It's 135.

MEMBER STETKAR: Well, I think the message here is that that they have done the integrating.

MR. HEAD: I think it's 134.

MR. HEACOCK: Yes, a 134 is our basis

based on the International Building Code for a nonsafety structure.

MEMBER STETKAR: So you just assumed that occurred once in 200 years?

MR. HEACOCK: PRA. Yes, I can't tell you the return times on that, but --

MEMBER STETKAR: But I mean the question is did you actually base the wind speed as a function of return period on the historical weather records for the coastal region on Matagorda By area, for example?

MR. HUGHES: I think it was more simplistic then that. I believe it was --

MEMBER STETKAR: That's the sense that I got.

MR. HUGHES: -- from a sense of once in 200 years there would be this type of potential loss. And that value was used to calculate what the overall core damage would look at as a sensitivity.

MEMBER STETKAR: But you didn't look at the probability that that damage might occur once in 50 years or once in a 100 years, or once in 500 years.

MR. HUGHES: I would have to check the file to see if that was actually looked at in generating the evaluation. I don't know.

CHAIRMAN ABDEL-KHALIK: So will you

follow-up on this item and provide an answer?

MEMBER STETKAR: We're going to discuss later the evolution of the PRA and where it's going. And this is part of that story. So I don't necessarily want to dwell on any individual items in the risk assessment space right at the moment until we have a better understanding for the record where the PRA is and how it's progressing. Because it has been a somewhat convoluted path and I believe it's getting less convoluted, but not completely done yet.

CHAIRMAN ABDEL-KHALIK: But for the time being since you asked a specific question and he didn't recall the answer, we'll just keep track of it. And if they can provide an answer, that would be appreciated. Thank you.

Yes, Charlie?

MEMBER BROWN: While we're on high winds, we're probably ahead of the slide right now, but you all had statement in the RAI and it was repeated someplace else, affordable diesel fire driven pump would be staged in that Category 1 structure. And it would be, I don't know, at a time greater than two hours before the expected onset of the winds greater than 73 miles per hour or something like that.

And then you made another statement that

the tornado analysis was bounded by the hurricane analysis.

Hurricane you can kind of predict. I've lived in a tornado area in the Ohio Valley and the tornados come up very spontaneously. They just -- considers tornados maybe, but all of a sudden they appear and they don't appear necessarily where somebody thought they were going to appear.

So the two hour warning before onset of high tornado warnings is problematic, or at least from the one experience I had back in Louisville, Kentucky. But these are worst maybe up there. We don't see them as often. All I know is it popped it and it went 20 miles and wiped everything in its path, and it did it and nobody knew it was coming.

So, anyway, that just seemed to be an unbounded part of the calculation here in terms of how you would deal with even though the high winds are bounded by the hurricane analysis, the timing of getting this portable pump staged seems to be more problematic. So that was kind of an open question in my mind when I was reading the thing.

MR. HEAD: Well, you know a lot of this has evolved over time. There's a high likelihood that pump will already be in a Category 1 structure due to

other expectations on the project.

I would note also that it is a very large site and the Unit 1 and 2 have the same capabilities. And so there are a number of pumps that will be available to us as a result of the tornado.

You know, you're right. It's not the same planning phase as you have with a hurricane, but there is some warning. I'm not presuming that we would move equipment as a result of a tornado warning, but we have actions at the station before when you see tornado-like fronts coming through. Because we do see them coming. So, I can't put it in the same planning category as a hurricane, but then the probabilities associated with that still encounter the fact that we have three diesel generators, CTG, potential cross-connect capabilities that I think still would allow us to withstand the effects of tornado or a well targeted tornado.

I would note also that the tornados, while people might argue about the size of a tornado, because of our location in the Gulf while we may be able to create a Category 5 hurricane, it's hard to create the big tornados in our portion of Texas.

MEMBER STETKAR: Okay.

MR. HEAD: And probably not a Wisconsin

tornado or something like that, I would say.

So that's all the reality of our location. I don't know if I'm answering your question or not, but obviously weather phenomena is something I experience in 1 AND 2, we take very seriously. And for example, even including seeing a front coming we would delay diesel work, okay? That's the sort of thinking you would do as part of a risk management assessment is if you saw a front coming that was likely to have tornados, that you would delay for what in many cases is only a couple of hours, but that is a loss of onsite power opportunity and so you would make that kind of judgment knowing that you could have a potential for that to occur.

So, that would be an operating perspective on what you're talking about, I believe.

MEMBER BROWN: In my limited perspective based on recent events, there were a number of statements in your alls response about extremely unlikely, extremely unlikely, extremely unlikely, extremely unlikely. And these three devices are actually the only none-electrically powered device to provide cooling if they're so needed. So it just struck me based on --

MR. HEAD: Well, that is a good point.

And that's why our decisions regarding things like the power truck, we might not want it on site. We might want it back located in Bay City and then funded by us as a fire truck capability being used by the Bay City Fire Department to designated to assist us if necessary. So that's not having it in the target zone is definitely part of our thinking.

MR. CHAPPELL: But we also have other systems that weren't specifically addressed here. We didn't take credit for RCIC and here we didn't take credit for the combustion turbine generator, both of which are capable of providing coolant cooling of loss of offsite.

MEMBER BROWN: Yes. Recent events showed you didn't have electricity for quite a while.

MR. HEAD: I'm sorry?

MEMBER BROWN: Recent events showed you didn't have electricity for quite a while, that's all. Like a week.

MR. HEAD: Sir, we're obviously doing a lot of thinking along those lines, too. But I would think our most challenging event is still -- and has proven to be in Texas the most challenging event would be something like a hurricane. And as we show here and as we can demonstrate based on a previous

experience if you know the action that is coming and you've got five days to plan for it, you can put yourself in a good position with respect to not only preparing for it, you got the location of staff to be out of harm's way. The location of staff in the station to be in the safe, the Category 1 structure.

So I think a comparison of a basically an instantaneous event that you can't see coming versus what we do in planning for a hurricane that we do see coming, that there's a significant difference there that, as I say, is reflected in the way we operate Unit 1 and 2 and how we're operating 3 and 4.

MEMBER BROWN: Okay. I'm done.

MEMBER ARMIJO: Do you take credit for batteries in these analyses, and how much battery capacity do you have to run your pumps and for how longer?

MR. HUGHES: Yes, the PRA does credit battery. Do you want to --

MR. HEACOCK: Yes. Well, for the batteries, the battery backup capability for the visual and which power the RCIC is an eight hour battery system.

MEMBER ARMIJO: Eight hours?

MR. HUGHES: Yes.

MEMBER ARMIJO: Okay.

MR. HUGHES: And that is credited in the PRA.

MEMBER ARMIJO: Okay.

MEMBER BROWN: You also commented there was about 12 hours worth of fuel oil for the portable, I think it was one of the portable; any of them. I don't know if they come with their own little tanks or in the pumper truck. They didn't say where you got the fuel for that. I presume it's got its own little tank and the pumper truck. Would you have to carry the tank along with it?

And it said 12 hours is what you had available for a fuel oil.

MR. HEAD: Yes.

MEMBER BROWN: So --

MR. HEAD: I say, again, when we get into hurricane planning, that stuff that we start thinking about; where is the fuel, you know how much fuel do we want to have and where do we want to have it. And, like I say, it's part of our planning that we go through because, you know obviously we want to know where we reach out and touch for more than 12 hours worth of fuel.

Fred, if you want to add a perspective on

all this?

MR. PULEO: Sure.

MR. HEAD: You're on.

MR. PULEO: Fred Puleo, South Texas Project Nina Licensing.

The 12 hour fuel is the installed capacity of the tank on the portable pump itself. So, I mean as far as refueling of it, I think we identified that we had refueling capability. So the 12 hour is the stored day tank buy-in for the portable skid itself.

MEMBER BROWN: Okay. Yes, I got that out of the reading.

MR. PULEO: I didn't know if you understood that part or not.

MEMBER BROWN: Yes. No, thank you.

MR. HEAD: Okay. Coley, go ahead.

MR. CHAPPELL: Just to run through some of the talking points we've already hit. Unit 3 and 4 plan to address a large scale event like a hurricane and the fire planning is modeled after the experiences of STP 1&2. So that prior to sustained winds on site the units will be shutdown and we'll be starting one emergency diesel generator loading it onto its safety bus. And if the grid continues to become unstable, additional diesel generators will be started and

loaded onto their buses.

The portable diesel driven power pump will be or it will be verified, as has already been stated, in a Category 1 structure. And then RCIC availability will also be made available. If, for example, the units in operation at mode 3 or lower, then RCIC wouldn't be available in that condition.

If containment is inerted, it will remain inerted.

CHAIRMAN ABDEL-KHALIK: But the operators can take manual control of RCIC, is that correct?

MR. CHAPPELL: The operators can initiate RCIC, yes. Yes.

MEMBER STETKAR: That's not what he asked. He said "manual control."

CHAIRMAN ABDEL-KHALIK: Manual control of RCIC, and would that have an impact on the time that the batteries would be available? Would that extend the life of the batteries or the eight hours assumed that --

MR. HEACOCK: Not typically. For example, from the standpoint of -- I'm watching my cues over here a little bit.

But the manual operation would be purely that, and actually we have put in thoughts early on on

the project of running RCIC manually without electrical power per se. We can do it locally. We can also power the instrumentation locally to make sure we're seeing volume.

So a lot of the MOV action manual operated, we could do those manually. We could open up valves manually and run RCIC manually locally at it.

So extending. Probably not actually. What we would probably end up doing is that at the end of the eight hours if we continued, we would man RCIC locally at that point in time, but it would not necessarily extend battery life.

CHAIRMAN ABDEL-KHALIK: So you don't think the procedures would require the operators to take manual control --

MR. HEACOCK: Well, the procedures would be in place to do that.

CHAIRMAN ABDEL-KHALIK: It would wait eight hours?

MR. HEACOCK: Well, no, it would be -- and without having all of this in front of me and be able to say what our procedures would be, we would have that state, figured out from a time standpoint of knowing what our battery life would be, operations

looking at what the depletion rate of the batteries would be. And they would take actions ahead of time from a standpoint of a severe accident type standpoint to go forward and start manually taking control of RCIC at the point of time when they see the battery coming to its end of charge.

CHAIRMAN ABDEL-KHALIK: I guess I'm still not getting quite the right answer or I don't quite understand what you're saying.

So the operators would still wait for indications that the battery is depleting or is nearly depleted before they take manual control of RCIC?

MR. HEACOCK: Again, without having -- gone through and developed all of our procedures in this particular case for extended more than eight hours, I can't tell you exactly when we would do that. But our operations based on what I've seen on emergency operation procedures from what we do with 1 and 2, the operations would be monitoring battery health and battery life and start taking actions to make sure they would take control manually of the RCIC system at a point prior to ending.

MEMBER BLEY: Let me try to rephrase the question and see if I've got it right.

CHAIRMAN ABDEL-KHALIK: Right.

MEMBER BLEY: I think what you're being asked is if it appears you're going to have an extended loss of offsite power, would you expect to get procedures in place to conserve the battery? Like take manual control of the things you can take manual control of, unload the things you can unload to try to extend that?

MR. HEACOCK: Yes, yes. We have procedures already. WE have procedures to already -- I mean I'm talking 1 and 2 now.

MEMBER BLEY: Yes.

MR. HEACOCK: But we've developed the same sort of procedures on 3 and 4 to basically de-energize the equipment.

MEMBER STETKAR: The DC load shedding.

MR. HEACOCK: Yes. You go through and do as much as much DC load shedding as you can.

MEMBER BLEY: Thanks.

MR. HEACOCK: That's what I was saying, depending on where you're at and what you think you're going to be at, and what you foresee the scenario being if you have a loss of offsite power where you've lost your switchyard, more than likely Operations would go through and start saying "There's a good chance we're not going to recovery." So, yes, they

probably would take actions ahead of time to help extend battery life. But like, again, we would still have to develop the exact spots in the procedure to do that. But they would be monitoring --

MEMBER RAY: You're not talking about loss of offsite here, right? We're talking about station blackout.

MR. HEACOCK: Station blackout, which is a factor of.

MEMBER RAY: Well, no, they're two different things. He said "loss of offsite power," but I think he meant station blackout.

MEMBER BLEY: Well, it begins there.

MR. HEACOCK: There.

MR. HUGHES: Under station blackout conditions if you're operating with RCIC, you will take control of RCIC manually early on. RCIC if it gets too high, trips. If it gets too low, turns back on. And you don't want to go through the unreliability of having it trip and bang if you can help it. So the operator takes control fairly early and tries to control level between the level of trip off and start back on. And I do believe it's standard practice to have load shedding in the industry if you have a DC that you're relying upon. But the specific

procedures for this project I think have been developed yet for how to do that.

MEMBER RAY: Gene, do the RCIC pumps require seal cooling?

MR. HUGHES: I do not believe so. I'm pretty certain not.

Ricky, are you aware of --

MR. SUMMITT: It doesn't require seal cooling.

MEMBER RAY: Yes.

MR. HUGHES: No.

MR. HEACOCK: It's a self-cooled system. It's a little different then our terry turbines.

MR. HEAD: It's a self-contained --

MR. HEACOCK: Yes.

MR. HEAD: It's a single casing.

MEMBER RAY: It's a canned rotor?

MR. HEACOCK: Well, it's not a canned rotor. It's a turbine --

MR. SUMMITT: With a direct connection from the turbine to the --

MEMBER RAY: Okay. But you don't need to cool the seals to avoid a loss of cooling?

MR. HEACOCK: No.

MEMBER STETKAR: Externally. It's cooled

from the suction line?

MR. HEACOCK: Yes, right.

MEMBER STETKAR: Not the seals, but the bearing cooling comes from the suction line of the pump?

MR. HEACOCK: Yes.

MEMBER RAY: It's a different issue.

MR. HEAD: Mr. Chairman we've sort of, I think, circled around the answer. I think the answer, though, will be depending if we're in a station blackout and the maintenance crew says "We're two hours away from getting this diesel back," we might say "Let's leave it on the batteries."

If we called ERCOT and ERCOT says we'll have you power in two hours, we might go "Okay, we're going to leave it on the batteries."

If ERCOT says "We have no idea," and the maintenance management says "We've got no idea on the diesels and there are other issues going on with our other equipment," well then I think the staff and the team will make decisions much like we're talking about: Now what should we do about it? RCIC is all we've got. What should we be assessing.

And in a hurricane context, I'll note that in a hurricane context that management staff will

already be there and be prepared to make those decisions.

And so, I don't believe we can give you an absolute answer as to what we would do, but we would have the team there that would have all those things that you're thinking and talking about right now we be, I think, paramount.

CHAIRMAN ABDEL-KHALIK: But that thought process will eventually be proceduralized, is that correct?

MR. HEAD: Yes, sir. Yes, sir.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HEAD: But there will be some steps in it to consult ERCOT and assess the diesels and stuff that allows the shift supervisor to make the appropriate decision based on input from the TSC.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MEMBER STETKAR: And one last question. I guess we're drilling on this a bit.

I grew up with the old terry turbine auxiliary feedwater pumps and that kind of thing.

Do you have any idea how easy it is to locally mechanically operate this particular turbine drive pump? In other words, how sensitive is it to overspeed trips and things like -- the old terry

turbines were: (a) very sensitive, and; (b) very hard to reset.

MR. HEACOCK: Yes.

MEMBER STETKAR: So that, you know the ability of a local operator to kind of smoothly control flow with them was --

MR. HEACOCK: Difficult.

MEMBER STETKAR: Difficult at best. Yes, okay.

MR. HEACOCK: And I'm not the pronounced expert on this by any means. But my understanding of the terry turbine that we're going with is -- not terry turbine. Excuse me. The RCIC --

MEMBER STETKAR: The other turbine.

MR. HEACOCK: -- design is a lot more robust. It's a lot less sensitive to surges from like water surge into it which caused overspeed trips in the past.

It also has a self-regulating feedback for overspeed controls.

MEMBER STETKAR: But that's if you got DC power. I'm talking --

MR. HEACOCK: No, it's actually, it's a direct --

MEMBER STETKAR: Oh, it's a mechanical?

MR. HEACOCK: Mechanical.

MEMBER STETKAR: Is it?

MR. HEACOCK: Yes.

MEMBER STETKAR: Oh, okay.

MR. CHAPPELL: We answered some follow-on questions from the Chapter 5 presentation and presented how that flow control --

MEMBER STETKAR: I didn't remember that.

MR. CHAPPELL: --was designed.

MEMBER STETKAR: I didn't remember that. Thanks.

MR. HEAD: And we could --

MEMBER STETKAR: No, that's fine. I can go look up my notes.

MR. HEAD: Okay.

MEMBER STETKAR: Long-term memory is about 15 minutes these days.

MR. HEACOCK: And then we've also issued a technical report on this also to the staff that explained of the new pump.

CHAIRMAN ABDEL-KHALIK: Any additional questions on this issue?

Please proceed.

MR. CHAPPELL: The next item for discussion deals with inadvertent flooding in the

lower drywell, RAI 19-5 talked about this in order to avoid a steam explosion.

CHAIRMAN ABDEL-KHALIK: I'm sorry. If we go back to the previous slide. The last bullet says: "If containment is inerted, it will remain inerted." What does that mean?

MR. CHAPPELL: If the unit is in a refueling mode and the containment is then de-inerted at that point.

CHAIRMAN ABDEL-KHALIK: Right.

MR. CHAPPELL: Then that would be the condition. It would not be inerted in that condition. It would just stay in that condition.

If the containment is shutdown but its not yet de-inerted, then it would just stay inerted.

So if you're in that first bullet and you go down to mode 3, you wouldn't inert containment. You'd just keep it inerted so that you could start up again after the event has passed. It's in anticipation of starting up.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MR. HEAD: Since most of our hurricanes occur in August and September, more than likely the plant would have been at power. So that will be the bullet that's in effect.

CHAIRMAN ABDEL-KHALIK: Yes. Right.

MR. HEAD: But we have to -- you know if for some reason it is shutdown and inerted we're not going to go back up.

CHAIRMAN ABDEL-KHALIK: is that correct?

MR. CHAPPELL: There were several responses to this RAI over a period of time. I just wanted to focus on the response that was provided just previous to the Chapter 19 presentation last year that talked about inputs to the STP and its 3&4 plant-specific technical guidelines.

Those guidelines are based on the ABWR emergency procedure guidelines which are part of the ABWR DCD. And we will incorporate industry guidance as well that ABWR DCD input to address how to prevent inadvertent flooding in the lower drywell and other aspects of containment water addition.

Specifically, the RAI addressed four conditions for the lower drywell flooder, the fusible plug valve operations, in which case they do not operate when they don't operate as designed or operates prematurely or operates as designed during a scenario that involves core melt and a vessel failure.

So that's a specific commitment to go through and evaluate all those pieces, part of the

emergency procedures.

I just would note that the lower drywell flooder functions that flood the lower drywell, there's also the AC-independent water addition function can also provide that. And that's discussed in the MDCD.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. CHAPPELL: For the last bullet, it was clarified that the STP 3&4 will follow the industry commitment to incorporate severe accidents into the overall accident management program. This was the development from the Emergency Procedure Guidelines, the Severe Accident Guidelines, and we're maintaining our commitment to keep up with industry standards there.

MR. CORRADINI: So that doesn't reflect a change as much as just as a commitment to continue what your current practice is?

MR. CHAPPELL: We will evaluate the strategies of doing the EPG, use other inputs and then determine what our final procedures are and then continue to develop what we like in the plan. That's part of our procedure plan.

So, the procedures will be developed in accordance with our procedure development program.

Operators and staff will be trained. That's all part of our operation piece. There's a specific technical piece that we want to make sure we capture as that goes forward.

MR. CORRADINI: Okay.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. CHAPPELL: Okay. Related to this item we had an Action Item 41 that was asked a while back when we had the last Chapter 19 presentation about failure modes and effect analysis for fusible plug valve. We provided a summary of that discussion and we had a follow-on question about how would we detect valve leakage during operation. So just to put things in perspective, there are ten four inch fusible plug valves in the lower drywell flooder system. Each one is capable of passing a minimum of 160 gallons per minute into the lower drywell.

So, for a comparison for that we have leak protection in the lower drywell, a floor drain system that we can monitor inputs in there in the order of 1 gpm sensitivity and it provides an alarm in the control room.

So if one of these valves sort of leak significantly, there would be an unidentified input that would be monitored as one of our tech spec

requirements.

MR. CORRADINI: These are temperature-actuated?

MR. CHAPPELL: These are temperature-actuated, 500 degrees minimum Fahrenheit.

MR. CORRADINI: Maybe this has been asked, so if it, I'll just wait offline. What is the variability on that temperature?

MR. CHAPPELL: That's a minimum temperature of 500 and --

MR. CORRADINI: So it's been tested so that anything at 495 doesn't happen, 499 doesn't happen and there's a probability that it may open at 500, but it may not? Is that what I'm trying to understand?

MR. CHAPPELL: It's basically at the specific numbers. There is a range that's provided.

MR. CORRADINI: I understand.

MR. CHAPPELL: At one point we --

MR. CORRADINI: You have a test range that documents it?

MR. CHAPPELL: They will be tested in accordance with the requirements of the DCD.

MR. CORRADINI: Okay.

MR. CHAPPELL: I just wanted to give an

overview on --

CHAIRMAN ABDEL-KHALIK: You indicated that if one of these valves were to leak, it would be an unidentified leak and it would be subject to tech spec limits. Is there anyway that if you have an unidentified leak of, you know 10 liters per second, that you would go in with a robot or something like that and explore where the leak might be.

MR. CHAPPELL: The accessibility in the lower drywell is very limited.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. CHAPPELL: I mean, at operation. So it would not -- it would be unlikely that such a scenario would happen.

CHAIRMAN ABDEL-KHALIK: It would be impossible?

MR. CHAPPELL: It would be the limitations for leakage is very low that would require you to shutdown on the order of several hours. So if your total unidentified leakage is somewhere around 30 gallons per minute inputs, which is significantly less than 1 flooder valve, then your tech specs would drive the units to shutdown because you have too much leakage in the tank.

CHAIRMAN ABDEL-KHALIK: Right.

MR. CHAPPELL: And we would be very proactive. We would not wait until the limit. We've had the discussion about --

CHAIRMAN ABDEL-KHALIK: Right.

MR. CHAPPELL: -- leakage in the containment.

CHAIRMAN ABDEL-KHALIK: Right.

MR. CHAPPELL: That would cover that piece.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. CHAPPELL: On the right hand side is a cross view. These are the connecting vents and then we have the horizontal vents that go from the upper drywell into the suppression pool, pressure suppression feature for ABWR containment. And you can see how the flooder valve is shown there with a little down portion that goes directly above the base mat in the lower drywell.

I've drawn in a location, a similar location of where the floor drain sump would be. And so the ten are located circularly around the perimeter of the lower drywell. And they would be direct inputs into that sump.

Just as a basic design of the system, it shows each valve there. There's the fusible plug that

would then melt and the release a direct path of water into the lower drywell.

MR. CORRADINI: And then the new level is the second triangle? I'm trying to understand.

So when actuated, where does the level come to?

MR. CHAPPELL: When actuated it would provide a direct flow path between the suppression pool --

MR. CORRADINI: Right.

MR. CHAPPELL: -- and the lower drywell. So the level would equalize. Those arrows don't indicate anything except position of the actual fitting.

MR. CORRADINI: Okay. And when it equalizes, what is the depth of water in the drywell?

MR. CHAPPELL: I don't know the answer to that. It would be significant enough to be noticeable by the operators.

MR. CORRADINI: I'm sure it would. But it's still far below a lot of the forest of tubes going in. So I'm guessing it's like three or four meters deep?

MR. CHAPPELL: It would be bubble over the bottom of the vessel.

MR. CORRADINI: That's what I was guessing. Okay.

MEMBER ARMIJO: What holds that fusible metal plug in that pipe?

MR. CHAPPELL: There are many ways that it can be done. In this particular concept it's a fitting in the casing of the valve, and then there's a protective sheath and then there's --

MEMBER ARMIJO: It's more in a plastic cap, I would assume.

MR. CHAPPELL: The plastic cap is at the bottom. It does nothing more then protect the internals. The disc itself in this area is the Teflon disc that would melt.

MEMBER ARMIJO: But the fusible metal plug is it --

MR. CORRADINI: I don't think -- is going to fall out, I assume.

MEMBER ARMIJO: Well, can it be pushed out by pressure?

MR. CHAPPELL: Right. It'll be pushed out.

MEMBER ARMIJO: Just from pressure, not even from melting.

MR. CHAPPELL: And the way this is tested, its tested at the minimum head that would open it.

MR. CORRADINI: Sot he stainless steel gets pushed out, the Teflon gets melted out and the plastic is dirt control?

MEMBER SHACK: The fusible link is the Teflon.

MEMBER BROWN: No. The fusible metal plus that it's below the Teflon disc to the plastic --

MR. CHAPPELL: Right. The metal is the fusible piece.

MEMBER BROWN: And when does that --

MR. CORRADINI: Oh, I'm sorry.

MR. CHAPPELL: This whole block here. This whole block here would melt.

MR. CORRADINI: Oh, that's a piece of metal. I didn't understand --

MR. CHAPPELL: See these grooves, they hold that there. This just protects it from anything on this side. And this disc prevents interface and corrosion. And this just covers the outside of the plug.

MR. CORRADINI: Okay. Excuse me. I misunderstood.

MR. HEAD: Okay.

MEMBER ARMIJO: But, you know typically a fusible metal that melts at that temperature is also

very soft and plastic as it gets hot. And I was just wondering, could that thing extrude out and come out before it actually melted?

MR. CHAPPELL: What the requirements are for that is the testing. So I'll just run through this slide. I think that might address at least part of the question.

MEMBER ARMIJO: Okay. That would help.

MR. CHAPPELL: The concern is to maintain a dry cavity so there's not premature flooding. So that there would be negligible probability of premature spurious actuation, the passive flooder operation below 500 degrees or under low differential pressure is maintained by the inspection requirements. Every outage it's looked at to make sure there's no leakage. But then every other outage two of the valves are tested for the setpoint temperature under the corporate conditions to make sure that they don't actuate early.

MR. CORRADINI: And the metal hasn't been chosen, right?

MR. CHAPPELL: I think it discusses different types in the DCD. I don't know the specifics.

MR. CORRADINI: That's fine. That's fine.

CHAIRMAN ABDEL-KHALIK: Now the melting temperature of Teflon, isn't that much greater then 500F?

MR. CHAPPELL: No. I think that's why it was chosen so it wouldn't interfere. But it's the actual plug properties that are significant.

MR. HEAD: So the Teflon just drops out.

CHAIRMAN ABDEL-KHALIK: Right. Right. But you know, if this thing is going to actuate at 500F, the Teflon is probably very close to melting itself.

MR. CHAPPELL: The Teflon just provides a barrier. So each of these conceptually is just to prevent interface between the water, the plug and then the Teflon prevents interface between the plug and the disc. And then this just protects it from the environment.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. CHAPPELL: So these small grooves here are one of the examples of once it starts to melt, then it doesn't have any real resistance. It reaches that temperature and then gets pushed out. But there are other designs at similar plants.

MEMBER ARMIJO: So this is just conceptual here? There's no specific valve that's actually been built, been tested and qualified?

MR. CHAPPELL: The final design is not chosen, that's correct. The detailed design is not there.

MEMBER ARMIJO: Right. What do the Japanese use at Kashiwazaki's site.

MR. CHAPPELL: We had a question about this before, and it's not included in the Kashiwazaki design.

MEMBER ARMIJO: They do not have that feature in the Japanese --

MR. CORRADINI: It's a dry cavity in the Japanese design as my memory serves, is that not correct?

MR. CHAPPELL: It's the same basic containment as ABWR.

MR. CORRADINI: Right. But I guess I was going with Sam's question. Maybe I jumped ahead.

MEMBER ARMIJO: No, go ahead. I just thought if the Japanese use that same feature and that same valve, they'd have some qualification testing that showed it was -- you know, would meet the requirements. But you're saying they do not have such a feature

MR. CHAPPELL: That's correct. They don't.

MR. CORRADINI: So it's dry?

MR. CHAPPELL: I'm sorry, again I jump. If I get into a severe accident situation, those cavities would remain dry unless there was leakage from other non-prescribed source. There are other ways to flood the lower drywell, this is one.

MR. CORRADINI: Oh, I'm sorry. I thought this was --

MR. CHAPPELL: This is a purely passive system.

MR. CORRADINI: I thought all the other ways were not guaranteed so you had no guarantee of large amounts of water dump.

MR. CHAPPELL: No Any system can be -- I mean, it takes a large amount of water, but any system -- or when I mentioned before about the AC-independent water addition function being able to provide the same function --

MR. CORRADINI: Right.

MR. CHAPPELL: -- it does it through sprays that then go into the suppression pool, fill it up and then it would overflow into the lower drywell. But there's a sustained amount of time needed to do that.

But RHR systems can provide --

MR. CORRADINI: Sure.

MR. CHAPPELL: -- input into this suppression pool. From outside containment you can use high pressure --

MR. CORRADINI: Yes, I'm with you there. But I guess -- this is memory now, so this is probably wrong. But in the original submission of the ABWR in '92 it was designed to be dry and any water in there could not be guaranteed to be more then a little bit, a "little bit" meaning less than a meter, inches. Okay. And this I thought was designed to provide high reliability that water would come in there post-hot temperatures.

MR. CHAPPELL: Yes.

MR. CORRADINI: And none of the others can reliably provide large amounts of water post-hot water temperatures? They might, but they might not. That's what I'm trying to get at.

MR. CHAPPELL: Any of the ECCS systems that can add inventory into the pool can reliably raise the level by operating procedures and then direct water into the lower drywell.

MR. HEAD: But if you take that logic, I mean if you're a core damaging situation, how you got there could easily be because at that's not available.

MR. CORRADINI: Well, I'm glad you said

that, because in '92 that was another group's argument as to why they couldn't guarantee large amounts of water.

MR. HEAD: Well, I mean if you're there, it's for a reason. And if that equipment is not cooling the core, then it could be for electrical reasons or whatever. So here's a passive way of--

MR. CORRADINI: Exactly. And then just to get to Sam's question, I know he's gone, the Japanese have all these alternative means given the design but they don't have this system?

MR. CHAPPELL: That's my understanding.

MR. CORRADINI: Okay. Thank you.

MR. CHAPPELL: And I would add that an event that would potentially core damage doesn't take into account that you can recover some of those other systems later after several hours that have been developing.

MR. CORRADINI: Right. I'm with you there. I just wanted to make sure I understood the logic, that's all. That's fine. Thank you.

MEMBER STETKAR: Coley, I'm sorry. My memory really isn't 15 minutes.

I was just going back and looking at the design of the RCIC turbine and its self-controlled

governor. The way that thing seems to work is that during normal operation there's a mechanical hydraulic control to maintain a fixed discharge flow such that if discharge flow decreases, it'll open up the turbine throttle valve to supposedly increase flow.

And then there's a -- it's called various things in the documentation, there's a kick back that will drop it. Instead of 800 gpm, it'll drop it down to 400 gpm. To enable that, you have to energize a solenoid. So if you don't have DC power, you're not going to get that kick back in place.

MR. HEAD: Yes. Yes.

MEMBER STETKAR: With a kick back, though, you're still -- the thing will try to control a fixed flow. So it's not clear to me how easily one can control actual discharge flow. If you want to try to get it down below 400 gpm, I think the machine is going to try to maintain it at 400 gpm by emitting more steam, or you know you try running the discharge valve on the pump.

MR. HEACOCK: Yes, it'll more likely be --

MEMBER STETKAR: If you try one of the steam emission valve, it ought to work.

MR. HEACOCK: Yes, sir.

MEMBER STETKAR: You can only shut off

steam into the turbine.

MR. HEACOCK: Yes. Part of that would be the --

MEMBER STETKAR: It is not clear to me how, you know if you don't have DC power, it's probably going to try to make it work at 800 gpm.

MR. HEACOCK: Well, it probably will. And again, without having -- but you've looked real quick more likely our procedures, and we talked about earlier on --

MEMBER STETKAR: I'm just trying to see the emission valve somehow.

MR. HEACOCK: Yes, following steam emission. And we also have the capability of trying to override the solenoid, we'd probably have something in procedure-wise if we can override it, we would. But most likely it will be throttle --

MEMBER STETKAR: But even then it's still going to try to maintain that fixed flow --

MR. HEACOCK: Yes. Yes. Right.

MEMBER STETKAR: -- as far as I can see the way it is worded.

MR. HEACOCK: Okay. And the discharge valves will be the other part of it, like you're saying. That'd be the other way to throttle.

MEMBER STETKAR: Yes, but I think if you're trying to throttle water discharge flow from the pump, the control is going to work against you?

MR. HEACOCK: It's going to -- right.

MEMBER STETKAR: It's going to try to put more steam in there, then you're going to overspeed.

MR. HEACOCK: Yes. That's true.

MEMBER STETKAR: I just wanted to get a clarification because I thought it wasn't quite as simple as kind of a self -- it's sort of self-regulated.

MR. HEACOCK: Yes.

MEMBER STETKAR: But it's self-regulated for a fixed discharge.

MR. HEACOCK: For a fixed value, yes.

MEMBER STETKAR: Yes. At two different levels. And the second level or the lower flow which you would require for longer term cooling, does require power to switch -- there's a little forward solenoid valve --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- that switches.

MR. HEACOCK: Yes, the --

MEMBER STETKAR: Yes, I mean there are two little pistons so the valve's hydraulic pressures.

Okay.

MR. HUGHES: I would just add since we're on Chapter 19, which is the PRA --

MEMBER STETKAR: Right.

MR. HUGHES: -- as I'm sure you know when you get into these extreme cases DC depletion and you're looking at the ability of the operator to maintain RCIC flow and maintain everything going with a procedure with limited information, there's significant discounting of any likelihood that that would actually be successful in the PRA. It's good to have the procedures and the plans, and be able to try to do it, but there's not vast credit given for the ability to do that.

MEMBER STETKAR: Yes. I mean, we haven't seen -- we'll get to whatever the PRA here is eventually. Yes, we don't know actually how much credit is taken for that operator action in the PRA right now. Whether it's ten to the minus one or point five, or ten to the minus six.

CHAIRMAN ABDEL-KHALIK: You know at some point in the future we'll get back to answering some of the earlier questions regarding long-term cooling. And perhaps at that time if you would also include a discussion of manual control of RCIC --

MR. CHAPPELL: Okay.

CHAIRMAN ABDEL-KHALIK: -- that would be a very helpful discussion.

MR. CHAPPELL: Okay.

CHAIRMAN ABDEL-KHALIK: So if we can add that as a follow-up action item.

MEMBER RAY: Well, as long as you're making that digression, Said, perhaps, John, you understand it well and you can just explain it to me offline. But what's the normal cooling trend? I mean, I'm used to worrying about pump shaft cooling and on these RCIC points --

MEMBER STETKAR: I'll talk to you later. This is a little bit different beast then --

MEMBER RAY: I'd like to know if there's a normal cooling but we don't worry about it in a SBO because there are qualified lab cooling, or is this just the wa it ordinarily works and it doesn't matter in long-term cooling.

MEMBER STETKAR: I'll talk to you at the break rather then taking up time on the record.

MEMBER RAY: All right.

CHAIRMAN ABDEL-KHALIK: So, I guess we're keeping track of that? Okay.

Please continue.

MR. CHAPPELL: In summary, as we've summarized on previous chapters, no open items. The COL items have been addressed. On previous ACRS action items associated with Chapter 19 have been addressed.

You know, we discussed the lower drywell flooder valves. If there are any other questions on that, I want to make sure that we cover them now.

MEMBER BLEY: Not on that. But one of the items that was closed, and maybe we had a meeting and I wasn't here for it. But some time ago we talked about the reservoir for terminal flood and the worry about the doors and could you close them quickly. As I understand what I've read, you've now made a commitment to manually keep the big doors closed. And if they should be open, the security forces tagged with noting if there should be a problem with the reservoir and announcing to the plant staff in time to get the doors closed. Have I got that right? And you've removed the discussion of he probabilistic analysis of external flooding?

MR. HEAD: Yes, sir. I think that's correct.

MEMBER BLEY: Okay.

MR. HEAD: I mean, the notification that

there's an issue with MCR will be something that Operations management will be immediately involved with.

There are people you would contact to close the doors. Security officers interact with doors all the time, it's a logical place to go.

MEMBER BLEY: That's fine.

MR. HEAD: But I assure you Operations management will be confirming --

MEMBER BLEY: But the basic thing is they'll normally be closed and they can be closed -- whatever they finally look like, they'll be able to closed reasonably quickly.

MR. HEAD: Yes, sir.

MEMBER BLEY: Okay.

MR. HEAD: That's the --

MEMBER BLEY: Fair enough. Just wanted to make sure I understood it.

CHAIRMAN ABDEL-KHALIK: Any other questions? Charlie?

MEMBER BROWN: Yes, I forgot one. In looking at -- I'm back in the fire pump, which is multiple fire pumps, portable, et cetera. I was looking for in-service testing type provisions. And I looked in the tech specs, I didn't see anything. But

I found something I guess in Chapter 9 that talked about the plan could be developed for post-operational testing of the fire protection system. And since there was nothing there, could you tell me? What do you do on Units 1 and 2 for portable? Are they tested every year, or every six months?

A diesel drive pump is an idle pump, diesel pump. There's an idle. You never know whether it's going to work or not.

MR. HEAD: It's not only tested in some frequency, but it's also periodically used.

MEMBER BROWN: Well, that was my next question. So you're ahead of me. So --

MR. HEAD: It's been used to drain circ water pipes and things. And it's our experience that that's better then just letting it sit in a garage or--

MEMBER BROWN: I mean that's why I asked the question. What about the pumper truck and the skid-mounted, are they --

MR. PULEO: We have a quarterly PM, if you will, to take the pumper out and just kind of drive it around the owner controlled area to make sure that, you know power still spin around and --

MEMBER BROWN: That's nice.

MR. PULEO: Yes. We do --

MEMBER BROWN: But without hooking it up and seeing that the diesel -- that the pump function works and all of that stuff.

MR. PULEO: I don't remember the level of detail on actually running the pumper portion of it. But I do know that because we do keep it in the protected area and being a security kind of guy, too, you know we have to escort it out and all. So I know it comes in and out and is moved pretty regular from that perspective.

MEMBER BROWN: Okay.

MR. HEAD: I would also note that both pumps will be in D-RAP. And so as part of that review there will be expectations established for testing and then not only testing, but reacting to any failures. That's one of the important parts of the process is reacting to failures.

You know, we've had a portable pump at 1&2, did have an issue at one point in time. And, you know, Corrective Action Program is now housed in a more pristine environment. So it'll be a process as a go through, but I think in a B5B world and in a world we're about to look at here in the near future, and in the PRA world itself, that these pumps will

get, while not in tech specs, they will get the appropriate testing and monitoring.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Are members happy with this, or do you wan to follow-up on that?

MEMBER BROWN: Well, I was just kind of looking or an answer. Units 1&2 should be portable units, not necessarily I understand your use of the ones in the firehouse. So it gets used itself every now and then. So other than driving the truck around, that except to see that the engine to drive it around works, I didn't get much else out of that, other then that part? Am I correct. You didn't really know. If that's the answer, that's the answer.

MR. HEACOCK: It's just like as Scott said, in D-RAP, this will be in D-RAP. We have recommended maintenance in D-RAP as part of this. And we actually have different rated flows for so much time also to make sure that we put the pumps sort of at test to make sure they're pumping at the rate of flow, not just to decide to take them around and drive them around. But there is a periodicity that is defined in the D-RAP process.

MEMBER BROWN: But don't you have a similar process for Units 1&2.

MR. HEAD: I'm sure we have something similar.

MEMBER BROWN: You just don't know your numbers?

MR. HEACOCK: Yes.

MEMBER BROWN: That's fine. Okay, if you don't. I'm just trying to get a feel for what the number was; whether it was quarterly, whether it was annually, whether it was every fueling outage or something like that.

MR. HEAD: The D-RAP table say annually. Yes. There's one a year.

And I would guess, you know if our fire protection people were here, that there's requirements regarding just fire protection equipment itself in fire space that would make you do some testing that we would --

MEMBER BROWN: I'm not aware of it. That's why I asked.

MR. HEAD: I just expect those to be there.

MEMBER STETKAR: Scott, when's the time for me to start asking about D-RAP since you've now mentioned it several times? It's either a 17 or a 19--

MR. HEAD: Well, in our discussion we had planned on 17.

MEMBER STETKAR: You did? Okay. Let me then hold that there and we can talk about --

MEMBER STETKAR: Is that where we would talk about the PRA?

MEMBER STETKAR: Well, I've got kind of two different things.

MR. HEAD: Okay.

MEMBER STETKAR: And part of D-RAP is the tables in 19(k). But if you want to hold that to Chapter 17?

MR. HEAD: I would guess, unless there's--

MEMBER STETKAR: All right. Let's hold that to Chapter 17.

MR. HEAD: That's a generic PRA question there that you would --

MEMBER STETKAR: Okay. We'll hold that to Chapter 17 then.

MR. HEAD: Okay.

MEMBER STETKAR: The generic PRA question then is can you describe for us right now what the PRA for record as far as the COL licensing is? Is it the design certification PRA?

MR. HEAD: It's the reconstituted PRA.

MEMBER STETKAR: It's the reconstituted PRA?

MR. HEAD: That we're using currently for any assessments that we need to do for departures or the assessments that we're doing for D-RAP.

MEMBER STETKAR: But that PRA does not include all features of the as-built plant, is that correct?

MR. HEAD: Yes, sir. And it doesn't include all features of things that we know is coming.

MEMBER STETKAR: Yes. But I mean, does it include the right compliment of condensate booster pumps? Does it include the right compliment of circ water pumps? Does it include the actual configuration of the electric power system of the two RATs and whatever the automatic bus loading is, and that sort of things? Those are things that we know about that are part of the departure.

MR. HUGHES: Right. The departures were looked at and they were all evaluated, and they were screened. And the design certification --

MEMBER STETKAR: Okay. Let me stop you there. All of those words didn't answer the question of does the PRA include them? Do I have basic events, and gates, or gates in the PRA that include that

equipment right now today?

MR. HUGHES: Let me ask Ricky to respond to your question.

MR. SUMMITT: At the present time we do have modification -- a modified STP version that does include the changes to the RCIC pumps, it does include the changes associated with condensate booster pumps and it does include looking at the AC power system different alignment --

MEMBER STETKAR: You said "looking at," Ricky.

MR. SUMMITT: Yes, it's in the modification--

MEMBER STETKAR: I don't want to hear "looking at." I want to see does the PRA --

MR. SUMMITT: There are basic events in the model.

MEMBER STETKAR: There are basic events in the model? Okay.

MR. SUMMITT: Yes. But you have to understand for the RCIC it is at the level of the DCD which is at the executive level at the time of the acceptance. And so therefore, there are some changes that had no impact, if you will, on the physical level of involving within the DCD PRA.

MEMBER STETKAR: Why is it so hard to get a straight answer?

MR. SUMMITT:

It's not hard to get it straight.

MEMBER STETKAR: It is because --

MR. SUMMITT: The RCIC system if you look at the model components that are in there and you look at the impact on the failure data of the changes in, say, the cooling loop there was no discernable difference in the reliability. So when you look at it, you don't see that much of a discernable difference in the results.

MEMBER STETKAR: So they did --

MR. SUMMITT: It did terminate any of the cooling loop that was in the existing DC model because it was no longer necessary to go to the model block or RCIC block.

MEMBER STETKAR: That I understand. You said it does include the condensate booster pumps?

MR. SUMMITT: Yes.

MEMBER STETKAR: Does it include the fourth feedwater pump?

MR. SUMMITT: Yes.

MEMBER STETKAR: Does it include the four circ water pumps?

MR. SUMMITT: Yes.

MEMBER STETKAR: Okay. Good. Good. So it's -- and it includes the second RAT, I mean you reconfigured the electric power system the way--

MR. SUMMITT: It includes changes in the electrical distribution system.

MEMBER STETKAR: Okay. And that's the PRA of record then for the COL?

MR. SUMMITT: That's right.

MEMBER STETKAR: Okay.

MEMBER BLEY:

Is that right, that last statement?

MR. SUMMITT: It's the STP-specific with the changes in that model.

CHAIRMAN ABDEL-KHALIK: That's not consistent with what Scott said earlier.

MR. HEAD: Yes, I said it's the reconstituted PRA.

MR. SUMMITT: Well, it is the reconstituted PRA.

MR. HEAD: You're saying those things are in the reconstituted PRA, then we're saying the same thing.

We are saying the same thing because we did do -- the reconstituted PRA we did make a

reconstituted PRA model to validate that we could produce the same model which was developed by General Electric.

MEMBER SHACK: Correct.

MR. SUMMITT: We then did, because it was part of the requirement to see what the impacts were, we then modified that to make an STP-specific 3&4 Unit model that included in those basic variations or exceptions to the DCD that were made that led back to the changes in the configurations that -- some of the things that John's talking about, like for example the RCIC changes. And that was the one that was evaluated to see if it made any changes to the DCD in the analysis. It did not make a significant change to the DCD analysis.

One of the other things that we did was we also incorporated some of the findings in the original study on the DCD which had to do back with the common cause that was later -- and we put that back into the model also, which is --

MEMBER STETKAR: But I understand, that's a focus issue-based.

MR. SUMMITT: Right.

MEMBER STETKAR: That isn't a comprehensive across the board, right?

MR. SUMMITT: Right.

MEMBER STETKAR: Okay. But the message is if I went to your house today and looked at the model on some computer, I would actually see a model --

MR. SUMMITT: See a model that has all those in there.

MEMBER STETKAR: -- that has all of that in there? Okay. That's good.

That's a little different impression that I had gotten, and it's a little different impression then from some of the oral things that we're hearing about "Well, we took a look at it --"

MR. SUMMITT: Oh, that's past.

MEMBER STETKAR: "-- it didn't make too much difference." And the impression was "Well, we'll ge around to making the changes later when we develop the early prong at the STP plant-specific PRA that will be completed before fuel load, right?

MR. HEAD: Well, I can put at least one of those in context. When we talked about RCIC, that we didn't see any change. And we're expecting to see change once there's more data available that we can rely on. At the time there just wasn't enough data to make a probability of success change, which is what we're expecting. That's --

MR. SUMMITT: And Scott's comment, you should note that because, as I said earlier, we took at the level of the current DCD model, we did not go in and make exhaustive new models for the RCIC system.

MEMBER STETKAR: But at least you cut out the cooling water loop on it.

MR. SUMMITT: That's correct.

MEMBER STETKAR: Okay.

CHAIRMAN ABDEL-KHALIK: My original understanding of that where it's reconstituted PRA was essentially the PRA that was done to try to duplicate what was done in the original DCD. And is that term now used for something else?

MR. HUGHES: No. In order to begin the process, we needed a PRA that represented the DCD. And since we did not have all of the elements of that PRA, we reconstituted the original DCD PRA.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HUGHES: And that was our starting point.

CHAIRMAN ABDEL-KHALIK: And that was called the reconstituted PRA?

MR. HUGHES: Yes.

CHAIRMAN ABDEL-KHALIK: And now you've made further revisions to that and still call it the

reconstituted PRA?

MR. HUGHES: That's correct. No. No. I'm sorry. I answered prematurely. I did not realize you were going to say "And that's called the reconstituted." That's called the plant-specific PRA or the COLA.

MEMBER STETKAR: I tend to call them the reconstituted PRA, the COLA PRA and the to-be-developed plant-specific PRA, which is whatever will exist prior to license submittal, for example.

MR. HUGHES: That's very clean language.

MEMBER STETKAR: It keeps sort of timing. What I'm talking about, you know trying to understand is what I'm calling the PRA for the COLA.

MR. HUGHES: Okay.

MEMBER STETKAR: And from what Ricky said, it sounds like that does have a number of the departures, you know that we know about wired into it essentially. It's not just a semi-qualitative, semi-quantitative look at issues in the context of the reconstituted PRA.

MR. HUGHES: The reason it may be confusing is there were many things looked at. And many of them can be obviously just taken care of qualitatively. Some of them remain, and that's what

we're talking of.

MEMBER BLEY: So just for clarity for me, we had a DCD PRA.

MR. HUGHES: We have one.

MEMBER BLEY: Then there was a reconstituted one, which I suppose is archived somewhere, perhaps. And now we have the COLA PRA, but its evolving?

MR. SUMMITT: No, it's done.

MEMBER BLEY: It's done. It's a fixed thing also --

MR. SUMMITT: Yes. Yes. That's right.

MEMBER BLEY: -- kind of archived. And now from now on anything that happens as you move forward will eventually become the plant-specific PRA?

MR. HEAD: On the exhibit side. We'll get this up before.

We have the PRA that we will be using at this point in time and if there's a departure or something else that's added at this point in time, then we would adjust that to assess the departure.

We're building the operational PRA, okay? It's not completed yet.

MEMBER BLEY: Okay. You're calling that something separate, the operational PRA? I'll admit

that language.

MR. HEAD: I can handle that.

MEMBER BLEY: So we have a COLA PRA and we have an operational PRA?

MR. HEAD: Right.

MEMBER BLEY: And you have them both?

MR. HEAD: And once this is available, then that's what we'll be using.

MEMBER STETKAR: But the operational PRA is the one that will be available prior to fuel load that will satisfy all of the requirements in terms of quality, you know whatever it is, 12 months or a week before the date of fuel load.

MR. HEAD: Yes, and we've alluded to it in this discussion before. It was being built. I'll just, you know to reconfirm with you in our current spending situation we've stopped work on it, but it has a status. And once funding is available, we'll embark upon it again. Because there was something we felt it is important to build early as possible for a lot of reasons, including D-RAP and other insights.

MEMBER STETKAR: I have a question: From our perspective, you know our involvement in the process ends at the COLA. So anything that's in the PRA that I'm calling the COLA PRA is conceivably part

of our concern, is part of our review. Anything that's done after that for the operational PRA is interesting in an academic sense, but in the sense of the Committee's involvement, I mean that then falls to the staff and inspection audit type role. That's why I was trying to get a handle on exactly what it is that we need to be thinking about in the context of the COLA, and what is in it and what's not in it.

MR. HEAD: I'm sorry for any confusion I introduced to it.

MR. HUGHES: I would just like to add that -- that was not the addition. I would like to add that if you look at the original PRA and the reconstituted PRA that got essentially identical results, not in total but for the key sequence types, that PRA does not meet all of the expectations we would have today. However, that PRA is a very good PRA. The event trees that we have in there are fairly good event trees. The system models, given the level of detail of the design certification and the COLA application are pretty good.

The places that it comes up short in terms of expectations are places you might expect. The documentation expectations over the past 15 years have changed a great deal.

The expectations for the ability to incorporate operating data can't be fulfilled. And that's true of any design certification or COL PRA.

The expectations for human reliability that rely on real procedures that are fully implemented and tested or rely on any simulator experience, it can't be done yet.

So there are a number of things in the new PRA that's being developed that's on hold right now that will greatly enhance what we have. But I just want the record to show that the existing PRA is, I think, a very high quality PRA that captures most of the initiating events, most of the sequences and does a really good job of providing the ability to evaluate these departures.

CHAIRMAN ABDEL-KHALIK: Any additional questions on Chapter 19? Okay.

At this time we'll take a 15 minute break and we will reconvene at 10:30.

(Whereupon, at 10:13 a.m. a recess until 11:30.)

CHAIRMAN ABDEL-KHALIK: We're back in session.

At this time the staff will make their presentation on Chapter 19. So, Rocky.

MR. FOSTER: Good morning. My name is Rocky Foster. I'm the Chapter PM for Chapter 19 - Response to Severe Accident Policy Statement.

I'd like to thank the Subcommittee to provide us this opportunity to make our presentation on the Safety Evaluation Report without any open items.

Our Project Management team for Chapter 19 is our leaders George Wunder and myself, Chapter PM. Dr. Todd Hilsmeier to my right -- our right. Dr. Edward Fuller to my right. Marie Pohida, David Jeng and Jason Dreisbach did our loss of large area fire or loss literally of the plant due to fires or explosions or fires. Excuse me.

MEMBER BLEY: Not to upset you right from the start, but given the discussion we just had at the end of the last session, I had a couple of questions.

You might remember we've talked to this in the past, but we have the reconstituted PRA, and I think you guys said you looked at that or audited it, I think I remember that. And then we have the COLA PRA which now includes some plant-specific items. And have you seen that? Do you have a copy of it or did you go visit and audit that one, and can you say anything about how the COLA PRA compared to the

reconstituted PRA?

MR. FOSTER: My understanding of the flow of events that effected the PRA was that we had a PRA that was associated with the level 1 PRA with the DCD.

When Toshiba came on board with the applicant, some of the information that was available to GE, who was the original designer, wasn't available, okay?

MEMBER BLEY: Right.

MR. FOSTER: And so Toshiba had to, in essence, reconstitute that information, they had to provide it themselves or find a lower mechanism either to recreate it or whatever.

Based off of that and the information they had to go in onto the PRA and reconstitute it, okay?

MEMBER BLEY: Right.

MR. FOSTER: And they did their evaluations and basically came out with the same determination at the end, very close results, okay?

During the process of going through the COL application licensing the applicant has been able to fill-in certain information that would help to inform the preparation of the level 2 or the site-specific PRA, which is not required as part of licensing, but we have stipulations required later on

in the process prior to fuel load.

Now as far as the auditing process of it, Todd, can you provide us input?

MR. HILSMEIER: Yes, I can give you a lot of detail on our audits. Would you like that now, or we can talk about that later?

MEMBER BLEY: Yes. I didn't see it in your presentation here, so either way would work for me.

MR. HILSMEIER: It may take a while, that's what I'm concerned about. Yes, sit back and relax.

My name's Todd Hilsmeier.

The new lead for STP Chapter 19 Review. Our former lead was recruited by ACRS, and most valuable player. I have no bad feelings.

To begin with, we have the ABWR DCD, and with the FSAR, Safety Evaluation Report. And Appendix 19(d) documents the foundation of the ABWR PRA. It contains the event trees, fault trees, player probabilities. And it also calculated the core damage frequency of 1.56 E minus seven. And STP wanted to use that PRA model, but bemuse, I want to say, politics, administrative, they couldn't use that PRA model. So they rebuilt the PRA model.

Therefore, they got the PRA model, I believe, using CAFTA and the PRA information came from Appendix 19(d) of the FSAR. And so they basically rebuilt the event trees, the fault trees and used the failure probabilities. And when STP computed the core damage frequency after rebuilding this model, and they named this model the baseline model of records. There's a lot of different names of different models and it's confusing.

So this model, the first model that they're working on, is the baseline model of record. And so when STP computed the CDF it came out with a CDF of about twice that of the DCD, 3.96 E to the minus 7.

And so STP did investigations. They looked at the accident sequences to see why there's a difference. And what they concluded was that credit for the containment over pressurization system at preventing core damage was included in the level 2 event trees of the FSAR. However, it wasn't in their level 1 event trees. And so they added the COP system to level 1 event trees.

Also, the CDF results documented in the FSAR reflected the addition of the control rod drive system for ejection, coolant eject. However, the

event trees and fault trees in the FSAR did not reflect the control rod drive system. Basically the event trees, fault trees in the FSAR was of a previous revision while the CDF results in FSAR were the final results that reflected the CRD. So the event trees in the FSAR reflected an earlier revision, basically, which did not include the CRD, control rod drive system.

And so when STP added the CRD system to their event trees, they computed a core damage frequency of 1.4 E minus 7. And again, the FSAR core damage frequency is 1.56 E minus 7.

They also looked at the accident sequences, and they matched up very well. And so they called this model the reconstituted model of record.

MEMBER STETKAR: And, Todd, just to make sure I understood that, that one has credit for CRD injection as cause event?

MR. HILSMEIER: Yes. Yes.

And then STP goes one step further because the original ABWR and PRA model it did not include common cause failure of the reactor building cooling water system and reactor service water and high pressure core flooder and an RHR system. And during the NRC review of the DCD the staff asked General

Electric to do a sensitivity analyses of these common cause failures which were modeled in the PRA. And for the sensitivity analyses it showed like a 20 percent increase in the CDF, however in the DCD General Electric said that the next time the PRA model is requantified or rebuilt these common cause failures will be added.

And so STP took the initiative to add to the reconstituted model of record these common cause for reactor building cooling water, service water, high pressure core flooder and RHD system. And that model now which reflects the COP system, the CRD system and the common cause failures which the DCD did not include, STP called the model the revised model of record. And this is the model that STP used to evaluate the design departures and also site-specific information.

And we learned all this through a face-to-face audit with STP, it was back in September of 2009 in addition to audits of their documentation at the Westinghouse Twinbrook office.

Now they use this model to evaluate the design departures. I don't know if you want me to go into that part of the discussion, how they evaluated the design departure.

MEMBER BLEY: So does anybody else want to get into that?

CHAIRMAN ABDEL-KHALIK: Go ahead, please.

MR. HILSMEIER: Okay.

CHAIRMAN ABDEL-KHALIK: Yes, go ahead.

MR. HILSMEIER: John, you look like you have a question.

MEMBER STETKAR: Yes. Looking at STP departure 10.4-4 in section 19.3.1.3 of FSAR Revision 4, I probably can't say all of that twice in a row, but I'm quoting. It says: "Nonsafety-related system which contribute to a successful conclusion of the event have been included in the success criteria. The control rod drive CRD pumps which have limited capacity have not been included in the success criteria." That's why I was kind of --

MR. HILSMEIER: Right.

MEMBER STETKAR: I don't know how important it is, but from what you've just said it seems to contradict the statement in the FSAR.

MR. HILSMEIER: The FSAR? What section of the FSAR is that?

MEMBER STETKAR: That one I can get. 19.3.1.3 and it's under STP departure 10.4-5 subparagraph (a) Core Cooling.

I haven't followed through on that. I had sort of remembered that they weren't modeling CRD, and when you said it was added in some incarnation of what you're marching through here --

MR. HILSMEIER: Right.

MEMBER STETKAR: -- I --

MR. DUBE: This is Don Dube. I was part of the audit that we had an RAI on that. And STP responded acceptably. I know we accepted the RAI. I don't know the exact response. But we had that same observation, I recall.

MEMBER STETKAR: Okay. I didn't get to the SER. I wanted to go look at the FSAR first.

MR. FOSTER: We also have South Texas that will respond to that.

MEMBER STETKAR: Yes.

CHAIRMAN ABDEL-KHALIK: The applicant would like to make a comment.

MR. HUGHES: I expect Don's comment would probably be the same as mine. You're a 100 percent correct, Dr. Stetkar. That statement is in the record.

What we did was we looked at that statement, we looked at the results and we concluded from everything we observed that in the final stages

of the original DCD, the documentation and the adjustments that were made were not a 100 percent consistent. And especially we discovered three different areas on which that was the case.

The first one that you haven't mentioned was there were some cases that were listed as negligible in the sequences. And yet when we reconstituted and we solved the reconstituted model, we observed that some of the previously negligible were slightly above others that had been reported and retained. And we concluded from our investigation that what happened was in the original early 1990s when this work was done, the solution with one solution for all the sequences was not commonly applied. And so the sequences were individually quantified and after a sequence had been determined to be negligible it appeared the original applicant for the design certified had not always updated the sequences. We did that update and included all of those in.

There's a clear statement that CRD is not credited, and that was a very strange statement because from the work I had done in the '80s and through the '90s with the original applicant on other cases, it was surprising that that would be the case.

And with the regulatory history of CRD injection capability, it seemed very strange. And when we put credit for it in, everything lined up exactly the way we thought it would.

And the conclusion we reached was that it had been credited in the results table, but it had not been adjusted in the text. So there was a inconsistency between the text and the results.

The third place this occurred was with the containment overpressure protection system, which was also not clearly credited but yet when we put it in as we knew it should have been, and its described in the record as something that through discussions with the NRC late in the game of going through the review, the decision was made to incorporate it in the design. It clearly was not modified fully in the text, but when we put it in all the results came into alignment. So that's how we concluded that was the case.

We made that information clear to the NRC, and I think Dr. Dube was about address the fact that during the audit that was indeed found to be true.

CHAIRMAN ABDEL-KHALIK: Don?

MR. DUBE: That's correct.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MR. DUBE: John Lai is getting the RAIs up

here if there's interest.

CHAIRMAN ABDEL-KHALIK: Okay.

MEMBER STETKAR: I just pulled the SER discussion of it. I see it here.

MR. FOSTER: So, John, does that pretty much kind of clear things out for you here?

MEMBER STETKAR: Yes. Thanks.

CHAIRMAN ABDEL-KHALIK: Please continue.

MEMBER STETKAR: I'm sorry, Todd. I interrupted. You had a good head of steam going there.

MR. HILSMEIER: So now the model that STP used to evaluate the departure and site-specific information is called the revised model of record.

And STP has approximately 170 departures. And STP screened the departures in accordance with Regulatory Guide 1.206 Section C.3.1.19 that describes the process for developing the plant-specific PRA from the design certification PRA including evaluating departures and design changes. In the screening process STP also developed the procedure in accordance with this Regulatory Guide 1.206 for screening departures.

And the results of the screening process id documented in Table 19.2-2 of the FSAR, which I

have here. And this set of departures and then how it impacts the PRA. And our staff thoroughly went through the table and asked many RAIs for justifications why certain departures were screened. And this was a major effort then. This was discussed at the last ACRS meeting last year.

Eleven departures remain on the screen of the approximately 170 departures and six were determined to have a negligible impact on PRA and five had potential impact. And also STP looked at the updated loss of offsite power frequency.

So STP used the revised model of record to evaluate the departures and design changes and site-specific information.

The five departures that had a potential impact on the PRA model included:

The change in ultimate heat sink;

RCIC turbine pump departure;

The medium-voltage electrical system departure;

The updated digital architecture departure and that should be also considered the updated loss of offsite power frequency.

So, I'll next provide the overall results of the impact of the departures on the CDF.

Again, the revised model of record which reflects the DCD CDF is 2.13 E minus 7.

The plant-specific core damage frequency which reflects the five departures, that could potentially impact CDF using the DCD loss of offsite power frequency had a CDF value of 2.05 E minus 7. That's a four percent delta. And based on our Interim Staff Guidance for PRA with a four percent change in CDF and those changes in risk insights, they did not need to report the numerical values, the quantitative values.

Now the plant-specific CDF using the site-specific loss of offsite power frequency was actually a lower one, .79 E minus 7. The largest contributor to the difference in core damage frequency of four percent was due to the ultimate heat sink design, and that's because of the forced cooling pans.

I believe the DCD uses a cooling pond for the ultimate heat sink. I'd have to check that to be exact. But however, STP's ultimate heat sink is based on forced cooling.

And that's about all I have to say on that part.

CHAIRMAN ABDEL-KHALIK: Okay. Is that okay for you --

MEMBER BLEY: That's al my questions. Thank you.

CHAIRMAN ABDEL-KHALIK: Thank you.

Please go ahead.

MR. FOSTER: There's one thing I'd like to say about the PRA itself, because I've been involved from the beginning process here. You can tell back in the '90s we went through the evaluation of a PRA we were vastly different in a lot of the approaches that we took the PRA and how we quantified things. And now we're much more detailed.

From my observation of the applicant, I'd like to actually commend them for the hard work they've done. They've went back in and tried to identify the shortcomings of the PRA and address it a system, do any of the adjustments to try to figure out and pull the threads on things within the PRA itself where things were addressed, where the numbers didn't match up right or the conclusions were right and pulled that together such that we the staff could understand the process that they were going through on that.

Chapter 19. We have no open items. We've closed all the open items. We've got some notable confirmatory items, mainly 19-15, and then we have one

associated with Chapter 17 which deals with the D-RAP which we'll talk at the end of the chapter, basically referring us to Chapter 17, which is our next chapter.

We do have multiple loss of large area fire confirmatory items. I think we have approximately ten of them.

And the staff has no ACRS action items.

For the first discussion, I'll turn it back over to Todd.

MR. HILSMEIER: Thank you, Rocky.

The next two slides, this slide deals with the main cooling reservoir breach and the slide after that deals with hurricane risk assessment. They were both evaluated by Maria Pohida, but she couldn't be here today, so I'll be filling in for her. And I'll do my best. She has all the detailed, nitty-gritty stuff, but I think I can cover all the bases.

Okay. So on this slide, the closure of Open Item 19-12 is discussed.

Open Item 19-12 relates to RAI 19-30 that addresses STP's risk evaluation for external flooding due to postulated main cooling reservoir breach. So I don't get tongue twisted; main cooling reservoir breach I'm going to refer to MCR breach. Usually MCR is main control room, but I'll just call it MCR.

MEMBER STETKAR: If we could figure out all of the incarnations of the PRA, we can handle this one.

MR. HILSMEIER: The risk evaluation for the MCR breach risk assessment was based on the watertight control room access door being normally open and two watertight doors in the reactor building access corridor being normally open.

On June 8, 2010, the staff discussed with the ACRS Subcommittee this open item and its resolution, which is to change in the FSAR the status of the watertight doors and hatches to be normally closed. And this change is reflected in STP's final response to RAI 19-30, which is dated July 28, 2010.

And so in essence these watertight doors which could cause potential flooding of the control building will be normally closed rather than normally open. And in the RAI response, STP used criterion (a) in Section 6-2.3 of the ASME PRA standard to screen external flood scenarios from a detailed quantitative evaluation. And the staff confirmed that the proposed revisions are incorporated into Revision 4 of the FSAR, and therefore Open Item 19-12 is closed.

Any questions?

All right. Next slide?

In this slide we addressed closure of Open Item 19-9. Under the standard departure 1.1-2 for the shared fire water system between Units 3&4 the staff concluded that this departure impacts the site's hurricane risk assessment. Therefore, the staff issued RAI 19.01-31 requesting the applicant to provide a shutdown in full power hurricane risk assessment for the site that considered the shared fire water system. And in response to RAI 19.01-31 and to satisfy requirements of 10 CFR 52.70(d)(1) the applicant provided simplified risk assessments to evaluate hurricanes at or below the design basis wind speed of 134 miles per hour or three second gust, and also to evaluate hurricanes above this design basis wind speed which would fail the fire water pump house and the combustion gas turbine structure.

And these risk assessments credited the hurricane compensatory measures that the applicant discussed during their presentation. And these hurricane compensatory measures will be documented in the next revision of the FSAR.

Also, STP developed the commitment 19.4-1 to develop abnormal operating procedures for hurricanes that are consistent with the Guidelines of NUMARK 87-00 on procedures and hurricane preparations

for addressing station blackout. And these procedures will also include the hurricane compensatory actions.

The staff also found that the results from the hurricane risk assessments satisfied the requirements of 10 CFR 52.79(d)(i) and meet the Commission Guidelines for New Reactors. Therefore, the staff concluded that the issues associated with Open Item 19-9 are resolved. And verification of the proposed changes to the revised FSAR is being tracked as Confirmatory Item 19-15

MEMBER STETKAR: Don't put the slides up.

A couple of questions. I think that we heard in the applicant's presentation that they did perform the quantitative analysis that you have summarized here and that the conclusions of that analysis were that the hurricane induced core damage frequency was -- I don't know. They mentioned something ten to the minus eight, or whatever. And as a result of that, it could be screened out, therefore it's not actually quantified in the current PRA of record, whatever that is called. Is that true?

MR. HILSMEIER: We agreed that the --

MEMBER STETKAR: Because it's less then the ten to the minus seven core damage frequency --

MR. HILSMEIER: Yes, it's very low

MEMBER STETKAR: -- per your magic number?

MR. HILSMEIER: The risk assessment, that included in the FSAR.

MEMBER STETKAR: Okay.

MR. HILSMEIER: However, the compensatory actions are.

MEMBER STETKAR: Yes.

MR. HILSMEIER: And that's where most of the focus is.

MEMBER STETKAR: No. I understand that. I'm trying to understand what is in the risk assessment and what is not in the risk assessment. And I care less about very precise, very small numbers then understanding what indeed has been evaluated --

MR. HILSMEIER: Right.

MEMBER STETKAR: -- in the risk assessment and the basis for that.

On your slide here it says that hurricanes at or below the design basis wind speed of 135 miles per hour had a frequency of one in a 100 years. They assumed that if at one in a 100 years you would have a hurricane with a wind speed greater than 134 miles per hour, and they explained this morning that they failed some structures.

My question is that 100 -- I'm sorry.

The frequency of a hurricane with a three second gust wind speed that exceeds 134 miles per hour is a construct from ASCE 07-05. It's a structural design guidance.

The three second gust wind speed, again, of 134 miles per hour corresponds to about the mid range of a Category 2 hurricane. The question is did you in your review of this response question their assigned frequency of once in a 100 years of a Category 2 hurricane striking the South Texas site? Because if you look at historical hurricane data for the last 50 years or so which are available, it's not at all clear that that once in a 100 year frequency is a conservative number, for example.

MR. HILSMEIER: I agree with you.

MEMBER STETKAR: I want to focus on the very small numbers.

MR. HILSMEIER: All right. Exactly.

MEMBER STETKAR: I don't care at one level whether it's something times ten to the minus eight or a few times ten to the minus six even.

MR. HILSMEIER: Right.

MEMBER STETKAR: But whether or not there is an explicit treatment of these events in the PRA is of concern, moving forward in particular.

MR. HILSMEIER: Yes. I agree with you on that in this event frequency. First I'm going to answer your first question why the risk assessment is not in the PRA.

The increase in the overall risk is less then ten percent. And by the Interim Staff Guidance they don't need to include the quantitative results.

When I was preparing for this meeting I also asked that question: Is this .01 per year frequency for winds less than 134 miles hour, is it conservative? Conservative high? And I looked at NUREG-CR/6890 that analysis loss of offsite power frequency. And they quoted or they stated that the frequency for whether related loss of offsite power for coastal plants is on the order of seven to E minus 2 per year, and that's mostly dominated due to hurricanes.

MEMBER STETKAR: Yes, but you got to be careful because that includes Turkey Point and St. Lucie, which is they're really bad actors.

MR. HILSMEIER: Right.

MEMBER STETKAR: And so that's got lump data in it, so that might not necessarily be fair to South Texas to use that.

MR. HILSMEIER: Well, I agree. But I

wanted to do a ultra-conservative analysis.

MEMBER STETKAR: Yes.

MR. HILSMEIER: So when I use the seven E minus 2, the Commission guidelines were still met.

MEMBER STETKAR: Yes.

MR. HILSMEIER: And I brought everything except for my calculator.

MR. CORRADINI: Here, pass this over.

MEMBER STETKAR: Todd, as I said, I didn't want to bring up the absolute numbers because i understand your criteria and things like that.

MR. HILSMEIER: Right. Yes.

MEMBER STETKAR: I'm just trying to understand how --

MR. HILSMEIER: So, it ended up being like seven or eight E minus 8. And the analysis are very conservative because they don't take credit for diesel recovery and they don't take credit for the portable diesel driven fire pump. So even factoring that in, there was a risk even substantially more. So the staff performed other sensitivity analyses.

And our major concern was with the other risk assessment for a hurricane greater than 135 miles per hour. Because the ACIWA's structures failed along with the combustion turbine generators. And so that

was a higher priority to us.

MEMBER STETKAR: Yes.

MR. HILSMEIER: I hope that answers your question of this morning?

MEMBER STETKAR: It helps a lot. I mean, I understand the process. It sounds like you did delve into it.

MR. HILSMEIER: Yes. These are sensitivity studies and there's always a question regarding what values to use.

MEMBER STETKAR: Well, that's why I asked about it. You know, did they look at the uncertainties in that frequency as a function of hurricane severity. The answer is no, they haven't. You've done a little bit looking at different types of data sources.

MR. HILSMEIER: Right.

MEMBER STETKAR: You know, within a factor of seven, let's say, on that mean frequency.

MR. HILSMEIER: Right.

MEMBER STETKAR: Which helps a bit.

MR. HILSMEIER: Okay.

MEMBER STETKAR: Okay. Thanks.

MR. HILSMEIER: Is there any questions on the basis of the hurricane risk assessment greater

than 135 miles per hour? Otherwise, I'm done with this slide.

CHAIRMAN ABDEL-KHALIK: Please continue.

MR. HILSMEIER: Next Rocky.

DR. FULLER: I'm going to be discussing the next few open items.

My name is Edward Fuller. I'm in the Severe Accident and Probabilistic Risk Assessment Branch of the Office of New Reactors, the same branch that Todd is in except he's call the RA and Severe Accident Analysis Branch.

I bring this up to remind folks that Chapter 19 is not just about PRA. It's about severe accident, evaluation of mitigation features. It's about accident management, severe accident management and it's about severe accident mitigation design alternatives or SAMA; SAMDAs or SAMA. So in the PRA part, which is roughly half, is obviously probabilistic in nature and the severe accident part, which is the other half, is deterministic in nature and is based on meeting the Commission's guidelines on severe accident prevention and mitigation features.

So, the first of these open items is a PRA item related to the level 2 PRA. And it's related to the open item you just heard from Todd on the

hurricane risk during shutdown.

We asked an RAI, we had concerns about startup and shutdown operations when the containment would not be inerted. So we asked an RAI to have issues pertaining to level 2 PRA and also severe accidents. We were wondering what would happen if you had a severe accident if the containment was not inerted and how it would impact the overall risk.

And so we took advantage of a departure where they were going to remove the hydrogen recombiners to get at this notion a little bit.

And so we did two parts to this RAI: One related to the hydrogen combination what its consequences might be, and the other one related to the impacts on large release frequency for low power and shutdown operations.

And as you just heard, the staff issued another RAI 19.01-31 which you just head the discussion of related to the shared fire water system. As we evaluated the response to RAI 19-3, the applicant spent a fair amount of effort to describe how the hydrogen combiners would be ineffective for low power and shutdown severe accidents when the containment was de-inerted. And so w believed that they did address our concern relative to the

departure. However, we don't assume that the risk associated with these kinds of conditions is very low because there was not a shutdown level 1 and level 2 PRA performed in the original design certification. And the COL applicant didn't provide one either.

We believe, though, that Open Item 19-9 is now resolved because 19-8 is resolved with respect to the risk of these kinds of events. Because this risk assessment that Todd and sensitivity study that Todd just talked about gives us confidence that the Commission guidelines on large release frequency would probably be met.

Okay. IS there any questions on that one before I go to the next one? Okay.

The next one, next slide, please.

These next two items are not PRA related. They're severe accident related.

Open Item 19-5, coincidentally, is also based on RAI 19-05 and it's related to severe accident management.

We looked at the commitment originally made in Section 19.9.14 on how they're going to be addressing possible changes in the accident management procedures to go from the existing BWR designs to the ABWR. And basically there are two SAGs in the BWR

Owners Groups, AP Emergency Procedure Guidelines/Severe Accident Guidelines, there are two of them related to severe accident management. One is related controlling radioactive releases, and that's not up for discussion here, but the other one is related to flooding the RPV and/or containment during a severe accident. And we looked at what the applicant said was going to be done. And we determined that with respect to the ABWR design, it wasn't a complete enough picture because we believed that the existing Containment Flooding Guideline needed to be expanded to address possible implications of flooding the lower drywell, not necessarily the upper drywell because the applicant originally was referring to flooding the upper drywell.

So, we needed them to bring in actions pertaining to the consequences of having the passive flooder work and put water in the lower drywell to cool debris.

And we asked them to make a commitment to do so. And you see in this last bullet here the commitment number is 19.9-30 and it was in a letter that we got last fall, last October. And if you look in South Texas Project's presentation slide 7, they basically list what the commitment was. That

basically strategies for a primary containment flooding would incorporate generic industry guidance as necessary and use existing site-specific design features to the extent possible to provide indication of and address flooding in the lower drywell when the lower drywell flooder doesn't operate, does operate as designed, operates too soon or operates design during a severe accident scenario that involves a core melt and vessel failure.

And you'll hear in a minute that we had done a confirmatory assessment to address consequences of lower drywell flooding from the passive flooder. And based on the results of our confirmatory assessment we conclude that, indeed, that this commitment would address all of the conceivable outcomes in a severe accident. So we now believe that this open item can be closed.

Now let's go to the next one, because it's closely related.

MR. FOSTER: Said, are you -- okay.

DR. FULLER: This is Open Item 19-13, and i was based on a departure taken in Section 9, not 19, but it relates to what I've just been talking about.

The staff had concerns that we could not necessarily ensure containment integrity for 24 hours,

because that's one of our criteria in the Commission guidelines, in SECY 93-087. And so what we decided to do was to do a confirmatory assessment using the MELCOR code to see if we could assure that one could maintain containment integrity for 24 hours whether or not the drywell flooder system operated as designed.

So, we asked a couple of RAIs to get information from the applicant so we could do this confirmatory assessment. They complied. And we had two separate questions to get all the information we needed.

And one of the other things we did was we decided to elaborate a little bit on this confirmatory assessment by doing some of the scenarios ourselves with MAAP as well. So we asked them for their MAAP parameter file as it existed at the time, as well as the some of the input files that we could modify as appropriate to do our confirmatory assessment.

So we went ahead and did the confirmatory assessment. And if we go to the next slide, fortunately we found that whether or not you flooded the drywell, it would take more than 24 hours to get basemat melt-through.

Recall in this design if you have a severe accident, the containment pressure is going to go up

even before vessel failure and then after vessel failure would continue to the point where the containment over protection system would work, the COPS. And it would be, presumably, automatic and it would, presumably, take place well below the ultimate pressure of the containment. And the confirmatory assessments showed that that was the case the COPS would open less than 24 hours after the start of the accident, probably about somewhere between 15 and 20 hours depending on the calculations.

So, by the way, the MELCOR and the MAAP calculations agreed very, very closely for everything of significance here.

MR. CORRADINI: So just to clarify when you say that that's a hardened vent release from above the wetwell, right?

DR. FULLER: That's correct. It's in the wetwell air space and it's quite high up, above the vacuum breakers.

MEMBER STETKAR: Ed, do you have -- I'm searching desperately here and I can't find the information. You said the COPS would probably open automatically 15 some odd hours?

DR. FULLER: Well depending on the accident scenario, but in that ballpark?

MEMBER STETKAR: What is it powered from?

DR. FULLER: I don't think it's powered. I think it's --

MEMBER STETKAR: It's just a DP?

DR. FULLER: Yes, it's a passive system.

MEMBER STETKAR: Thanks.

MR. CORRADINI: And then from then on it's a hardened vent or it is a filtered vent? What is the design.

DR. FULLER: The filter is the suppression pool.

MR. CORRADINI: Okay. But the venting is at the top of the reactor building? I'm just trying to remember.

DR. FULLER: All I've seen is a cartoon, and it just goes up, I guess --

MR. CORRADINI: Into the reactor building or on the reactor --

DR. FULLER: It has to go into the reactor building to get out, but I don't know specifically how it would go through the reactor building. Maybe we can get some information from South Texas, because I really don't know for sure.

MR. CORRADINI: Okay.

DR. FULLER: I assume if it's hardened,

it's harden and it would not fail, I would hope.

MR. CHAPPELL: This is Coley Chappell.

Just to respond to that question, it vents outside of the containment, outside of the secondary containment. It's an elevated release, similar to a--

DR. FULLER: Okay. But I think his question was how does it get from the torus through -- how does it get out.

MR. CHAPPELL: The wetwell.

DR. FULLER: How does it get out of the reactor building? Not torus. My mind is in Fukushima.

MR. CHAPPELL: It's a direct pipe. IT doesn't interface once it gets -- it has the isolation valves that are open and then it has the rupture disc, and then it just goes straight up.

MEMBER ARMIJO: It doesn't go through any kind of a cleanup system?

MR. CHAPPELL: No, it's a direct vent.

PARTICIPANT: No, the assumption is the whiteout was the cleanup.

MEMBER ARMIJO: Okay.

MR. CORRADINI: And then the only other question I had pertains with the slide before, but don't go back.

The geometry in the lower drywell has not changed. There is an access hatch, right, and it's high up relative to the floor, if I remember.

DR. FULLER: An access hatch? For what purpose?

MR. CORRADINI: I thought, maybe I've got designs mixed up in my head. I thought there was a personnel access into the lower drywell through a hatch.

DR. FULLER: I don't know. I've never seen it on any cartoons.

MR. CORRADINI: In 1992 I thought there was an access hatch. I could be misremembering. That's what I wanted to ask.

CHAIRMAN ABDEL-KHALIK: Would the applicant care to comment on this?

MR. CHAPPELL: This is Coley Chappell.

We'll have to look at specifics on that and get back.

MR. CORRADINI: Okay. Let me tell you why I'm asking just so you can see where I'm coming from.

So what I'm trying to understand is the water level upon the deluge, whatever they call these things, the plug --

DR. FULLER: Passive flooder.

MR. CORRADINI: Thank you. Whatever it is.

DR. FULLER: Lower drywell flooder.

MR. CORRADINI: Yes. Where that water level is relative to the hatch. But again, my memory's wrong and I haven't looked, I honestly haven't looked in the drawings. And I just want to know the relative location of that to that, because you had some other --

DR. FULLER: There is a pressure relief line high up in the lower drywell that goes into the downcomers.

MR. CORRADINI: Yes.

DR. FULLER: So you have pressure communication.

MR. CORRADINI: Well, I want to know --

DR. FULLER: And this is way above where the water would be.

MR. CORRADINI: Okay. But where I'm coming from is if the hatch is submerged and there's a pressure within the water pool, what does it do to the hatch? I'm not worried about the concrete. I'm worried about the hatch.

DR. FULLER: If you had a steam explosion, it would be of concern, wouldn't it?

MR. CORRADINI: That's why I'm kind of getting there, yes.

DR. FULLER: Yes. I didn't know. I didn't realize there was one.

MR. CORRADINI: Well, again, there used to be. I could be wrong.

CHAIRMAN ABDEL-KHALIK: Can we just hold on to this as a follow-up item?

MR. CORRADINI: Sure.

CHAIRMAN ABDEL-KHALIK: Perhaps the applicant can provide that information, the relative elevation of the two? Thank you.

DR. FULLER: Okay.

MEMBER ARMIJO: Before you go on, could you go back to page 8.

DR. FULLER: Page 8?

MEMBER ARMIJO: Yes. The fusible plug, I'm trying to understand how important they are. If they melt too soon, you could have core debris entering and falling onto water.

DR. FULLER: That's correct.

MEMBER ARMIJO: If they melt too late, you'd have no cooling of the debris that's on the floor. And so the timing is tricky to make sure they melt at the time you wanted melt. And I just wonder

how important is this or do you have -- are these other backup systems going to take care of it even if they don't work?

DR. FULLER: When we did the confirmatory assessment both codes predicted that you would get your lower drywell temperature up to 500 degree Fahrenheit within a minute or two after the vessel would breach. And these are passive. So one would assume that they have fairly high reliability of working.

MEMBER ARMIJO: But if the vessel doesn't breach, is there no chance that they would melt prematurely?

DR. FULLER: We looked at that, and the answer is yes.

MEMBER ARMIJO: There is no chance?

DR. FULLER: There is no chance?

DR. FULLER: Yes, there is a chance. I'm sorry.

MEMBER ARMIJO: Okay.

DR. FULLER: But not in the station blackout scenarios we looked at, but instead in the main steamline break scenario that we looked at we found that the drywell temperatures got up pretty high. And in one of the variations we ran, it was

within a couple of degrees by the time the vessel failed. So what we did was considered that, and then we jumped back into PRA space again. Because we know that these main steamline break events have a much lower frequency of occurrence than the station blackout.

When General Electric did its original design certification work in their level 2 PRA, they showed two or three orders of magnitude difference between the station blackouts and the main steamline break. And, indeed, the station blackout scenarios account for nearly all of the core damage frequency for internal events at power. I'd say in the order of maybe two-thirds to three-quarters of the CDF. I don't remember -- or maybe I didn't make a note of what the breakdown was in South Texas to the reconstituted PRA. But I can only assume that they're relatively the same proportions.

MEMBER ARMIJO: So just getting back to what I just wanted to understand. That if the vessel breaches, you have little doubt that these things will melt pretty quickly?

DR. FULLER: That's correct.

MEMBER ARMIJO: But you do have some uncertainty, and I don't know how big it is and how

important it is, that they won't melt prematurely? That it won't get hotter in those regions and they'll melt, that it won't get hotter in those regions and they'll met before the breach?

DR. FULLER: We have a fairly high confidence that that's true, yes.

MEMBER ARMIJO: Okay. I'm still confused. You have confidence that they won't met prematurely?

DR. FULLER: Yes, but we thought it was possible, that's why we wanted to look at it.

MEMBER ARMIJO: Okay. Okay. All right. Well, I'll just stop there.

MEMBER SHACK: And you concluded that it came close, at least in the main steamline break --

DR. FULLER: The main steamline break it's an issue --

MEMBER ARMIJO: But not in the station blackout?

DR. FULLER: -- it is relevant, but it didn't seem to be relevant in the station blackout.

MEMBER ARMIJO: Okay.

MR. CORRADINI: So let me follow on his question with another question. There's nothing in the two calculations that have any physics in it anyway -- so let me go back.

In the original submission in the early '90s that I remember they purposely wanted to make the lower drywell as dry as possible. There could be incidental water, but they weren't going to purposefully put stuff down there.

DR. FULLER: Right, correct.

MEMBER SHACK: For all the reasons we've been -- all right. But if I'm late in water arriving or I don't have water arriving, I don't think MAAP or MELCOR know the difference. So just because you run the calculations, it's going to burn through whether I have water on top or not, at least for MELCOR.

DR. FULLER: For MAAP, MAAP matters, simplistic as they are, assume to get quenching with water on the top?

MEMBER SHACK: Well, let's stick with MELCOR. I'm not as conversant in MAAP. But in MELCOR's world whether I have water on top or not water on top, it penetrates. I know that because I've done enough calculations with MELCOR it doesn't know the difference.

DR. FULLER: Yes. But one of the good things that have come out of the CSNI -- OECD CSNI MMCI 2 program, particularly the last couple of large scale experiments that were done at Argonne, show that

you indeed can get effective cooling with water on top. You can get eruptions of --

MEMBER SHACK: Right.

DR. FULLER: And so even if you reject all of the modeling that goes in both codes, the data show that there's a higher reliability you're going to be able to cool that debris.

MEMBER SHACK: Right. That I'm aware of. I guess I wanted to kind of couple on to what asking what Sam's saying, which is at least from the risk standpoint that's in the analysis that we're talking about, having the water arrive late or not at all and from the standpoint it doesn't really effect -- there was some timing thing. Maybe it was the previous slide. There was some timing thing about it and the order of the day, or something. It doesn't matter at all, at least from what the modeling is saying.

DR. FULLER: Okay. The confirmatory assessment said, I believe it was in the order of between 1 and 2 days after vessel failure before you would breach the basemat if there was no water on top. And if you did have water on top, you would basically cool down the debris, and what would happen -- and this would be coming from the lower drywell flooder, okay?

And so what you've got here is this is the drywell, this is the suppression pool. The flooder aligns are down here. Water would come in and then you would equilibrate somewhere well above the top of the topmost vent. There are three vents, as you know. However, that's only part of the story, and this is one of the major outcomes of our confirmatory assessment.

As time went on if that's all the water you put in, you would boil away the water in the lower drywell and steam would go out the cock's vent And since the suppression pool is saturated, you would gradually boil down the water in the suppression pool until eventually you got a dried out lower drywell again. This is two to three days after start of the accident. And then as time went on you could uncover the topmost vent if you didn't do anything else.

At that time you have a lot of high temperature fission product vapors that would come out through that uncovered vent and go up the cocks to the environment. That's a bad situation.

So what we determined was, we established some timing necessary to bring in some of these other water systems, most importantly the AC-independent water addition system that we heard quite a bit of

discussion about earlier, the ACIWA. And we also in looking at what would be needed to reestablish a covered core debris in the lower drywell and to keep the suppression pool water level above the top most vent but not so high that you over fill it. You needed to be putting water in a controlled manner and quite a bit less gpm then the specs on these that South Texas was telling you about earlier today.

So, the lower valve does exist to establish long-term control until you actually got AC power back. Once you got AC power back, everything would be fine. You would have a mitigated release, okay? It would be relatively fine. You'd have a release, but it would be a mitigated release.

MR. CORRADINI: So just to hand off my question, so from the standpoint of what you want first; the timing assess that you would like, you said "high reliability." You would want, at least the way the design is stated, you want almost certainty of no early water release?

DR. FULLER: We would --

MR. CORRADINI: That's why I'm trying to get back to what Sam was asking.

MEMBER ARMIJO: Yes.

DR. FULLER: Yes. You would really want

that lower drywell flooder system to work fairly quickly after vessel failure, but not before vessel failure.

MR. CORRADINI: You want that?

DR. FULLER: And as far as I'm concerned, if they're fusible plus that are going to be melting at 500 degrees Fahrenheit, you'll put some uncertainty on that number, plus or minus I don't know, even 50 degrees --

MEMBER ARMIJO: Well, melting temperature you could set that very easily. But the problem is how hot does it get, and that's a thermal analysis to make sure it gets up to that temperature. But those materials can be tested.

DR. FULLER: Well, the codes are pretty good about mass and energy balances. They get the temperatures pretty correct, I think.

MEMBER ARMIJO: But except for the main steamline break, the possibility of premature melting of those plugs is very, very low.

DR. FULLER: By the way, this material is documented in a report which we -- it's not ADAMS yet, but it will be soon.

MR. CORRADINI: And just maybe you said it and I missed it when you were answering --

DR. FULLER: No, no. Maybe you put it in.

MR. FOSTER: It's already in ADAMS, yes.

DR. FULLER: You did? Yes, it's in ADAMS.

MEMBER ARMIJO: Have we seen it?

MEMBER BLEY: No, but we should get a pointer to that. Maitri?

MR. CORRADINI: Just to finish off the one thing. So to answer Sam you said now what is it with the main steamline that makes it touch and go? I missed that.

MEMBER ARMIJO: Well, I think the staff said --

DR. FULLER: The main steamline break accident initiator.

MR. CORRADINI: Right. And that just essentially floods the area with -- and heats up the whole region? I'm just trying to get a --

DR. FULLER: You get a very hot containment here.

MR. CORRADINI: Okay.

MEMBER ARMIJO: And that gets the fusible plugs closer to their melting temperature and not over?

DR. FULLER: Yes. Well, it's within a couple of degrees or something.

MEMBER ARMIJO: Yes.

DR. FULLER: The saving grace is that's a remote type of initiator.

MEMBER ARMIJO: Understand.

MEMBER BLEY: I guess what isn't completely clear to me is what happens if that happens and you do get premature water down there?

DR. FULLER: Well, you're opening yourself up to the possibility of a steam explosion.

MEMBER BLEY: Creating a pressure --

DR. FULLER: That's the only thing different from whatever else might happen in other scenarios. And if Professor Corradini is correct that there's a hatch down there, you'd need to do a load analysis on whether or not that hatch could take it. Where would stuff go if the hatch failed?

MEMBER BLEY: Gotcha.

MEMBER STETKAR: There is a lower drywell access hatch. Personnel and equipment access.

MEMBER ARMIJO: Somewhere.

MR. CORRADINI: We didn't do any structural work in our confirmatory assessment, so we don't know.

CHAIRMAN ABDEL-KHALIK: Have you done any sensitivity analyses on the effect of the melting

temperature of these fusible plugs?

DR. FULLER: No.

CHAIRMAN ABDEL-KHALIK: I mean, if they were slightly higher, you may avert the problem with the steamline break and it may have little or no impact on how much later would they melt in the event that you have a vessel breach.

DR. FULLER: Well, what would be different is you would start generating noncondensible gases before you end up getting water on top of debris attacking the concrete. And you may have some radial attack of the pedestal.

The CSNI work has indicated that one can expect greater radial ablation of concrete than axial.

CHAIRMAN ABDEL-KHALIK: I don't think you're answering my question.

DR. FULLER: I'm sorry.

CHAIRMAN ABDEL-KHALIK: The question is, I mean you indicated that if you have vessel breach, you'll reach 500 degrees within a couple of minutes after that.

DR. FULLER: Yes. Yes.

CHAIRMAN ABDEL-KHALIK: And at the same time you sort of touch and go in the case of a steamline break with the peak temperature being very

close to 500. I mean, you can sort of engineer that material so that the melting temperature can be different than 500 degrees. And the question is: If it were higher than 500 degrees so that you're not touch and go with the steamline break, how much longer would it take for it to melt following a vessel break? If it was 550 degrees?

DR. FULLER: It would be a fairly simply-- well, we could just look at the calculation results and just look at -- in fact, the time differential between when it reached 500 and 550 or 600.

CHAIRMAN ABDEL-KHALIK: Correct.

MR. FOSTER: And so you'd raise the melting point to compensate for the steamline break by taking into consideration with a breached vessel, you're going to go pretty fast.

CHAIRMAN ABDEL-KHALIK: Right. I mean, it may take only three minutes.

MR. FOSTER: Yes.

DR. FULLER: There's another sensitivity study which we didn't do, but you couldn't really do why I just said, is suppose you didn't have a complete ejection of core debris into the vessel after vessel failure? And how long would it take to get to 500 degrees if you, say, you failed through an instrument

tube failure, you know after it took maybe quite a bit longer. You know, we don't know those fine details here.

CHAIRMAN ABDEL-KHALIK: Okay. Any other questions o this issue?

DR. FULLER: Yes, I believe I covered --

MR. CORRADINI: I think you beat it.

DR. FULLER: Any other questions?

CHAIRMAN ABDEL-KHALIK: Please continue.

DR. FULLER: That's all I have.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MR. FOSTER: Thank you, Ed.

Let's move on to the seismic margins analysis open items.

Our first open item was Open Item 19-14. We had a couple of different RAIs we asked about it. And really what it dealt with was we had a standard departure T1 2.15-1, which was the reclassified Radwaste Building from Seismic Category 1 to a non-seismic per Regulatory Guide 1.143.

We asked an RAI requesting details on the analysis procedures used for the reclassification.

The applicant responded with an update to the FSAR Section 3H.3, revised to show that the Radwaste Building be designed not to collapse on

adjacent Seismic Category 1 structures for SEE, design basis tornado and design basis flood specified in the DCD. It also allowed for stability against sliding and overturning the evaluated using site-specific loading parameters. Based off of that response, we accepted it and closed the RAI.

Questions? Okay.

The next open item was 19-17. This dealt with the COL license information of 19-4, which included a update of the system model developed in the DCD to incorporate capacity reductions due to site-specific events and site-specific SSCs.

In the RAI response the applicant committed to perform the following prior to fuel load:

Develop a site-specific and as-built HCLIP capacities;

Assess the margins against soil failure;

Update the systems models for site-specific capacities to the SSCs to obtain sequence-level and plant-level seismic HCLPF capacities.

Based off of that, the staff accepted it and closed the open item.

Any questions?

And the last one for the seismic margin analysis, this dealt with the AC-independent water

addition system in the building and the building capacities associated with COL license. Information Item 19.19b.

We issued an RAI requesting more detail on the approach,methods of analysis, seismic structural analysis.

The fire water pump house which is where the AC-independent water sources pump is, associated it as a nonsafety-related structure.

The applicant provided procedures or defined what the procedures would contain for assessing against site-specific external events in the PRA, which is evaluation for earthquakes, flooding, tornados and high winds. We found that to be acceptable.

This was a cooperative effort between our Seismic Group and our High Winds Shutdown Margin. And so we had to kind of work that situation through with both of them. We both were able to come to conclusions on things. We accept their response and closed the RAI.

Questions? Okay.

That concludes the seismic margin analysis section.

The next section is on loss of large areas

of the plant due to explosion or fire. This is the public section only. Okay? All right? The non-public section will be scheduled and presented at a later time. It will provide much more detail on this.

The Mitigative Strategy Report, which addresses the flow of a large area fire, loss in large areas, came in as Part 11 to the application. And in the SE we listed it as 19.14, for your records.

They submitted in May of 2009 under Part 52.80. We issued multiple RAIs, 17 of them to be exact, in October. And they responded back in February of 2011.

We have about ten confirmatory items associated with it. There were multiple commitments made in the RAI responses. We also included a license condition related to the implementation schedule and to maintain the strategies associated with it.

The staff finds the strategies and the commitments acceptable to close out all the RAIs. And we didn't really have any open items on this because this wasn't presented during the phase 2. Okay.

CHAIRMAN ABDEL-KHALIK: Do we have a schedule for the non-public section of 50.54 hh?

MR. FOSTER: I'm trying to shoot for June 21st. It all depends on when I can get the SE in from

the technical staff. They're trying to work through that right now. And it kind of hinges with the work that's going on with Vogtle. But that's what I'm putting forward to my management to see if we can support that.

June 21st is kind of a full day, so we're going to have to see when we can work it in.

CHAIRMAN ABDEL-KHALIK: Well, we'll talk later them.

MR. FOSTER: Yes. And it ought to be a closed session, too, because we talked a lot about security of the information.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. FOSTER: Okay?

Ongoing with the different strategies, under 50.54 hh(2)(i) were fire fighting. Okay. We have onsite capabilities. This includes staging areas, the triage, free event coordination and training.

For offsite resources with the MOUs. That's associated with different fire departments, the military and the airport situation.

Communication. Command and control and hardware.

Fire protection yard. Fire protection

yard main backup supply. Okay. This deals with the portable pump used to supply to the ring header.

We went on to 50.54 hh(2)(ii), the mitigate fuel damage strategies:

Portable pump. And this is the spent fuel pool internal/external strategies, makeup to the CST via the AC-independent water addition system.

And the spent fuel configuration, it's a 1 by 4 situation, empty spaces, et cetera.

Makeup sources. Demin tanks, wellwater tanks and the UHS basins.

And manual operations we have EDGs and the RCIC. So you also have CRDs and the aqua system, too.

Okay. The final area, to minimize radiation releases, we have:

Vent capabilities, active and passive. Please strike out the term "to stack." That's not applicable in the situation. Okay.

We have atmospheric control systems to the SBGTS or the RBVES systems, COPS and no venting from primary to secondary containment.

The sprays for scrubbing using portable pumps.

And then we have injections of the drywell and the wetwell. This is with the AC-independent

water addition system.

CHAIRMAN ABDEL-KHALIK: I understand --

MR. FOSTER: We got a whole string of different strategies --

CHAIRMAN ABDEL-KHALIK: I want to make sure that this part of the presentation will have to wait until we get the non-public section presentation.

MR. FOSTER: And I'll go, you know, definitely much more in detail in the process of everything.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MR. FOSTER: Okay. Chapter 19, all open items are closed.

We accepted the confirmatory items and the applicant's addressed the information related to response to severe accident and the loss of large areas to the plant due to explosions or fire.

With the exception of the confirmatory items, the staff concludes the SER Chapter 19 is acceptable and conforms to regulatory requirements.

We've got one more area, this deals with the Chapter 17 item which we mentioned in the first part of the presentation.

CHAIRMAN ABDEL-KHALIK: Get to it.

MR. FOSTER: And basically that's the list

of significant SSCs, we will discuss that in Chapter 17.

CHAIRMAN ABDEL-KHALIK: This afternoon?

MR. FOSTER: This afternoon.

Any final questions for Chapter 19?

I think the takeaway we have is to provide the ADAMS accession number for the report that we had a contractor work for the MELCOR and the MAAPing.

CHAIRMAN ABDEL-KHALIK: Yes.

MR. FOSTER: Is that right, Maitri? And we do have that in ADAMS. I can provide that this afternoon to you, to Maitri.

CHAIRMAN ABDEL-KHALIK: All right. Are there any questions for the staff on -- yes, sir?

MR. HEAD: We'll show the Member that was asking the question about the access, we'll show him a drawing at the break.

CHAIRMAN ABDEL-KHALIK: Yes.

MR. HEAD: And ask if that's answering the question.

CHAIRMAN ABDEL-KHALIK: Well, the question pertained to the relative elevation of the water level versus the hatch level, is that correct, Mike?

MR. CORRADINI: Yes, that's right.

CHAIRMAN ABDEL-KHALIK: And I think it

would require more than just looking at drawing.

MR. HEAD: Okay. Well, I'll make sure we're answering the right question. And then --

MR. CORRADINI: Yes. What I'm curious about is with your procedures as you have in place what do things settle out relative to the access hatch.

MR. HEAD: Okay.

CHAIRMAN ABDEL-KHALIK: Okay? Thank you.

MR. TONACCI: I just want to get clarification. That was your question: Where does the water settle out?

MR. CORRADINI: Yes. Yes.

MR. TONACCI: Okay.

MR. CORRADINI: Yes. Because it couples into what Sam and I were kind of going at, which is if there's an inadvertent early discharge, I want to understand the implications of it relative to --

CHAIRMAN ABDEL-KHALIK: Are there any additional questions for the staff on Chapter 19?

Okay. Thank you.

The schedule calls for us to go onto Chapter 17 for the applicant presentation. But we're sort of 20 minutes behind schedule. So, with your indulgence, we'll just take a shorter lunch and we

will reconvene at 12:30.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Well, we have an informal meeting scheduled with Research for today's lunch between 12:15 and 1:15 according to my book.

CHAIRMAN ABDEL-KHALIK: Okay. Because of this previously scheduled meeting, let's take a break for lunch until 1:00 p.m. We will reconvene at 1:00 p.m. and at that time the applicant will present Chapter 17.

(Whereupon, at 11:52 a.m. the meeting was adjourned, to reconvene this same day at 12:59 p.m.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

12:59 p.m.

CHAIRMAN ABDEL-KHALIK: We're back in session.

This time the applicant will present Chapter 17

MR. HEAD: Okay. And I would propose at the end of the that that we would review some of the stuff that we addressed during the break.

CHAIRMAN ABDEL-KHALIK: Yes.

MR. HEAD: The elevation and some other feedback.

CHAIRMAN ABDEL-KHALIK: Yes.

MR. HEAD: And since both of those members aren't here, we'll, they're right next door.

MR. HEAD: Our standard agenda.

Today joining us for Chapter is Tim Walker, who was here for the first time we presented our Chapter 17. He's our Manager of Quality.

We have other attendees in the room with us. And Evan Heacock, who is up here today. And he will be leading most of D-RAP discussion.

Okay. And I'll turn it over to Coley now.

MR. CHAPPELL: Recap on Chapter 17, as was discussed last March of 2010, Chapter is comprised of

a few DCD sections that were incorporated by reference that describe the quality assurance and reliability assurance programs in the development of the DCD.

We've added in supplemental sections to address reliability assurance, quality assurance and Maintenance Rule.

And all of the COL items have been addressed.

We'll briefly discuss updates since the last meeting on the quality assurance program description, QAPD. Revisions were made for Nuclear Innovation North America, NINA organizational changes. I've also incorporated the latest NEI template of 1614 Alpha and the responses to RAIs that required change of the QAPD.

And with that, I will turn it over to discussion reliability assurance program.

MR. HEACOCK: Good afternoon. My name is Evan Heacock. And I'll go over the reliability assurance program, the design phase of it.

Just going to have a recap of where we've been in the last year or so. We have an expect panel that is convened, and we continue to refine and identify SSCs using deterministic risk ranking. And we identify risk ranked significant SSCs not modeled

in the PRA. We augment PRA techniques in risk ranking of SSCs using deterministic techniques and expert judgment. And also we re-reviewed on any changes that have been made to PRA updates.

Like I said, the program has been implemented and we have been meeting and the expert panel has been identified. We've been meeting quarterly.

The process, again, using deterministic type insights. And we are generating those items, so we'll go over some of those as an example a little bit further in my presentation.

The deterministic and the design reliability assurance program is an ongoing program for the duration of construction, and actually it then turns out where the maintenance will end.

We also have, of course, ITAAC that exists for the D-RAP. Looks at:

Scope, purpose and objectives;

Process used to evaluate and prioritize SSCs;

List of rank significant SSCs;

A process for determining dominant failure modes in risk significant SSCs, and;

Key assumptions and insights are

considered.

Any questions so far? Okay. I'm sure we'll get one here pretty quick. Because everyone's been waiting for one and it may have something to do with this Action Item.

I'd like to go over Action item #30, which was asked. This is address when D-RAP list will be effectively populated and the staff review is complete.

We basically provided an updated list last October at the ACRS, as you might remember. And we had examples of deterministic ranking on the following slides that went forward with our ranking progress. So if you'd like to go to the next slide, we can look at some of the examples.

As an example of one that we actually added to the D-RAP process that was not initially PRA ranked, is the neutron monitoring system. The panel had a weighted score of neutron monitoring of 65.

And I'll try to go through what the table that you see in front of you means.

There is five questions, deterministic questions that are asked to come up with a deterministic risk ranking, which are the five that are on the sheet. I'm not going to read those.

Each one of those questions has an assigned weight factor already in place, and it's defined in our COLA. Weight factors are 5, 5, 4, 3 and 3,m which the reason for having those set of numbers if that the maximum assigned value you could have any question is five. And so when you end up multiplying any weight factor by an assigned factor of five, you end up with a total score of 100. So that always works out well for us from a standpoint of a deterministic weighting.

Each one of the assigned values is based on questions that we ask when we go through and look at the particular system that we're interested in, or component.

Of course, you can see on there assigned values from zero up through five. A zero response is basically a negative response where the question does not seem to apply to the system that we're looking at or component. On the way up through five, which is a positive response having a high impact and/or occurring frequently, and each one of these definitions the impact and occurrence is broken down also for looking at trying to weight what we need to do with the assigned value. Again, from occurring frequently, continuous or always on demand to very

little demand, like once per four year lifetime.

And then impact definitions also the same sort of deal. High impact: If the system is lost, would it result in the likelihood of damage to the core down to low impact?

So all of this goes into determining the assigned value.

MEMBER ARMIJO: Why would you bother with a weight factor when the assigned value is zero? I don't understand.

MR. HEACOCK: Well, the weight factor is constant. It's a constant value.

MEMBER BLEY: It goes with the question?

MR. HEACOCK: It goes with the question, right.

MEMBER ARMIJO: Oh, okay.

MEMBER BLEY: It's pre-assigned.

MR. HEACOCK: It's pre-assigned.

MEMBER ARMIJO: Oh, all right.

MR. HEACOCK: Okay. This is actually a pull-out from our expert panels. This is actually what we put together. So it's obvious --

MEMBER ARMIJO: The importance or the questions, right?

MR. HEACOCK: Yes.

MEMBER ARMIJO: Okay.

MEMBER BLEY: I have a question. Everything kind of hangs together for me except your second question. If something is used to mitigate accidents and transients, if the loss of functions were significant and so on, all high but it isn't called out in the EOPs, that would lower the score but it seems to me it would tell me it darn well out to be called out.

MEMBER ARMIJO: It should feed back.

MR. HEACOCK: Yes, you would expect that to be the case. I would agree.

MEMBER BLEY: So can you explain?

MR. HEACOCK: I'm going to go back to a little bit more on the history. This goes back to proceeding for -- this explicitly calling out, we may actually have some items, and this is a very long history, it actually goes back through 1 and 2. And so I'm a little bit weak in that regard. But my emphasis that we put on this is that we may actually have some functions, the mitigated accidents may be low, but it may actually be called out in the OP separately. So trying to weight each other equally.

You may actually have some situations where -- and I can't give you an example off the top

of my head, mind you. But you may have some situations where you may flip-flop and not actually be able to respond to one, but actually carry you in the other one.

MR. CHAPPELL: So a system that might be capable of moving water but is not credited for mitigating an accident but is something you would go to beyond design basis space and have a call out to use in the emergency operating procedures.

MEMBER BLEY: Well, I guess it -- and maybe you use it in a way that would make sense. It's that second question strikes me as a different thing then the rest. Now you could say it's the same thing and that we want to make sure of the things that are called in the procedures is available, but it would strike me if an expert panel was going through this and sees everything else high and the fact that it's in the OP, it ought to raise some kind of flag that maybe we're not organized the way we ought to be.

MR. HEACOCK: And you're correct. I mean, that's part of the feedback from the expert panels actually say if we are missing a pertinent piece of information, then it should be called out somewhere else. And then that's the expert panel's function is go ahead and make sure it gets in the process that it

gets the significant treatment that it needs.

I think Bill had a --

MR. MOOKHOEK: I'm Bill Mookhoek. I'm the licensing supervisor for Unit 3&4. And I used to be shift supervisor at 1&2.

And the real importance of this question is to make sure that those items that the Operations staff rely upon in the EOP are in a reliability program and are consistent. So even if they weren't credited in the PRA and may not have hit the deterministic type importance, if it's an information item that the control room needs in evaluating what's going on with the plant, we want it to be reliable and accurate.

MEMBER BLEY: Okay. I can see that.

CHAIRMAN ABDEL-KHALIK: Can you give us an example of the opposite situation where something is important and yet is not called out explicitly in the EOPs?

MR. HEACOCK: Yes. Let me get back to you. Let me --

MEMBER BLEY: That's my concern. Yes, my concern was more that the question seemed different then all the others, except that was the acknowledged could be the basis for it; it's just there.

CHAIRMAN ABDEL-KHALIK: But how about the opposite problem? If you have something less important that's not called out in the EOPs explicitly. Is there an example?

MR. WALKER: Well I think the safety relief valve is not going to be in the EOPs--

MEMBER BLEY: Right, because you can't operate that.

MR. WALKER: -- and I remember in the 1&2 we spent a whole afternoon in the safety valve because they weren't modeled deterministically to our acceptance. So that's an example of one.

CHAIRMAN ABDEL-KHALIK: Okay.

MEMBER BLEY: Are you going to tell us how you use the total scores here?

MR. HEACOCK: Yes. Yes.

MEMBER BLEY: Okay.

MR. HEACOCK: The next part of -- and it's a good lead in because that's where I'm going next. There's two ways to get something into the D-RAP by the expert panel. And single question response of 15 or greater will put us in the De-RAP or a total weighted score of above 40; basically 41 and above will put you into the D-RAP.

And that's what the significance of the

weighed score is, and also the assessed value. So for example, if we have a question -- just for the example if the very first one in this case was 5 across the assigned value and weighted factor is 5, you've got an assessed value of 25 just for that question. All the rest of those would have been zero. Then this item would still go in to D-RAP because of the importance of the one question. So that's the other part of this.

MEMBER BLEY: And the score here isn't directly related to what kind of treatment?

MR. HEACOCK: The score is not what kind of treatment, but that the system would require to have the special treatment apply to it.

And for this case, the neutron monitoring system, as you can see this was actually not something that was in the PRA. The expert panel gave it a weighted score of 65. And you can see, really on the first few questions, the emphasis that the expert panel put on the weighting of the neutron monitoring system.

MEMBER BLEY: And the 15 and 40 come from where?

MR. HEACOCK: The 15 and 40 are basically part of our structures that we put in our COLA. We

described this in 17.4S. And it's thresholds. They're basically assigned redetermined thresholds of saying anything above 15 --

CHAIRMAN ABDEL-KHALIK: I know what they mean.

MR. HEACOCK: Yes.

MEMBER BLEY: But what is the logic for getting those numbers?

MR. HEACOCK: The logic? I'd probably have to go back to maybe helping from my PRA friends for some of these, for the history on this again.

MR. HUGHES: I'm Gene Hughes.

I sat in recently on a two day session of the expert panel and applied these questions. And we went through the process and looked the values.

The numbers that are used for the weighting system are based on judgment. There may have been a significant amount of effort back when Unit 1 and 2 implemented 50.69 to generate the basis for them. But what we did was simply apply them without regenerating that basis. And in going through it we also took a look at where do we end up after we apply the instructions? Does it make sense? Is this a case where the system should be in and it got a 10? What's going on.

And we thought it through pretty carefully, but we did not review a specific numerical basis to support either these numbers or the .0005 and the factor of 2 in the PRA side. They're just factors that come in.

The other thing I would point out is if something comes in from the PRA, it does not ask the numerical value to be risk significant, that does not mean that the PRA input to the process is that it should not be in D-RAP. The numerical value is a guidelines that comes in from what the PRA calculates, but the PRA person also brings with it knowledge of things that might not be in the PRA or might not have been modeled. Reasons that the numerical value regenerate may not really represent what we would expect to be there.

CHAIRMAN ABDEL-KHALIK: I'm afraid this answer is not response to the question that I asked. So, I guess you'd follow-up what is the basis for 15 and 40? Where does it come from? That's not what you're talking about.

MEMBER BLEY: It might help us if you could show us the guidance that's provided to the expert panel for what zero through five mean and their assigned values.

MR. HEACOCK: Yes, I can show you. Actually, that's what I was kind of reading because there's a lot behind it. And I have it right here if you'd like it.

MEMBER BLEY: That would help some. That doesn't get to why these totals are there, but it gets you part way there.

MR. HEACOCK: Right. The part where Gene was listing, a lot of this is a judgment call on the emphasis of, again, where should you have a break. Like Gene was saying, there's a difference between Units 1&2 and 3&4. Unit 1&2 actually have a high, medium and low where we actually want to have a high and low. So we broke ours a little differently.

And, again, all this is based on it's going to be mostly a judgment of the expert panel deliberating on what really is a threshold for significant and what is really not a threshold for significance.

There's actually not a whole lot more behind it then the deliberations of the expert panel saying this is where we think the thresholds should break.

CHAIRMAN ABDEL-KHALIK: If you can provide us more information, that's fine. If not, just come

back and tell us there's nothing to it.

MR. HEACOCK: Okay. I can also tell you a little -- I can also show you in our procedures, you know based on what we have in the FSAR is also a regurgitation of what we have in our --

MEMBER SHACK: Now I can't remember. Is this what South Texas used for their 50.69?

MR. HEACOCK: Yes.

MEMBER SHACK: I mean, this goes back to that?

MR. HEACOCK: Back to that.

MR. HEAD: We never implemented 50.69.

MEMBER SHACK: Well, yes.

MR. HEAD: No one has.

MEMBER SHACK: Right, no one has. Right. But the risk ranking you just did?

MR. HEAD: This is the exemption and this is where we got --

MR. HEACOCK: It's the same process.

MR. HEAD: Very familiar to what we did for 1&2 for hundreds of thousands of components.

So, actually, I can try just a preview. I don't know how reconciled you'll be with our answer that we give in the future because it was a judgment call when we built the exemption. And so it has a

legacy that's just probably from whatever we originally built for the exemption.

But here I want to focus on something that Gene noted that irrespective of the scores, at the end of the day everyone still looks at and goes "Does that make sense?" And so there's an ultimate boundary of, okay, it didn't get high enough points, but we're still uncomfortable with that. And the panel is perfectly capable at that point in time of going "Well, we still want it in."

So we'll see what we can do in terms of a little more detail on the scores.

CHAIRMAN ABDEL-KHALIK: I mean, you know I would have thought that somebody had looked at all the scores and there might have been a clear separation point where things sort of clustered way down below 15, and there was a group around 15 that was questionable, and then a lot of things were way above 15 and that's how you selected that. Because there's a question mark at that point.

MR. HEACOCK: Oh, yes.

CHAIRMAN ABDEL-KHALIK: Whereas below that there was no ambiguity. But it just didn't seem like that that thought process went into it.

MEMBER BLEY: But again, the thing you

just described, I would bet if you could go back to the first time this was done, I would bet but I could be well wrong, that they didn't have these set scores until they had gone through it once and say "Look at this."

MR. HEACOCK: Yes.

MEMBER BLEY: This is kind of the way it falls out.

MR. HEACOCK: And evolution, correct. There's a lot of feedback, and that's why there's continuous integration.

MEMBER BLEY: But maybe you wrote something on it back then.

MR. HEACOCK: That's what we're going to go do.

MEMBER BLEY: Than you.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Are we taking any action here?

CHAIRMAN ABDEL-KHALIK: They'll get back to us and tell us where the 15 and 40 come from.

MR. HEACOCK: Okay. Any other particular question on this slide?

MEMBER BROWN: Well, I had one.

MR. HEACOCK: Okay.

MEMBER BROWN: Relative to some of the

other things, maybe. But are some things self-evident that they needed considered --

MR. HEACOCK: Yes.

MEMBER BROWN: -- in a design, and neutron monitoring systems seems to be fairly important in a reactor plant. And that why bother with it, you know you're going to put it in the table and you're going to make sure it works. And follow it over its life, you know making sure it's doing whatever it's supposed to do.

So, I guess the other I had looked at this, is does the loss of the function in and of itself directly cause an initiating event? I guess with the range of zero to five, somebody gave it a one. And then I can only relate to the program I was in. If I lost my nuclear instruments, I didn't cause anything to happen, it just sat there and we didn't like it, and so we just had an alternate action like shutting down or something like that. So I had a how in the world did a panel come up with a value, assigned value of one in that when it either works, it's either on or it's off but it doesn't cause a trip or a scram. I don't know about you alls, it didn't in mine, a loss of a prior range or intermediate range or whatever the neutron monitoring source is.

MR. HEACOCK: Well, part of that goes back to the way you have to answer, again, the questions from a negative response to a positive response. And the information in there.

One, in this case, is a positive response having an insignificant impact or occurring very rarely. So, as they went through and deliberate the questions you have to say, "Okay, in significance of the impact is it high or is it low?" And then the other part is how often would we expect this to occur? You know, once in 40 years or is it, you know once in a cycle, a fuel cycle type question.

So, in going through and talking about basically what you said, what happens, well in and of itself, like you said, if it doesn't do the thing it just stops, there's other means to shutdown. There's other things, you'll have other indications saying that you have problems and you can trip manually. So, that's other considerations into the deliberations as what other functions do you have that are available to you to top rate from indications to --

MEMBER BROWN: Well you've got to take it you really can't operate without this, right?

MR. CHAPPELL: They're in tech specs.

MR. HEACOCK: Right, yes.

MEMBER BROWN: Yes.

MR. CHAPPELL: You'd have to shutdown to use the function.

MEMBER BROWN: Yes.

MR. HEACOCK: Yes

MEMBER BROWN: So it doesn't cause an initiating event other than a human response to go shut the plant down. I don't really call that an initiating event. I would initiate the automatic something, but maybe I don't understand what you mean by "an initiating event."

I won't mouse-milk this anymore. It just seemed when I went through these and checked the discussion and checked the 17, and you all went from your three categories to two and lumped everything above 15 into the high category, I just -- and then I started reading these and I said "Oh, that's interesting how they fit in."

So anyway, we can go on. I don't want to slow this process down here.

MR. HEACOCK: Okay. Any other questions? Okay.

For the next item that we actually ranked was the steam bypass and pressure control system. The expert panel gave this a weighted score of 48. Again,

either way, this would have gone into our D-RAP process because we have a single question that has a 15, and the total score was above 41.

Again, similar deliberations occurred to try to go into the overall supporting and ranking for this device of the system.

Any questions with that? Okay.

Go to the next slide.

Most of what we've done in the expert panel to date has been at the system level. Just to kind of give you an example of what the expert panel process would be for a component, we picked high pressure core flooder, the injection isolation value Echo 22-Foxtrot 0003 Bravo.

Again, from the standpoint of what happens in this particular device, this component, you see the weighted score was 40. Again, this is just an example. We haven't gone through a full deliberation on this. But the weighted score is 40, but two of the questions are actually 15 and above. So this component would actually go into the D-RAP process.

MEMBER BLEY: I'm a little surprised by the third question given the discussion we had before lunch.

MR. HEACOCK: Again, this is just an

example. This has not actually --

MEMBER BLEY: I know. I'm just saying if you had the early -- this thing failed by dumping the water too soon, it does lead to other failures.

MR. HEACOCK: Well this high pressure core flooder, not the lower --

MEMBER BLEY: Oh, I'm sorry. Yes, it is.

MR. HEACOCK: Yes.

MEMBER BLEY: Yes, it is. I'm sorry.

MR. HEACOCK: Yes.

MEMBER BLEY: Never mind.

MR. HEACOCK: Okay.

MEMBER STETKAR: Evan, I'm going to wake up now.

MR. HEACOCK: Okay.

MEMBER STETKAR: This particular valve, the reason that the expert panel is evaluating it is because it's not in the PRA?

MR. HEACOCK: No. It would not actually -- I could not tell you if it's in the PRA off the top of my head.

MEMBER STETKAR: Okay. Question: Is it in the PRA?

MR. HEACOCK: Do you know.

MR. HUGHES: Yes, it should be in the PRA.

MR. HEACOCK: It is in the PRA?

MEMBER STETKAR: I don't know why the expert panel is evaluating it, but then it's somewhat interesting. This is a normally closed motor-operated valve that has to open for the high pressure core flooder to inject.

MR. HEACOCK: Right.

MEMBER STETKAR: So if it doesn't open, it's kind of important.

If I go to Table 19K, whatever it is, 1 -- I'm not going to go look it up right now. I just did the search myself. I notice that the PRA determined that the high pressure core flooder pumps were important. The maintenance of the high pressure core flooder pumps remain important. High pressure core flooder maintenance valve was important. I couldn't even find the valve on the PNID that I looked up.

This valve, for whatever reason from the PRA wasn't identified as important. You know, your backstop catch from the expert panel, luckily, will make it important; 40 is just below your inclusion.

And all that makes me feel a bit uneasy about the PRA numerical stuff.

MR. HEACOCK: Well, let me kind of two things real quick --

MEMBER STETKAR: Only because things in series with this valve are in from the PRA.

MR. HEACOCK: Yes.

MEMBER STETKAR: But this particular valve isn't.

MR. HEACOCK: Just real quick, also from the standpoint we may evaluate anything that says that PRA says it needs to be in from the Fussell-Vesely value or the RAW, number one. We may go, or we may not, depending on how we're proceeding down the path.

The other part is that part of the table that we presented back in October, the 19K-4 kind of update, this valve was included. So --

MEMBER STETKAR: In last October?

MR. HEACOCK: Yes, the last October on page 4 -- 7, I'm sorry.

MEMBER STETKAR: Page 7. Okay. I didn't look at that. I looked at the 19L Rev. 4 of the FSAR, which is what I thought was the current applicable --

MR. CHAPPELL: It was added in the FSAR.

MR. HEACOCK: Yes.

MR. CHAPPELL: Whether it's in Rev. 4 or whether it's in an RAI, I'm not clear as to where it is. But it would be in the FSAR.

MEMBER STETKAR: Well, that's part of my

problem, isn't it?

MR. CHAPPELL: Yes.

MR. HEACOCK: Yes.

MEMBER STETKAR: Yes, it is. There it is. Hokey smokes.

MEMBER BROWN: That's for the recorder, "hokey smokes." H-O-K-E-Y.

MEMBER STETKAR: Yes, smokes.

Now part of my problem on this is, and indeed I have the October 20 list that you gave me. And I heard this morning that the condensate pumps are in the PRA, which I'm happy to hear. I notice the feedwater system pumps are on this list, which I would expect for a boiling water reactor.

I notice the condensate pumps which have to work, and the condensate booster pumps which have to work so that the feedwater pumps can work are not on this list. So that's sort of curious to me if they're in the PRA and the feedwater pumps are in but the condensate pumps are aren't.

MR. HEACOCK: But the system as a hole is in, which would include the condensate and condensate booster.

MEMBER STETKAR: Well, I' not sure that I see system things. I see some systems. I see some

components. I see some component failure modes in Table 19K in the FSAR like if I look at 19K-1 -- let me ask you this: I took a look at 19K-1 in Rev. 4 of the FSAR. Should I ask you any questions about that or not? Because I don't want to waste time asking questions about something that you're going to say has been superseded by some RAI responses?

MR. HEACOCK: Mainly specifically for the condensate booster pumps?

MEMBER STETKAR: Well, they're certainly not.

MR. HEACOCK: No.

MEMBER STETKAR: They're not in anything I've ever seen. And that's a curiosity, but --

MR. HEACOCK: Well, they're included as part of the system. Again, it's not -- we may not have the whole system list, but the booster pumps are part of the condensate system, and the condensate and feedwater system which will be automatically included.

PARTICIPANT: I think there are two different questions here. One of them is what's included --

MEMBER STETKAR: Let me ask the question first before you tell me what I'm going to ask.

There are some systems in here, there are

some components in here, and there are some specific component failure modes in here.

MR. HEACOCK: Yes.

MEMBER STETKAR: And I'm not sure that I've seen the condensate system, so you might want to look through it and find it. I don' see something that sees the feedwater system. I see the feedwater pump.

MR. HEACOCK: Yes, there's feedwater pumps.

MEMBER STETKAR: Yes. I don't see the feedwater system and I don't seen the condensate system. So that's why I'm a little bit curious about saying the systems in there because I don't see it quite readily.

I'm curious about what level of detail and what degree of completeness will exist in this list at the stage of issuance of the COL license of the COL? If the intent is, as it's stated, to go to the level of detail of individual not only components, but components failure modes because I see things like RCIC steam supply bypass valve F045 a limit switch fails --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- it's doggone detailed

for, by the way, a component that doesn't exist in your plant. That's in the list.

MR. HEACOCK: Yes.

MEMBER STETKAR: In the FSAR table. That type of detail starts to make me feel really uneasy because I know the PRA doesn't have that level of detail in it across the board for all equipment.

If it's the intent is to not have level of detail of specific component failure modes, like fails to open versus fails to close, but the intent is to have a level of detail at the component level like feedwater pump, I feel a little bit more comfortable about the PRA and the expert panels to be able to think at that level.

If the intent is to have the level of detail at a system level, then I feel more confident that you'll be complete.

MR. HEACOCK: Yes.

MEMBER STETKAR: So the question is at what level of detail is the intent to have this most populated in terms of is it system, is it component, or is it component failure mode at the time of COL?

MR. HEACOCK: Primarily it'll be at the system level?

MEMBER STETKAR: System level?

MR. HEACOCK: Yes. Mainly is, is that it's the program. This program is set up, it's continuing and most of the information that you will actually see down the road won't be necessarily updated in 19K, but it'll be turned over into the databases of the plant.

MEMBER STETKAR: But does that mean, Evan, if an entire system is in there, let's take the condensate system --

MR. HEACOCK: Your favorite.

MEMBER STETKAR: No, no, no. Honestly, it' a good example because it's a nonsafety-related system that's pretty pervasive, you know depending on where you draw your dotted lines around what you call part of the condensate system. But just give it a system designator. There might be a lot of equipment in there that you may not want to classify as being in your D-RAP program from a quality assurance procurement.

MR. HEACOCK: Right. You're correct.

MEMBER STETKAR: So, you know the simple answer at the system level might not be the appropriate answer. But that's why I'm struggling with it. I'm trying to figure out at what level of detail you plan to have that list populated --

MR. HEAD: Yes, the process --

MEMBER STETKAR: -- and when indeed the process will be complete for this. I know I've read that there's a milestone date of September 30th of this year --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- to have the list complete.

MR. HEACOCK: Right.

MEMBER STETKAR: So you must be -- you know, it's a work in progress to some extent?

MR. HEACOCK: Oh, that's right. Yes.

MEMBER STETKAR: But have you made decisions about the level of detail yet?

MR. HEACOCK: Yes, we have.

MEMBER STETKAR: Okay.

MR. HEACOCK: We've made decisions.

MEMBER STETKAR: And?

MR. HEACOCK: And eventually as we go forward with the process, it'll go down to component level.

MEMBER STETKAR: Yes. But I'm asking at COL, because that's all that, unfortunately --

MR. HEACOCK: Yes. COL is going to be where we're at with the systems. That will be the

broader level view at the system level. And then as we continue, we'll start -- we'll start populating at the component level.

MEMBER STETKAR: But, for example -- this will probably be more a question for the staff, I guess. But the implications of something being in your D-RAP list, are it's not just a list.

MR. HEACOCK: Right.

MEMBER STETKAR: I mean, you know it has implications on procurement --

MR. HEACOCK: Right.

MEMBER STETKAR: -- on quality programs, on --

MR. HEACOCK: Testing.

MEMBER STETKAR: -- Maintenance Rule you know, going forward. So it's not a list to be taken trivially.

MR. HEACOCK: Correct.

MEMBER STETKAR: From an equipment procurement standpoint then, is the version of the list, do you take a snapshot of immediately before you send out the bid for purchase, the version that you'll use?

MR. HEACOCK: Well yes, essentially it is a snapshot as the data has been turned over and put

into the rest of the process it is a "snapshot in time" as based on the quarterly reviews or however often we need to actually update our --

MEMBER STETKAR: So from our perspective, you know given the fact -- I'm trying to understand how we as a Committee view this list.

From our perspective since we have no involvement whatsoever once the COL licensing process is issued, in a sense once we complete our review of the COL application we have no information about whether, for example, a condensate pump might eventually be classified as an item on this list given the fact that at the last time we see it it just said "condensate system."

MR. HEACOCK: Yes.

MEMBER STETKAR: Is that right?

MR. HEACOCK: I'll probably have to get back to on that.

MEMBER STETKAR: In a sense, it's more a question for the staff.

MR. HEACOCK: Yes.

MEMBER STETKAR: But as i understand the process from what you're saying is if the intent is at the COL stage to simply populate this list at the system level, then we won't, I guess, officially know

anything about components even though in various incarnations of the list right now it's not only at the component, but a much detailed level.

MR. HEACOCK: Yes. There's more for the 19Ks, that's probably a little bit more broad than where we're at with overall expert panel.

MR. HEAD: If I could, I think embedded in your question though are some things we ought to at least consider. I don't know with respect to this process what the COL really means. I mean, we could be buying everything full-bore right now and the COL still be years away, literally.

MR. HEACOCK: Yes.

MR. HEAD: Or we could be with a COL and haven't bought and anything. So I'm not sure what this has to do with maybe from a COL standpoint.

What I think we're really trying to show you is the process that we're licensing.

MR. HEACOCK: Yes. Yes.

MR. HEAD: And the existence lists and insights and individual components I believe is somewhat -- you know, it's interesting from a perspective of how the process works, but we're licensing a processing. And the process is ongoing and will continue to on go, and it will be updated,

for example, when the new PRA that we talked about, the operational PRA and its insights are provided to the expert panel.

So it'll be it's a process that is ongoing through the construction phase. And I can see, just like we did on 1 and 2, you could get down the road and some insight occur, either due to a model change or even operating experience, that's going to cause you to go back and look at previous decisions.

So, anyway, this is probably just a long way of saying in somewhat from my 1&2 perspective that we're licensing a process. And so I don't know that we're going to be able to --

MEMBER STETKAR: I'm going to ask the staff more about what this means from a review. But, thanks. That helps a bit.

Let me ask, I want to get some details in here and then I'm going to step back, if you'll allow me.

CHAIRMAN ABDEL-KHALIK: Okay.

MEMBER STETKAR: Let me then focus a bit, since I'm a PRA guy, on -- well, let me ask the question I asked earlier. Should I pay any attention to the tables 19K-1 and 19K-2 in FSAR Revision 4, or are those --

MR. CHAPPELL: You should look at both the DCD and the FSAR. The changes to the table are shown in the FSAR. So those two documents combined show its incorporated, not changing what's there.

MEMBER STETKAR: Okay.

MR. CHAPPELL: The scope of changes in RAIs, I'm not clear exactly what they are, but I don't expect it to be significant.

MEMBER STETKAR: Okay. Thanks. That helps.

Then let me ask a couple of questions. In Table 91K-1, only because I picked a system to take a look at that I understood, there are two entries in Table 19K-1 for the RCIC minimum flow bypass. It's the minimum flow valve from the RCIC system. It's valve E41F011. But there are two separate line item entries for that valve.

One has in parenthesis "NOFO" and one has in parenthesis "NCFC." Now the PRA people may need to help me, but the normal PRA jargon say normally open fails open, normally closed fails closed. Unless for example those abbreviations in this context mean something different.

So first, let me ask the PRA people what do those things mean?

MR. SUMMITT: Okay. For that specific valve what you're talking bout is for RCIC is you initially have to have it go open because you need to be able to have some in flow to be able to keep the pump from tripping off because you're at a higher pressure. As the pressure drops and you're responding to the event, you then have to have that valve go closed so you can accurate flow, mainly both associated with like a small LOCA or something like that.

So what you have a valve that has a failure mode that's associated with being in the wrong position at the wrong time. So there's two different failure modes: It has to go open and then it has to go closed.

MEMBER STETKAR: So this is an example of two different very specific failure modes for one valve?

MR. SUMMITT: That is correct.

MEMBER STETKAR: Now in principle if I quantified the PRA one of those failure modes might have crossed the border of Fussell-Vesely .0051 and the other one might have been .0049. So you might have only had one of those two failure modes in principle?

MR. SUMMITT: In this particular case it

probably would not be because the --

MEMBER STETKAR: No, I understand how the numbers work.

MR. SUMMITT: Yes, you're right.

MEMBER STETKAR: But in principle?

MR. SUMMITT: You're right. No different then if a pump start and a pump run --

MEMBER STETKAR: Okay. Yes. Yes. Right.

MR. HUGHES: By postulating that case, the PRA input to the process might be even if you had two that were very close, that they should both be listed as in scope as important. Because the PRA input is grounded and founded on the numbers, but it's an input that includes the understanding of the PRA person as to uncertainty, as to modeling, as to treatment in the PRA. And that can come through with the recommendation that it should be in through the PRA. And if it were not, it would the other way, the PRA insights that said the PRA doesn't bring it, you'd still do the deterministic to see if the evaluation of other factors would bring it in.

MEMBER STETKAR: Thank you.

Let me ask you a follow-on question to that because Table 19K-1 lists equipment that is determined to be important to risk. So I'm assuming

Fussell-Vesely importance or risk achievement worth, and Table 19K-1 does have this example of those two different failure modes for that valve in that.

Table 19K-2 is characterized as things that have moderate risk achievement worth as opposed to 19K-1 that are characterized has greatest importance for CDF.

19K-2, the not so important stuff, I see the same valve listed. So it's curious to me how it can have the greatest importance for CDF and also be of moderate importance. So that --

MR. HUGHES: You are pointing out -- I'd like to go back and reanswer your question with a little fuzz around the edge.

Your question was: How to view this table? And the answer is the table provides useful information and so it should be viewed. However, the useful information does not go as far as I think we may be pushing it.

The table provides an understanding of the intent of the program as the lot to designed to put into the CDC. What we're doing with the expert panel in implementing it is taking this table and the form of it, but applying it from a system level straight down systematically.

And I would agree with you; when I look at the table I see things in there that are hard to reconcile as to how they came in from the original evaluation and some judgment was clearly applied. But the details of how that string can be pulled is not provided. So what we're doing is starting at the system level, coming straight down and providing a path that can be pulled and we can answer all those questions.

MEMBER STETKAR: Let me just for the record get the last example that I have on there. Because I mentioned it earlier. This is in 19K-2, it's the RCIC steam supply bypass valve limit switch fails. It's characterized as moderate risk achievement for it. It's not in the top tier.

That valve apparently exists in the PRA but it does not exist in the plant anymore because the RCIC design change removed that valve from existence.

A subtle difficulty of having that valve in the PRA and evaluating its numerical risk importance is that by doing that you can skew numerical risk importances of other pieces of equipment, especially Fussell-Vesely because it's a kind of an average short of thing. So you have to be a bit careful about that for values, numerical values

that are close to the margins. And, you know and the concern is that if you're just drawing a very hard black line of .004999 is out and .0005 is in, that skewing process is something that could come into play.

And I'll just leave it there.

MR. HUGHES: I would like to comment that you're not only correct, but at the last two day panel meeting we actually discussed that in some length.

MEMBER STETKAR: Ah.

MR. HUGHES: And we determined after obviously discussing it that we have to be careful to make sure that the insights that come are not derived from a computer with a .0001 level of detail. We're looking at what is the importance of the component as determined by a model that has much in it, but not everything.

MEMBER STETKAR: I know you're still sitting there. But let me finally get back to if the process will be completed by September 30th, what I'm personally looking for -- and I know it's a process. I hear everything that people are saying. I think you also need to appreciate our role in this review is at some level, let's call it a sanity check. I think we're interested in looking at that list and doing

what I'm calling, that type of sanity check.

In other words, looking at the population. If it's at the system level, you know the feedwater system is called out but the condensate system isn't called out, you know what not? It would seem like a reasonable question.

Or, for example, the condenser circulating water system isn't called out but that the PRA takes credit for in heat removal from the condenser, for example: That type of larger picture sort of sanity check. And that's one of the reasons why I'm interested about when the final populated list will be available, at whatever level of detail and when we might have an opportunity to see that.

MR. HEACOCK: You know, most of this is going to be more at the system level. That's the upper level that we will need to use to start drilling down into the specific components for each one of the systems. And that's the one that's really going to be completed by September time frame.

MEMBER STETKAR: September 30?

MR. HEACOCK: Right. And that's actually where we've been, and we've done quite a bit of work on that list already, and it does include condensate systems.

MEMBER STETKAR: Yes. But honestly, Evan, at that level, you know in terms of a lot of the stuff that I've brought up, these specific examples about failure modes --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- and the concerns about being above and below a particular numerical margin, while I in principle might be concerned about that, you know sometime in the future as this list becomes more detailed and evolves, I quite honestly have no means of evaluating that.

MR. HEACOCK: Yes.

MEMBER STETKAR: That's up to the staff in terms of their audit and inspection functions.

MR. HEACOCK: You know, and I accept that. But at least at the system level I'd like to have the opportunity to say that the list seems to make sense given what we know about risk, given what we know about power plants and things like that.

MR. HEACOCK: Yes. All the insights. Okay.

MR. HEAD: And there is an ITAAC, so it's not just audits, but there is an ITAAC that we have to close. And so --

MEMBER STETKAR: But again, we don't get

involved in that.

MR. HEAD: And somewhat you'll see me, you should be sensing that I'm a little concerned about this action item because the process -- you used the term "process complete in September." Well, the process is not complete. We will have a population, but clearly going down into the components and all the details that go with that, that's an ongoing process. And the process won't be complete because we don't have the final PRA that we'll be using to assess. So I'm --

MEMBER STETKAR: But you will have the input from the expert panel.

MR. HEAD: Yes, sir. Yes.

MEMBER STETKAR: And I'm not looking -- I'm honestly as long as you're saying it's at the system level, I'm not looking for microscopic stuff at that point. I'm looking at a macroscopic top down.

MR. HEAD: Yes.

MEMBER STETKAR: Because I recognize that instead of saying the condensate system, eventually you'll have individual components. I'm not sure about failure modes.

MR. HEAD: Right.

MEMBER STETKAR: But individual components

listed so that you don't have some drain valve off of the condensate polisher or something as a quality item, for example.

MR. HEAD: Yes.

MEMBER STETKAR: I recognize that. But at a high level kind of completeness system level it would seem reasonable for us to look at that list. Because it does have implications about how you will later treat nonsafety-related equipment, some subset of that system less equipment in your follow-on Maintenance Rule program.

MR. HEAD: I believe you have the evidence, though, how we will do that. These are not based on safety-related.

MEMBER STETKAR: No.

MR. HEAD: Okay. There's no safety-related aspect of this that is relevant to the deterministic review.

CHAIRMAN ABDEL-KHALIK: September 30th of this year is still within the timeline of our review.

MR. HEAD: Yes, sir. It is.

CHAIRMAN ABDEL-KHALIK: And perhaps it might be a good idea to just have a follow-up item that we'll look at the list when it's completed --

MEMBER STETKAR: I understand the process,

and I have confidence in the process. And if I have confidence in the process and you have confidence in the process, it should be a pretty much pro forma, gee this seems reasonable.

MR. HEAD: My, I guess concern is that even if on September 30th we have some interaction that says well where's this system or where's that, that's still not an issue with the process. The process is still ongoing and there is still opportunities for -- you know even after September 30th for example a system that's applied to the project from a rule change that will get added to the system. So --

CHAIRMAN ABDEL-KHALIK: Yes. But nevertheless, you know on September 30th you would have that coherent list to the same level of detail that would allow sort of some one to look at it and make sense out of rather than different levels of detail.

MR. HEAD: And would we present that list in this meeting, or is that something that we would --

CHAIRMAN ABDEL-KHALIK: Oh, yes. I would imagine there would be --

MEMBER STETKAR: Let's ask the staff that because, you know we are treading -- I understand why

Scott's uneasy about this discussion because I understand why you're uneasy. So, let's ask the staff a little bit about the --

CHAIRMAN ABDEL-KHALIK: The timeline?

MEMBER STETKAR: -- you know that timeline and what that list means and what connotation that list has at a specific snapshot in time from their perspective. That might help us a bit also.

MR. HEAD: Okay?

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HEAD: Evan?

MR. HEACOCK: Okay. Actually, this next slide we've already talked about. And again, any new SSCs identified will be added to D-RAP, and any changes in the PRA model will be evaluated against what's in D-RAP at that particular point of time and feed back into the process.

Are there any other questions on 30?

MR. HEAD: Are there any other questions on 30?

MR. HEACOCK: So the next is go over Action Item #88, which is a question we had just recently on Startup Administrative Manual does not seem to include the SSCs going into RAP following PRA or expert panel review.

Actually, the answer is yes they do. By process it's required to. Regulatory Guide 1.68 "Initial Test Programs for Water Cooled Nuclear Power Plants" is referenced in the SAM and requires the test program to include suitable testing of all SCCs important to safety.

So, any of that we put in the D-RAP by process will get called out and get tested. Okay.

MEMBER STETKAR: So there is a traceable point to that.

MR. HEACOCK: Yes.

MEMBER STETKAR: Good.

DESIGNATED FEDERAL OFFICIAL BANERJEE: So we an close this action item now?

MEMBER STETKAR: Yes, I mean that's what I was just looking for --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- that indeed there was a traceable hook that --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- ensured that.

MR. HEACOCK: Right. Okay? Anything else for 88? Okay. So we're closed?

CHAIRMAN ABDEL-KHALIK: Okay. You wanted to provide some answers to some of the questions that

were raised earlier today, or would you like to wait until--

MR. HEAD: Sure, we can. If there are no other questions on Chapter 17.

CHAIRMAN ABDEL-KHALIK: Let's see. Are there any additional questions on Chapter 17?

MEMBER STETKAR: Can we just -- it's here. You see everybody stiffen up.

MR. CORRADINI: That's just because the respect.

MEMBER STETKAR: Watch my back when I walk out of here.

Going from Rev. 3 to Rev. 4 of the FSAR you changed the level of detail coming out of the expert panel. You used to have four categories and you've split it into only two. And philosophically I understand why that is because you only have two coming out of the PRA and it's a lot of easier to sort things into an important or not important event.

Since you have the process ongoing now and since the score for high is 41 to 100, do you have any sense of whether you're overpopulating the high importance because of that?

MR. HEACOCK: Well --

MEMBER STETKAR: Only because, you know

you do have numerical weights and datings and things like that.

MR. HEACOCK: Yes.

MEMBER STETKAR: So it seems to be a rather fine process. But --

MR. HEACOCK: Well, again, it's not just the 41, it's also any single question.

MEMBER STETKAR: That's true. I mean, that's the sort of backstop thing that you rely on.

MR. HEACOCK: From what we have gone through so far my answer to that would be no, that we don't feel like we're overpopulating.

MEMBER STETKAR: You have confidence in terms of what's coming? Okay.

MR. HEACOCK: Yes. It's based on what we've seen and what we've evaluated so far. Nothing seems to be that we're throwing in a lot more systems, you know.

MEMBER STETKAR: Okay. Good. Good. Because, I mean you used to have that sort of medium importance --

MR. HEACOCK: Yes.

MEMBER STETKAR: -- and there were some guidelines that say well I need to think about the medium importance.

MR. HEACOCK: That was that carryover from 1&2 that we talked about.

MEMBER STETKAR: Okay. Thanks.

MR. HEACOCK: Yes.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HEAD: Okay. Coley, do you want to describe what --

MR. CHAPPELL: Oh, the reference? There was a reference we went over with Mr. Brown about providing the required flow rate for AC-independent water addition.

MEMBER BROWN: He gave it to me. That's fine.

MR. CHAPPELL: I just wanted to confirm that--

CHAIRMAN ABDEL-KHALIK: Would you state them on the record?

MR. CHAPPELL: The requirement is a COL item 5.9 that specified in Table 1.9-1. It references back to a section in Chapter 5, Section 5.4, the subsection is 5.4.711103.

CHAIRMAN ABDEL-KHALIK: And those are the flow rates that are specified?

MR. CHAPPELL: The flow rates that were --

MEMBER BROWN: Flow rates are specified.

There's another point that we don't want to talk about it under this.

MR. CHAPPELL: So that addresses the question about the flow rates.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HEAD: Okay. And then we described --

MEMBER BROWN: I'm all set.

MR. HEAD: But what we described was --

MR. CORRADINI: We're allowed to talk about it?

CHAIRMAN ABDEL-KHALIK: Right. And it has to be on record.

MR. HEAD: We showed the elevation of the hatches and the top bottom of the tunnel between them, and that it was above the suppression pool elevation. And that once any water went into the drywell that it would also be below the level of the hatch. And so, I think that --

MR. CORRADINI: Yes. That answers. That was, I guess, the whole point of me wanting to know what it was. So I feel better.

CHAIRMAN ABDEL-KHALIK: And the difference in elevation between the bottom of the lower drywell and the lower edge of the hatch is what? Three or four meters, something like that

MR. HEACOCK: The lower bottom of the drywell and a hatch?

CHAIRMAN ABDEL-KHALIK: Right.

MR. CORRADINI: The floor and the bottom of the hatch.

MR. HEAD: Probably more than that.

MR. HEACOCK: More than that. The bottom of the drywell, it's a little bit higher -- not much. Probably about a meter or two higher than the suppression pool elevation. So they're basically almost at the same level. And the water in the suppression pool goes up to seven meters. So, I can't give you exact, but it'll be a little bit more then that when you're said and done with you're trying to equalize water between the suppression pool and the lower drywell.

CHAIRMAN ABDEL-KHALIK: The concern was when the water is equalized, does the water level exceed the level of that --

MR. HEACOCK: No. Yes. It's more than several --

CHAIRMAN ABDEL-KHALIK: -- of the hatch.

MR. HEACOCK: It's probably several meters at the worst case. We didn't sit down and measure, you know try to calculate what the difference in

level, but it's within several meters at least from elevation below the hatch.

MR. CORRADINI: Yes. I guess my concern was I just wanted to make sure you weren't submerging the equipment hatch with the water.

MR. HEACOCK: Right. Right.

MR. CORRADINI: And if the answer to that is no based on the drawings you showed me, then I feel safe.

MR. HEACOCK: Yes.

CHAIRMAN ABDEL-KHALIK: All right. Thank you.

Is there something else?

MR. HEAD: Well, sir, just we'd probably want a chance to just go over the bookkeeping on all the follow-up items.

CHAIRMAN ABDEL-KHALIK: Right.

MR. HEAD: And are we going to do that now or are we going to do that after?

CHAIRMAN ABDEL-KHALIK: If you'd like, we can do that now.

MR. HEAD: Okay. We have a follow-up item on what I'll call the hurricane return interval.

CHAIRMAN ABDEL-KHALIK: Right. The sort of uncertainty analysis associated with the hurricane

return interval.

MR. HEAD: Right.

PARTICIPANT: There was a three second gust --

MEMBER STETKAR: You know, honestly, I wouldn't at this stage in the game I wouldn't make that an issue, really. Because I understand it's not quantified in the PRA. That's a different -- and I don't believe that hurricanes within the context of the PRA are going to dramatically increase the numbers. They might. It's simply they're not quantified in an integrated risk perspective.

CHAIRMAN ABDEL-KHALIK: It's out, John? Okay.

MEMBER STETKAR: It shouldn't be in.

CHAIRMAN ABDEL-KHALIK: All right.

MEMBER STETKAR: I don't think we need to--

CHAIRMAN ABDEL-KHALIK: Unless somebody else objects, can we just take this item off the list?

MR. HEAD: Okay.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HEAD: And we had the request to describe the manual control of RCIC and the long-term cooling --

CHAIRMAN ABDEL-KHALIK: Yes.

MR. HEAD: -- discussion that we'll do on June 21st.

CHAIRMAN ABDEL-KHALIK: Right.

MR. HEAD: And we'll also, just for everyone, we'll summarize RCIC operation. We'll go back over it's --

MEMBER STETKAR: Some of the stuff there's a technical report.

MR. HEAD: Right.

MEMBER STETKAR: It's got some good pictures.

CHAIRMAN ABDEL-KHALIK: There was an issue earlier related to particulate matter getting into the bearing cooling for the RCIC pump.

MR. HEAD: And that's one of --

CHAIRMAN ABDEL-KHALIK: A\and that's another follow-up item.

MR. CHAPPELL: We'll add this to the two, we have two follow-up items with RCIC that we plan to address.

CHAIRMAN ABDEL-KHALIK: Right.

MR. CHAPPELL: Are currently planning to address on the same date.

CHAIRMAN ABDEL-KHALIK: Right. Okay.

Thank you.

MEMBER STETKAR: Well, as long as you're making those, Harold's not here, if you'd bring some graphics with you on the RCIC pump design --

MR. CHAPPELL: Yes.

MEMBER STETKAR: -- make sure you bring a good cross section that shows the internals of the pump and the turbine. Because he had voiced some concerns about seals and seal cooling.

MR. CHAPPELL: Yes. Yes.

MEMBER STETKAR: Seal and seal cooling, which is --

MR. CHAPPELL: Okay.

MEMBER STETKAR: I don't want to prejudice it, but a good cross section drawing would help to explain that.

MR. HEAD: Okay. And then we had a follow-up item, the basis for the 15 and 40.

MR. CHAPPELL: Yes. Right.

MR. HEAD: Okay.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Fifteen and 40 or -- I have those zero to five because 15 becomes multiplication of three times five.

MEMBER BLEY: No. The 15 is the criterion for -- and 40 was the criterion for the --

MEMBER BROWN: It's 15 and then it goes--

CHAIRMAN ABDEL-KHALIK: I guess just the logic, that's all.

MR. HEAD: Okay.

MEMBER BROWN: Which and the 40 is the other --

MEMBER BLEY: Which would include, and I know you have it, the word description of what the score zero to five means.

MR. HEACOCK: I can show you that today, if you'd like.

MEMBER BLEY: That would be great.

MR. HEACOCK: Okay. Because I have it right here.

MEMBER BLEY: Okay.

MR. HEAD: And then I captured one that the RCIC bypass valve does not exist. And I think we owe you something on that.

MEMBER STETKAR: No, it's not the RCIC. But it's the steam emission -- the original design, there was a main steam emission valve and a little bypass valve. The bypass valve opened first because the old terry turbine design didn't like to start real fast. It opened and then the main steam emission valve came open after a little time delay. Well, in

the new turbine design you only have a single steam emission valve, the bypass valve has been removed. It's pretty evident that that bypass valve is still in the PRA model because assigned in the numerical risk significance to the extent that it shows up in one of the tables in 19K. It was only an example that I brought up to kind of illustrate the concern about individual components. And in that case, it was a limit switch failure, individual component failure modes as perhaps not a justifiable level of detail today given the status of the PRA, for example.

But if indeed you're populating the list at least as far as we draw the line of our involvement at the system level, I'm not really concerned about that.

MR. HEAD: Okay.

MEMBER STETKAR: So that's another one that from my perspective is a curiosity but doesn't merit any follow-on.

MR. HEAD: Okay. 88 we closed. And 30 we're keeping open and we will show you the status of the list on September 30th, or whatever the --

MEMBER STETKAR: Let's wait for the interaction with the staff on that one.

CHAIRMAN ABDEL-KHALIK: Okay. Good. Thank

you.

DESIGNATED FEDERAL OFFICIAL BANERJEE: I have a question here. Also Dr. Stetkar asked if there is in the PRA any consideration of probability of wind damage versus wind speed, whether that was looked at or not. Is that still a question or is it --

MEMBER STETKAR: No. Because that's all involved in how are they treating high winds and external events. The answer is they're not.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Thank you.

And I have another that's actually staff's, and that was the contractor's report on MELCOR/MAAP. And I have the ADAMS reference. Rocky provided them, I understand. So I'm going to distribute it to the members.

CHAIRMAN ABDEL-KHALIK: Okay.

DESIGNATED FEDERAL OFFICIAL BANERJEE: That's all.

CHAIRMAN ABDEL-KHALIK: All right. Thank you.

We are nearly 45 minutes behind schedule. So at this time we'll move on to the staff's presentation of Chapter 17.

MR. EUDY: Good afternoon.

I'm Mike Eudy, Project Manager. And I'm going to be discussing the staff's review of the phase 4 product for Chapter 17 Quality Assurance.

So, again, there are no open items.

George Wunder and myself are Project Managers. And we have Garrett Newman here and Todd Hilsmeier will be going over specific sections of Chapter 17.

In summary, what we're going to talk about today is Garrett Newman will be discussing Section 17.5S, which is Quality Assurance Program Guidance. We're going to discuss a previous open item we had identified, closure of some confirmatory items, the recent change in ownership/applicant impact on this Chapter and some COL item closure.

And then Todd Hilsmeier will be discussing Section 17.4S which includes the Reliability Assurance Program. We're going to be discussing COL item closure, an ongoing confirmatory item that he is doing with an audit, and then just going to discuss the staff's ACRS action item that obviously will have some interesting discussion.

So, I'm going to go ahead and turn it over to Garrett Newman to discuss 17.5S.

MR. NEWMAN: Thank you.

Good afternoon. Again, my name is Garrett Newman and I work in the Quality Assurance and Vendor Branch.

I'll be talking about Chapter 17.5S. This review also includes 17.01 and 2.

The last time we met we had an open item regarding the QAPD and the regulatory commitment section. Specifically, Regulatory Guide 1.33 and the operational requirements as well as some consistency items between Chapter 17 and Chapter 1.

The applicant responded to the RAI and proposed some changes to the QAPD which included updating for the latest version of the NEI template, which the staff approved, I believe last summer. I don't have the date on that, though.

Since the writing of the SER they've incorporated those changes, and the staff found those acceptable so that confirmatory item as well as two others are closed now.

The applicant's Version 5 of the FSAR which made some changes to the name of the applicant and the organizational structure, and there's also some changes in the Quality Assurance Program as well. The staff reviewed those, had a couple of questions which were included in RAI 17.5-10 which the applicant

has responded to and staff found acceptable and is tracking as Confirmatory Item 17.5-10.

And that's the only confirmatory item remaining that the staff is tracking.

It can address COL License Information item 17.1 by including the Quality Assurance Program for construction and operation.

And finally, there was no ACRS action on this regarding the Quality Assurance Program.

That's all I have, unless there's any questions.

MEMBER BROWN: I have a follow-up question. You said Revision 5 of the FSAR?

MR. EUDY: We had a recent Revision 5 that was specifically devoted to South Texas' change in applicant ownership and there was some impact on a few of the chapters.

MEMBER BROWN: Okay. I just have Rev. 4. I didn't know there was anything relevant to the fact that we --

DESIGNATED FEDERAL OFFICIAL BANERJEE: Is that noted in your --

MR. EUDY: In the SER unless otherwise noted refers to Rev. 3 most of the time, but often staff will have time to incorporate Revision 4 of the

COL.

MR. NEWMAN: The changes in the FSAR were just a title change to the Quality Assurance Program. The significant changes were in the referenced Quality Assurance Program itself changing the different two organizations to where it was under construction and turning it over to STP at operation. So minimal changes to the actual FSAR.

DESIGNATED FEDERAL OFFICIAL BANERJEE: I guess what Mr. Brown was asking is your enterprise management system where you load this FSAR has actually been forwarded, that's what was distributed to the Members. So Rev. 5 has it been loaded yet? That's what I want to ask.

MR. EUDY: I believe it has. I can get back to you on that. I believe it was recently put into ADAMS --

DESIGNATED FEDERAL OFFICIAL BANERJEE: Yes, I believe like two weeks ago.

MR. CHAPPELL: But, George, did you --

MR. WUNDER: Are we talking about what's in SharePoint?

MR. EUDY: Yes. What's in ADAMS?

DESIGNATED FEDERAL OFFICIAL BANERJEE: What's in your management system, where I go to--

MR. WUNDER: That's SharePoint. It hasn't been there for long.

DESIGNATED FEDERAL OFFICIAL BANERJEE: It's in there?

MR. WUNDER: Yes, that's correct.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Okay. Because I distributed Rev. 4.

MEMBER BROWN: Yes, and we didn't even do all the chapters in Rev. 4. And some of those --

MEMBER STETKAR: Right. We tend to get them--

DESIGNATED FEDERAL OFFICIAL BANERJEE: In pieces.

MEMBER BROWN: Yes. Because it's got 11 or 12 chapters there out of the 19 or 20, or something like that. Okay. Yes. I even use Rev. 3 for some stuff.

DESIGNATED FEDERAL OFFICIAL BANERJEE: That was last year.

MEMBER BROWN: When I was reviewing for this I used Rev. 3 a couple of times. That was the only point I was trying to make. I was just trying to make sure I knew what was going on.

CHAIRMAN ABDEL-KHALIK: This doesn't have any material impact on the issue that's being

discussed here.

MEMBER BROWN: It doesn't sound like it.

MR. CHAPPELL: Okay. We'll turn it over to Todd Hilsmeier to discuss 17.4S and an ACRS action item.

MR. HILSMEIER: Thank you, Mike.

FSAR 6 and 17.4S addresses COM information items of the DCD related to the Reliability Assurance Program or RAP. And Section 17.4S discusses the methodology for updating and maintaining a list of RAP SSCs during the design and construction phases of the plant, the integration of RAP into operational programs and discusses also the essential elements of D-RAP. D-RAP is simply during the design and construction phase of the plant.

And the staff's review of Section 17.4S discussed in detail at the ACRS Subcommittee meeting on March 18, 2010 which resulted in one ACRS Action Item. And the SER in Section 17.4S has no open items and one notable confirmatory item that is related to the ACRS Action Item.

The next slide.

MEMBER BROWN: Just one question, because this is educational. Okay. You said RAP is one thing and D-RAP, and where is the transition point again and

which is which?

MR. HILSMEIER: Yes. RAP has two stages and the transition point is at fuel load, basically. So before fuel load during the design and construction phase, we call the design Reliability Assurance Program. Then after fuel load, RAP is integrated into operating programs.

MEMBER BROWN: D-RAP is integrated? Which is it?

MR. HILSMEIER: Either way. You could think of D-RAP as integrated into operating programs.

MEMBER BROWN: Okay.

MEMBER BLEY: And they drop the D.

MEMBER BROWN: And you drop the D and call it RAP; that's what I was trying to get to.

MR. HILSMEIER: Actually, we even drop the RAP. We call it Maintenance Rule --

MEMBER BROWN: All right. Why do I keep doing this to myself?

MR. HILSMEIER: In early days there used to be an O-RAP. And industry interpreted O-RAP as an additional program, but O-RAP is simply the Maintenance Rule Quality Assurance.

MEMBER BROWN: All right.

MR. HILSMEIER: And so I'm sorry for --

MEMBER BROWN: Plow on.

MR. HILSMEIER: -- confusing you. I mean, in making this is more complicated.

MR. EUDY: And RAP is all the rage with the young kids, by the way. So --

CHAIRMAN ABDEL-KHALIK: Please continue.

MEMBER BROWN: You remind about my grandson.

MR. HILSMEIER: The ACRS Action Item is stated on this slide. This action item includes addressing when the D-RAP list will be effectively populated and how does the staff ensure the D-RAP list is acceptable?

Now I should have this memorized like that, since we've talked about it so much at ACRS. But the remainder of this presentation will address the ACRS Action Item.

Now, first, we need to understand why a risking of the SCCs are identified in D-RAP. A risking of the SSCs were identified for D-RAP, and I like to call them D-RAP SSCs rather than risk significant SSCs. Because different applications identify risk significant SSCs differently. So mostly refer to risk significant SSCs as D-RAP SSCs.

They're identified because these D-RAP

SSCs are subjected to quality assurance controls during the detail design and construction phase, and also even in the operation phase. This is primarily relevant to the nonsafety-related D-RAP SSCs which must meet the QA requirement under Part D of Standard Review Plan Section 17.5.

The safety-related SSCs must meet QA requirements of the Appendix B 10 CFR Part 50 irrelevant of D-RAP.

There's some other RAP activities during the operation phase which includes ensuring that the test maintenance activities address dominant failure modes of the risk significant SSCs, and that RAP SCCs are considered high safety significant in the Maintenance Rule.

During a D-RAP phase we're mostly focused on ensuring those D-RAP SSCs are subjected to quality assurance controls.

Next slide.

Before I start this slide, during the presentation given by STP, ACRS asked you a question regarding why the high pressure core flooder injection valve F003B was not included in D-RAP. And if it's okay with ACRS and STP, I would like to address that question Is that okay? Okay. Thank you.

One of the limitations of the DCD PRA model is a lack of common cause failure modeling, especially in high pressure core flooder system, reactor building cooling water system, reactor service water system an the RHR system. And this valve F003B was not modeled, did not have a common cause failure mode associated with it. And as a result, when the risk importance is recalculated the RAWs were based on independent failures. And so the RAWs fell below the screening criteria, and thus the DCD did not include the valve in the D-RAP program. And that's part of the DCD space.

And what's really nice about STP's approach to deterministic approach is it identified this valve as risk significant. And so it helped compensate for the limitations of the PRA. And that's the main reason why we have this deterministic method; to help compensate for the limitations of a 15 year old PRA model.

I don't know if STP wants to add anything to that. Okay.

So back to the slides. This slide addresses D-RAP list during COL application phase. In accordance with 10 CFR 52.79(d)(1) STP's D-RAP list and FSAR is incorporated by reference with the

appropriate departures and site-specific supplements. It's incorporated through the D-RAP list in the certified approved DCD. And this process conforms with regulatory requirements.

The completeness of STP's D-RAP list in the FSAR is directly attributed to the adequacy of the DCD's PRA and the DCD's D-RAP list, which is subjected to 10 CFR 52.63 on the "Finality of Standard Design Certifications.

MEMBER STETKAR: Okay. But we know by your example that that wasn't a very good process because it wasn't --

MR. HILSMEIER: Right, exactly. Yes.

MEMBER STETKAR: Despite the fact that it was certified.

MR. HILSMEIER: In your seat you can focus on the technical. In my seat I need to focus on the technical and also regulatory requirement.

MEMBER STETKAR: Understand.

MR. HILSMEIER: And so because of finality STP's D-RAP list in the FSAR for the COL application phase conforms to regulatory requirements. And because of finality, we find it acceptable although we still expressed the same concern that you have that the D-RAP list is not effectively populated in the

DCD.

So the next slide addresses your technical concern, and the staff's technical concern. For during the detailed design and construction phases of the plant, STP took the initiative and made a commitment to update the D-RAP list by September 2011 using the probabilistic and deterministic method describe in FSAR. This is Commitment 17.4-1.

And the methodology is summarized in the slide, but I will not go into detail here since it was discussed at the last ACRS meeting.

The staff is conducting ongoing audits on the implementation of this methodology to ensure that the D-RAP list will be effectively populated. And this is Confirmatory Item 17.04-9 in the SER. I'll talk about this audit in a few minutes.

Next slide.

IT should be understood that the D-RAP list is a living list and it is continually updated and maintained, much like the PRA is updated and maintained. So in accordance with the STP's RAP program, STP will maintain and update the D-RAP list as changes are made to the plant-specific design and PRA. This includes updating the D-RAP list with a plant-specific PRA that is developed before fuel load.

Any new SSCs that are added to the scope of D-RAP are subject to the D-RAP program requirements, such as the QA requirements. So if through the deterministic method they miss some RAP SSCs that the plant-specific PRA before fuel load identifies as risk significant, those new risk significant SSCs are still subjected to QA controls.

The staff is currently conducting ongoing audits to examine STP's updating of the D-RAP list. The intent of this audit is not to verify the completeness of the D-RAP list. The intent of this audit is to verify that the process of updating the D-RAP is sufficient to ensure that the D-RAP list will be effectively populated and updated as needed.

Preliminary findings from the audit include:

The staff found that STP developed a D-RAP procedure that is consistent with the description of the D-RAP program in the FSAR which includes updating the D-RAP list as changes are made to the design in PRA, including the plant-specific PRA before fuel load.

The staff also found that the expert panel when determining risk significance also considered the ATWAS rule under 10 CFR 50.62, the Loss of All AC

power Rule under 10 CFR 50.63. The expert panel also considered containment performance, external events, low power shutdowns, industry experience, regulations and engineering judgment.

And the staff found that STP had identified the risk significant systems and system functions in accordance with the methodology described in the FSAR, though the risk ranking of the system is still in draft form and undergoing peer review, numerous non-PRA modeled systems were added to D-RAP based on the deterministic method.

And based on the preliminary audit findings in comparison with other design-centered D-RAP lists, the methodology for identifying the risk significant systems appear to be appropriate.

Staff also found that the risk categorization at the component level has not yet been performed. What STP showed today was an example of how they would do it. And the staff will verify the implementation of this activity identifying the risk significant components through another audit, likely during the summer as such Confirmatory Item 17.04-9 remains open.

Now to verify the completeness of the D-RAP list, and I don't want to call it the final D-RAP

list, but the D-RAP list -- the most complete D-RAP list in addition to verifying implementation of D-RAP activities, the staff plans to conduct inspections prior to initial fuel load. These inspections will likely be integrated with inspections of other programs and requirements, such as inspection of the D-RAP ITAAC, inspection of the initial Maintenance Rule Program, inspection of Defense Specific PRA under 10 CFR 50.71, or the inspection of the Quality Assurance Program.

And that concludes my presentation. Are there any questions?

CHAIRMAN ABDEL-KHALIK: Go ahead.

MEMBER STETKAR: No. I'll let you go first.

CHAIRMAN ABDEL-KHALIK: I was going to ask, I mean you indicated that you intend to do an inspection sometime in the summer of this list at the component level?

MR. HILSMEIER: This summer we will be performing the audit.

CHAIRMAN ABDEL-KHALIK: Audit, excuse me. Yes.

MR. HILSMEIER: To -- go ahead.

CHAIRMAN ABDEL-KHALIK: And yet the

applicant said that what they will have on September 30 is a list at the system level. Is there a misunderstanding here of --

MR. HILSMEIER: We had a telecon last week in which we discussed, because there's two phases to the deterministic method: Identifying the risk significant systems and then the components. And based on my understanding of the telecon, they would have not all this components identified, but some samples of components identified by September. And that's what we're interested in. We want to see a sample of components that were identified as risk significant. I'm not sure if STP wants to comment on this.

MR. HEACOCK: Yes, this is Evan Heacock.

Basically what we've agreed to is that we give some samples. We won't go through and identify a majority of the components. This is just to give a flavor of how we would do this, kind of like the example that we showed during the presentation. That's to give them an idea of how we'll be ranking the components also. It won't be very in depth.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. HILSMEIER: But from the sample we can close the Confirmatory Item. If the sample is

adequate, then we would have a level of confidence in the process to close the Confirmatory Item.

CHAIRMAN ABDEL-KHALIK: Okay.

MEMBER STETKAR: Todd, let me ask you this, because you're right. You wear two hats. You wear a technical hat and you wear a regulatory hat. So, let me ask you the regulatory hat question.

MR. HILSMEIER: Okay.

MEMBER STETKAR: After about nearly four years dealing with new plant licensing, I'm starting to get a sense of what a PRA at the design certification stage might mean in the context of the licensing process. And that's different from my interpretation of what a PRA is.

MR. HILSMEIER: Right.

MEMBER STETKAR: But I'm starting to get a sense of what that might mean.

What does a D-RAP list at the COL stage mean? In other words, if I can use the PRA analogy, the PRA, good, bad or indifferent as long as no one is applying -- you know, doing any risk-informed applications either at the design certification or the COL stage, the PRA purpose is to give some confidence that the level of core damage frequency and large early release frequency is reasonable, let's call it

that. And that's, as best as I can tell, the only purpose of the PRA other than to be a tool, and only one of the tools that feeds into the D-RAP list. Because those risks importance measures are used as at least one of the parameters for populating this list. And we've had a lot of discussions about that.

So in that same context what is the function of the D-RAP list at the stage of COL? In other words, how do you view that D-RAP list in a licensing context in terms of degree of completeness, level of detail, you know consistent specificity, for example?

MR. HILSMEIER: Right.

MEMBER STETKAR: What sort of criteria are applied? Because, you know in the sense of PRA I've kind of described at least my interpretation of those sort of things. So what's the D-RAP list mean?

MR. HILSMEIER: Are you referring to the COL application phase or the license phase? After they get the license or during --

MEMBER STETKAR: No, no, no. The last stage, for example, at which ACRS sees the thing.

MR. HILSMEIER: Okay.

MEMBER STETKAR: So it's when the final SER for the COL is issued.

MR. HILSMEIER: Okay.

MEMBER STETKAR: At that point, that snapshot.

MR. HILSMEIER: Right.

MR. HILSMEIER: Based on the ISG for RAP.

MEMBER STETKAR: So called Mini-Me.

MR. HILSMEIER: Because I spend so much time on it. Actually, I should call it Mini-Malcolm and Me. Because Malcolm Patterson also worked on this.

But what's important, the overall result is that the D-RAP SSCs at fuel load are subjected to the Quality Assurance controls.

MEMBER STETKAR: I understand. But you've jumped to fuel load again.

MR. HILSMEIER: Yes.

MEMBER STETKAR: I'm going to bring you back. I got that.

MR. HILSMEIER: And so that's the overall result. Now if they can identify those D-RAP SSCs early, it makes -- it would be a lot more easy for the applicant to ensure those components are subjected to the QA controls. If they identify additional SSCs before fuel load, they need to go back and make sure those components meet the QA requirements. So it's to

the advantage of the applicant or licensee to identify that list early on so that they don't have to go back and ensure that the QA controls are met.

And so from a D-RAP perspective it's okay to identify new SSCs throughout the design construction phase. But that fuel load, when we do our inspection, like inspection of initial Maintenance Rule, I think that's the best place to inspect the complete list of D-RAP SSCs is when we do the initial inspection of the Maintenance Rule. Because those D-RAP SSCs are incorporated in the Maintenance Rule.

At that point we're going to make sure that complete list of D-RAP SSCs have been subjected to QA controls. And like I said earlier, it's to their best advantage to identify --

MEMBER STETKAR: Yes, it's a little late after a valve is welded into the system to go back and backfit.

MR. HILSMEIER: Exactly. Exactly. If they can't go back and show that the QA requirements are met for that nonsafety-related SCC, they may have to reinstall the component or replace it with another component. So identifying it early on is key to reduce the burden on the applicant.

MEMBER STETKAR: Okay. But everything

you've described is sort of pragmatism about if I'm an applicant, the benefit for me developing a complete or reasonably complete list as soon as possible. What I ask you is from a licensing perspective --

MR. HILSMEIER: Right.

MEMBER STETKAR: -- what is the licensing connotation of that list at the point at which the COL was issued? But what does in mean in terms of licensing?

I'm trying to keep you on licensing --

MR. HILSMEIER: Yes.

MEMBER STETKAR: -- rather than technical because, you know we've already talked a lot about the technical issues.

MR. HILSMEIER: Yes.

MEMBER STETKAR: I'm trying to understand from a licensing perspective what it means. Because that might help me in terms of how I think about it. I've learned how to think about a PRA, for example, in that context.

MR. HILSMEIER: I think I understand your question. I hope this answers it.

The guidance for RAP and D-RAP is through SECY 95-132. It's Commission policy for D-RAP.

And in SECY 95-132 they say that the COL

applicant will provide a D-RAP list. And it's because of that we require the applicants to provide a D-RAP list in the COL application.

Now from my personal perspective, I'd rather not see the D-RAP list during the application phase. I'd rather see the process for developing the D-RAP.

MEMBER STETKAR: Okay.

MR. HILSMEIER: AS a matter of fact, I'd also from my professional point of view, I'd rather see instead of a list of risk significant SSCs, a list of risk significant functions, or at least that's included. Because I think that's more beneficial. Because any SCCS that support the function would then be subjected to D-RAP activities.

Does that answer your question? Basically the D-RAP list is required now because of the guidance--

MEMBER STETKAR: Because somebody said we have to have a list.

MR. HILSMEIER: Yes.

MEMBER STETKAR: But, I mean, it could be a grocery list or it could be a -- I don't want to be that flip. But because you have to have a list, you need to check off the licensing box that, indeed, you

have a list.

MR. HILSMEIER: Right.

MEMBER STETKAR: Recognizing that it may not be complete nor may it be at -- probably won't be at the final level of detail as it will eventually be implemented --

MR. HILSMEIER: Right, exactly.

MEMBER STETKAR: -- as you transition throughout the license.

MR. HILSMEIER: And STP's at a disadvantage because the PRA is 15 years old. The current designed COL, the PRA is of decent quality for this application. And so the D-RAP list, especially the latest D-RAP list for a design center that I'm reviewing, I'm really -- I'm not going to mention the design center, but really impressed with the amount of work they put into the D-RAP list. This is for a design certification. And COLs that reference this design certification will be at a great advantage.

STP was at a disadvantage because of the DCD --

MEMBER STETKAR: But even there, Todd, I mean theoretically here you have a certified design D-RAP list which I think most people sitting in this room would admit has some deficiencies that, you know

some of which have been remedied to this point in time and as the process continues, perhaps others might be remedied going forward.

MR. HILSMEIER: Right.

MEMBER STETKAR: So even your example of a much better D-RAP list --

MR. HILSMEIER: Right.

MEMBER STETKAR: -- could also suffer from some of those things as the PRA evolves as its compliance with additional requirements on level of detail and quality evolve until it eventually meets that fuel load PRA.

MR. HILSMEIER: Yes. And I don't mean to put down the DCD.

MEMBER STETKAR: No, no, no, no.

MR. HILSMEIER: It's based on the standards 15 years ago, and so --

MEMBER STETKAR: Sure. Sure.

MR. HILSMEIER: The other point that I wanted to make, which is a very important point and it just slipped my mind. Shoot.

MEMBER STETKAR: I'll babble for about one more minute to give you a chance to remember.

In the sense of what you were saying about functions, I mean that's a little a bit akin to what

I was talking about having confidence, let's say, at the system level. I quite honestly at this stage of the game is you're trying to say that the D-RAP list will be populated down to the limit switch fails to show that the valve is open failure mode, I'd have real problems with the implications of that if there was any licensing issue, you know creditability assigned to it at that level.

At the system level or even the large component level, a valve or a pump for example, that's a confidence-builder to stay that although the process isn't finished, the process is working.

MR. HILSMEIER: Yes.

MEMBER STETKAR: In other words, if you can look at the list at not just at the functional level, but at the system level and say "Well, the list of systems seems to be reasonable given what I know about the PRA, given what I know about the plant, given what I know about the process. And it seems to be capturing the importance," recognizing that it will evolve.

If you look at it at the system level and say "Well, you're missing systems that don't seem to have a logical explanation of why they're not there." The example of the condensate system. That might mean

that that system will be picked up later, or it might mean that there is some flaw in the process hat we haven't recognized, either through your audits or through whatever involvement we've been able to have, for example, as a set of other eyes. And that's sort of my concern about seeing what that list is.

MR. HILSMEIER: Right.

MEMBER STETKAR: Recognizing it's a snapshot in time.

MR. HILSMEIER: Yes.

MEMBER STETKAR: I think I understand a little bit better of what licensing implications there are.

MR. HILSMEIER: Yes. When I was writing Mini-Me ISG-18, I wanted to just require system function, the significant system functions. But because of the Commission direction, that wasn't possible.

MEMBER STETKAR: Okay. Thanks. That interchange, it's helped me a little bit understand at last how you wearing your licensing hat, you view that list. Okay.

MR. HILSMEIER: And I can't remember the comment that I forgot. But I just hope we can bring closure to this ACRS Action Item.

MEMBER STETKAR: I think we'll probably like to see that list. If there is a milestone, it's written September 30th. So --

DESIGNATED FEDERAL OFFICIAL BANERJEE: That's the audit report.

MEMBER STETKAR: Huh?

DESIGNATED FEDERAL OFFICIAL BANERJEE: The audit that the staff is going to be.

MEMBER STETKAR: Well, your audits are ongoing. But you're looking at -- you already said you're looking more at the process --

MR. HILSMEIER: Right.

MEMBER STETKAR: If put my only technical hat, I'm sort of interested in looking at that list.

MR. HILSMEIER: Okay. Would the other report be sufficient, looking at our audit report or would you want us to come back and --

MEMBER STETKAR: I'm sort of interested to see the list.

MR. HILSMEIER: Okay.

MR. CORRADINI: John's a detail person.

MEMBER STETKAR: All right.

DESIGNATED FEDERAL OFFICIAL BANERJEE: They are going back.

MR. EUDY: Okay. Well, if there aren't

any more questions, I'll go ahead and conclude.

MEMBER BROWN: Well, I want to repeat i back since I'm the neophyte relative to this stuff, in that I'm going to rephrase what you said from this whole D-RAP process prior to licensing.

In other words, you want to see the process that they're going to use to make sure you understand and see that the process results in results as you would expect them to be. In other words, it will select critical risk significant component systems or whatever.

Then you're going to audit during the next prior to whenever you put the final Betty Crocker/Good Housekeeping Seal of Approval on this thing, you'll audit a sample to see that, yes, the process delivers a set of systems, components, structures, whatever, that are risk significant and you agree with them.

Now that's not the final list. That's just the list you'll have at that point.

And then STP will then populate or continue to populate that list as they go past that point when you come to fuel load. And at that point, you will then go "Here's their list," and you will then audit the fact that they've actually or do you go through every item on the list? This is where my

question gets a little fuzzy. You say there's 2,000 items on the list, do you look at every one to see that they actually met their QA/QC requirements or qualification requirements?

MR. HILSMEIER: No.

MEMBER BROWN: Do you just audit the list? That's question one.

And question two is: If at close to getting there or while you're reviewing it, do you say "Oh, the process missed a very critical or very highly significant risk significant component, how do you handle that?"

So that's two questions, kind of. And I don't know what you do at that point.

MR. HILSMEIER: Right. The audits so far we looked at the risks, the identified risk in the systems. Actually, we looked at the methodology identifying risk significant systems. And that was I found the process for identifying risk significant systems, systems functions acceptable.

MEMBER BROWN: Yes, I got that part.

MR. HILSMEIER: That's the first part.

And the second part is looking at how they identify risk significant components. And that'll be this summer. I'll be looking at --

MEMBER BROWN: That's their process again?

MR. HILSMEIER: Yes. Just a sample. But I won't be looking at the complete list.

MEMBER BROWN: No, I understand that.

Now you finished that --

MR. HILSMEIER: Right.

MEMBER BROWN: -- and you're going to issue a license at some point.

MR. HILSMEIER: Right.

MEMBER BROWN: And then they're going to start doing whatever they do, and now you're coming up to fuel load. Now they've got a complete list up to that point.

MR. HILSMEIER: Right.

MEMBER BROWN: And do you just audit that list or do you go through every item, or it can be a pretty long list.

MR. HILSMEIER: Yes, we will inspect the list.

MEMBER BROWN: Okay. That's a frozen word. What does that mean.

MR. HILSMEIER: And look at samples

MEMBER BROWN: Okay. So you'll sample the list at that time?

MR. HILSMEIER: Right.

MEMBER BROWN: Okay. You answered question 1. Question 2 is: In the process of doing that, you get a light bulb that goes off and says hey, there's nothing in this list that hits this risk significant component.

MR. HILSMEIER: Right.

MEMBER BROWN: I've identified a new one the 11th hour and 59th minute. How do you handle that one? Because, I mean the process you've agreed with, their list is there, you've audited it at some time -- I presume there's an auditing process that goes on up to fuel load of some sort?

MR. HILSMEIER: Yes.

MEMBER BROWN: Now what do you do with that?

MR. HILSMEIER: Yes. The inspection procedure is driven. We're doing that --

MEMBER BROWN: Now forget the procedure. You have identified a piece that's not covered.

MR. HILSMEIER: Right.

MEMBER BROWN: I don't want to hear process. I found a new risk significant component that's not covered on the list. What do you do with that?

MR. HILSMEIER: Right. I had a "but" at

the end of the sentence. I just want to say, because I can only speak for what I would do, because we don't have inspection procedures written yet.

What I would do is if I identify SSCs that are not -- that should be in the list, I would do more sampling. Because that indicates that maybe --

MEMBER BROWN: Well what are you going to do with the one that's not there? Okay. I'm sorry. I interrupted you. I apologize for that.

MR. HILSMEIER: So if I inspect the list, identify some SSCs or just one SSC that's not there, I may do more sampling because that may indicate deficiency in the process.

MEMBER BROWN: I got that.

MR. HILSMEIER: And then after that for those new SCCs that need to be added, we would identify that as a finding. The licensee would need to include those SSCs in the RAP and make sure the QA requirements are met.

Now if this is done at the 11th hour and 59th minute --

MEMBER BROWN: Fifty-ninth minute.

MR. HILSMEIER: -- the burden's on the applicant to address it. It's to their advantage to have a good process, I would say.

MEMBER BROWN: I understand that part.

MR. HILSMEIER: And to ensure that everything's done well before that.

MEMBER BROWN: Yes, I got that.

CHAIRMAN ABDEL-KHALIK: Scott?

MR. HEAD: Yes. I just would add, you know one thing is, as we alluded to earlier, there is an ITAAC at the end of all this. And I would assume that if this was found as part of our ITAAC closure process, there's a number of things that'll happen. And first of off, it might end up in enforcement space. And clearly we would not only have to ask the question or just address that one component, we would have to ask how did that happen and what are the ramifications. You know, what else in our process got us to that point?

So if it occurred during the ITAAC closure, you know the significance of it would be, you know obviously we're not going to close the ITAAC, but then we'd have to look into actually how we got there also.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MR. HILSMEIER: Scott raises a very good point. D-RAP was have a corrective action process. So if there are any errors or deficiencies found in

the D-RAP process, these would be identified --

MEMBER BROWN: You said "process." But I understand they didn't identify one, so you try to fix the process part of it. But you end up with some parts or some pieces at confluence that still have to -- that didn't get in there and they have to be addressed. And I'm just trying to understand the regulatory handcuffs, if you have any, in terms of enforcing or if somebody says no, you know this is in the list. I'm just trying to get a feel for the ability of the NRC to say "Hey, look, it's got to be taken care of. You don't have this, this and this in there. And therefore, we can't proceed until we get it." And do you have the ability to do that or not? Or, are you not the right person to ask?

MR. EUDY: Well, they wouldn't be able to close to the ITAAC, so --

MEMBER BROWN: If that's the case, I didn't see an ITAAC on it.

MR. HILSMEIER: There's another ITAAC which is the Maintenance Rule. Because STP references NEI document, I think 0702-A, which is a generic template for SRP Section 17.6. Basically how STP will implement Maintenance Rule. So basically STP's Maintenance Rule description says that all RAP SSCs

will be included in the Maintenance Rule as high safety significant. And since Maintenance Rule is a regulatory requirement, that's also a handcuff in that if they don't add this RAP SSC to Maintenance Rule, or this risk significant SSC to the Maintenance Rule, then the Maintenance Rule there's findings associated with the Maintenance Rule for that.

MEMBER BROWN: Okay. I'll stop now.

CHAIRMAN ABDEL-KHALIK: Mark, did you want to --

MR. TONACCI: I simply wanted to give a big picture perspective of the process.

We've been talking for months now about licensing. And then we're going to transition into ITAAC inspection where we have to make a decision to allow the folks to start up. So we're talking about audits that we do now during this licensing part, we talk about an ITAAC where we have to make a startup type of decision, "we" being the Commission. Then you transition into inspection where you have true inspectors going out looking at, writing up inspection reports and delivering those to the senior management where it goes into South Texas Corrective Action Program and there's engagement by our management as well. Depending on the significance. It can go in

many different directions, as well as additional inspections.

You saw a glimmer of this during AIA when you were reacting to some of the inspection findings. That was a typical inspection action.

So that's where this would do at the later stages, post the ITAAC completion and permission to start up the plant. It transitions into another whole program.

CHAIRMAN ABDEL-KHALIK: All right. Thank you.

Are there any additional questions to the staff on Chapter 17? Okay.

Thank you very much.

At this time we are nearly an hour behind schedule. Before we get to the next item, I'd like to propose that we take a ten minute break. We'll be back at five after. Five after 3:00, please.

(Whereupon, at 2:53 a.m. a recess until 3:05.)

CHAIRMAN ABDEL-KHALIK: We're back in session.

At this time we'll move to the next presentation, which deals with a question raised by ACRS on Part 21. And which would like to make a

comment?

MR. BURTON: Good afternoon, everyone. My name is Butch Burton. I'm Chief of the Rulemaking and Guidance Development Branch in NRO. And joining me today are Omid Tabatabai and Al Issa from NRO's Construction Inspection Team -- Construction Experience Team I should say, along with Ram Subbaratnam, who is also in the Rulemaking and Guidance Development Branch.

And we're here to follow-up on some questions that were raised in some earlier meetings regarding Part 21. It was raised in the context of the STP meeting, so we're addressing these questions in the same context. But the questions themselves are actually generic and do apply across design centers.

And the two questions having to do with Part 21 was:

(1) Exactly how does the staff screen and evaluate Part 21 reports, and how do we actually document the guidance or the expectations for the staff in turn to reviewing those reports?

So Omid is actually going to start the presentation, and he's describe the screening and evaluation process.

MR. TABATABAI: Thank you, Butch.

Yes, good afternoon. My name is Omid Tabatabai, and I'm a Senior Partner and Manager in the Division of Construction Inspection and Operational Programs. And I'm the Program Manager for the Office of New Reactors Construction Experience Program.

On this slide what we have here is the process, the Agency's process for collecting, screening, evaluating and communicating construction and operational experience.

I apologize for the slides. They're not in the right order as the handouts that you have. So, that's --

MR. SUBBARATNAM: The third slide on your handout.

MR. TABATABAI: Since I'm not involved in STP preview, this is a generic program for the Office of New Reactors, the best way to describe to the Committee how we obtain operating and construction experience information and how we process them, how we use information to incorporate lessons learned into NRC programs, I think this slide does the job very well.

If you look at this chart on the front or the top of the screen, you see these boxes. There are multiple of sources of information that we use from

operating experience including international events and domestic operating experience including Part 21 notifications. Inspection reports, LER reports, event notifications and preliminary notifications.

On the construction experience side we receive information from international sources, such as CNRA, Nuclear Energy Agency, MDEP, bilaterals and other sources.

From the domestic side we have construction experience from Watts Bar-2, Louisiana Energy Services, MOX and other sources.

On a daily basis we get together with representatives from Office of Nuclear Reactor Regulation. We have representative in the meeting, as well as Office of Research. We get together at 1:00 every afternoon. We go through all these sources of information that we receive on a daily basis and we screen them.

If issues, we have screening criteria. If issues need the screening criteria, we communicate them to multiple groups, various groups, including New Reactors.

If there is a Part 21 report, we take the Part 21 and we work with the technical branches and technical divisions in the Office of New Reactors to

evaluate Part 21s with respect to applicability and implications on new reactor designs.

And at the end of their evaluation, if the issue does not need any further action, we collect them for trending purposes. If there are lessons learned that can be applied to licensing and inspection programs, we do that by suggesting to revise inspection procedures or modifications to SRP chapters. And in many cases we communicate the results of our evaluations to various groups. We feed back to operating reactors, exchange information with our international partners, or we issue generic communications.

On a yearly basis we have 24 technical review groups that on a yearly basis they go through all of this operating experience and they look at them collectively to see if they can identify any trends and come up with a big picture, and if there are any additional recommendation that we can follow on.

Going to the next slide, to summarize basically what I just described on this flow chart, in summary we screen basically all incoming Part 21 reports to the Agency. We screen them for applicability to Office of New Reactor and New Reactor Designs. And we screen and we evaluate those Part 21

reports that meet our screening criteria, which includes scope of reactor design, safety significance of the issue and we apply lessons learned to inspection and licensing programs.

We have two major office instruction that we use for evaluating Part 21 reports. The first one is Office Instruction, NRO-REG-112. That's New Reactor Construction Experience Program. And we are jointly writing an office instruction specifically for handling Part 21 and 50.55 report with the Office of Nuclear Reactor Regulation.

That's basically my presentation, which was just to describe what the Construction and Operating Experience Program is and how we process Part 21 reports.

Do you have any questions?

CHAIRMAN ABDEL-KHALIK: Well, the original concern -- I guess you have another slide here regarding proposed changes.

MR. SUBBARATNAM: I'll be talking about that.

CHAIRMAN ABDEL-KHALIK: The original concern came about because there was a long time between the original DCD certification and the time when the COL application was made. And in the

meantime, who is keeping track of all the Part 21s that pertain to that particular design center? That was the original concern. And, hopefully, what you're proposing as far as changes to the SRP process will address that concern.

MR. TABATABAI: I would like to answer that question. The Operating Experience Program was established in 2005 in NRR. And since then they have been basically collecting and going through the process for evaluating Part 21 reports. And they have been documenting all of those reports and evaluations of those reports.

NRR has the primary responsibility to receive and to process Part 21 reports. And the short answer to your question: Who is keeping all of this reports? Is the NRR. NRR Operating Experience Branch has that responsibility.

CHAIRMAN ABDEL-KHALIK: Yes, but there was nothing that directed STP to go back and look at the Part 21s that were issued were from the time the design certification was issued to the time that they applied for the COLA.

MR. TABATABAI: We actually, we have a database that NRR maintains. It's called Reactor Operating Experience --

CHAIRMAN ABDEL-KHALIK: Perhaps what we ought to do until we her the next slide and then --

MR. SUBBARATNAM: We do have a handle there. If you just go in and put rhetorical hook that the people -- let me read the guidance, but then we'll go back to that point.

CHAIRMAN ABDEL-KHALIK: Please, go ahead.

MR. SUBBARATNAM: My name Ram Subbaratnam, I'm a Project Manager from Guidance and Rulemaking Branch.

Continue next slide, please.

The staff is in the process of modifying the Standard Review Plan and the Chapter 1 guidance to include review of applicant evaluations of defects and non-compliances submitted in Part 1 notifications.

The guidance should be public for comments until next week. It's going to appear this week.

Especially there is language, as shown in the meeting handouts. If you see the last two slides, you'll see exactly what the words are of our insert totally new Chapter 1 of SRP.

The guidance that we've proposed that all applicants should have a program in place for implementing requirements of 10 CFR Part 21 in the applicant submittal.

Applicant evaluation should determine the applicability and potential implications of DC notification, DC renewals and COLs that reference a DC. This requirement applies to all design centers.

As for the scope for DC renewals and COLs, DC evaluations should address notifications issued between the original design certification rulemaking, DCR, and the DC renewal, or COL application. That is the one just going to put your rhetorical hook to make it mandatory for the applicants to cover that. So it'll go back in time to capture all of those reports.

Staff is to perform review of applicant evaluations or perform confirmatory review and then staff will document these results in a Safety Evaluation Report. And third, an opportunity for the ACRS coming to their review and comment on the findings when the ACRS, presented to the ACRS like the way they did in STP.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. SUBBARATNAM: And then we'll go back, and then fully tally of happened between the rulemaking to the COL submittal.

CHAIRMAN ABDEL-KHALIK: Okay. I guess from this process completes the logic. But the question is have you gone back and seen if any, for

example, earlier DC renewals or DC modifications, or DC updates, or whatever, amendments have been effected by this?

MR. SUBBARATNAM: I think in the STP case, at least they identified there of the items --

CHAIRMAN ABDEL-KHALIK: No. I guess we talked about the STP case in detail about which Part 21s pertained to them. I'm looking at process questions. Have you looked at other design centers where this may apply?

MR. SUBBARATNAM: Well, I mean the change is going to apply to all the design centers straight across the board. And this guidance is just kind of going out for comments to the stakeholders, NEI and all the applicants. So we're going to have a little bit more deliberations with the applicants to see what they do have in house with respect to how the prepare their applications before they bring it in.

CHAIRMAN ABDEL-KHALIK: I'm sorry. You didn't answer my question precisely. Have you looked at what other design centers may have been effected by this?

MR. BURTON: Yes. Let me piggyback on what Ram just said.

In terms of the applicability, it does

apply across design centers. And since you first raised the issue for STP, we've gone back and communicated to our project staff that this is something that -- this is a loose end that we need to make sure that we tie up. So, they're in the process of following up with their respect design centers to capture that information.

Because the guidance isn't on the street yet, that hasn't prevented us from going and having those interactions.

So what's going on now is internally our project managers are pursing that. We're also going to be having a public, what we call Generic Topics Meeting in the next couple of months where we're going to be talking directly to the other design centers about this issue and what the expectations are. and then we're going to be following up with the guidance and the paperwork to institutionalize that.

Now, and understand that what we're doing now are revisions to the SRP which is the staff guidance. Usually when we do any kind of SRP revision there is a follow-up to our Regulatory Guide 1.206 which is the guidance that we give to the industry. So they go out matching together. But because that takes a little bit of time, we're communicating before those

hit the street to make sure that we get that covered.

CHAIRMAN ABDEL-KHALIK: But the plan is to revise the Reg. Guide sometime in the future?

MR. BURTON: Absolutely.

MR. SUBBARATNAM: Certainly. We'll retain them, too.

As far as the ACRS Committee goes in modifying and changing the guidance to Chapter 1, we do have a process in place. We have to come to the ACRS Committee through, I guess, through a communication that we did publish the guidance. These are all the stakeholders comments we got. And then you will have another opportunity to comment on something before the final guidance is put to place.

CHAIRMAN ABDEL-KHALIK: Okay.

MR. BURTON: And what we envision in terms of the final documentation in the SER for Part 21 is that Chapter 1 is going to be a collection of all the Part 21s that were evaluated and identified for a particular design center, as well as there will be discussions about anything that came up where it applies throughout the SER. But we we'll collect everything in one place in Chapter 1. So, it'll be easy to find and look at.

CHAIRMAN ABDEL-KHALIK: Do you have a time

estimate of when the Reg. Guide will be revised?

MR. SUBBARATNAM: The SRP guidance is out today -- I mean, next week, let's say. So it's going to be out there for comment for a month. So the Reg. Guide should be getting updated after the final guidance issued. So, I would think like before the end of fiscal year 2011 I think should get that one updated.

CHAIRMAN ABDEL-KHALIK: All right. Are there any questions for the staff on this issue?

PARTICIPANT: No, it sounds good.

CHAIRMAN ABDEL-KHALIK: Okay. Thank you.

MR. BURTON: Thank you.

CHAIRMAN ABDEL-KHALIK: I guess I've been informed by STP that the next item on the agenda, the ACRS Action items there's no such presentation. We've already covered the action items in earlier presentations. Is that correct?

MR. CHAPPELL: Yes, sir.

CHAIRMAN ABDEL-KHALIK: Okay.

DESIGNATED FEDERAL OFFICIAL BANERJEE: I was wondering if we can go through the action items that were covered in various presentations today. And check the status.

CHAIRMAN ABDEL-KHALIK: Right. Right.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Okay. The first one that was covered by the staff was under Chapter 1 action item #18 has to do with the aging management program. And the ACRS question was if that should be implemented at the beginning instead of waiting for the decision to do license renewal. And it looked like what they told us that this would not come into picture until a decision is made. It says it doesn't appear that STP will implement GALL right now, only after they decide to renew license. And whether that's good enough to close this item or not, I'm not sure.

CHAIRMAN ABDEL-KHALIK: I guess their are certain rules, right. And then they're in compliance with whatever rules there are. So I don't think we're purposing that new rules.

DESIGNATED FEDERAL OFFICIAL BANERJEE: So we can close action item?

CHAIRMAN ABDEL-KHALIK: Yes.

DESIGNATED FEDERAL OFFICIAL BANERJEE: So close Item #18.

The next one that was discussed --

MEMBER SHACK: I mean, in all fairness, it's clear they've incorporated all sorts of improvements in the choice of materials, chemistry

that should make their aging management --

CHAIRMAN ABDEL-KHALIK: Yes, when the time comes.

MEMBER SHACK: But to actually commit to GALL is a different beast.

CHAIRMAN ABDEL-KHALIK: Right.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Okay. The next one had to do with Action Item #30. And that had to do with the D-RAP list. And the last thing I heard that Dr. Stetkar still wants to see the list until --

CHAIRMAN ABDEL-KHALIK: September 30.

DESIGNATED FEDERAL OFFICIAL BANERJEE: -- September or end of the year.

MEMBER BROWN: You said Item #13?

DESIGNATED FEDERAL OFFICIAL BANERJEE: Thirty.

MEMBER BROWN: Oh, 30. I'm sorry.

MEMBER STETKAR: Thirty.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Sorry.

MEMBER BROWN: No, no, that's all right.

MR. HEAD: Yes, sir. We agree with that, but we're probably going to try to show you that list on the June 21st meeting.

CHAIRMAN ABDEL-KHALIK: Okay. It's a sanity check more than anything else. Okay. Good. Thank you.

MR. TONACCI: We're fine with that, but anything for the staff to prepare?

DESIGNATED FEDERAL OFFICIAL BANERJEE: I guess what we have is the audit report. Are the Members going to be interested to see the report?

CHAIRMAN ABDEL-KHALIK: I think that would be helpful.

MR. TONACCI: Okay. Thank you.

MEMBER BROWN: You just said two pieces. John wanted to see the list, not just the audit report.

MEMBER STETKAR: But the list will come from the licensee.

MEMBER BROWN: Oh, yes. Yes.

MEMBER STETKAR: Or the applicant.

MEMBER BROWN: And the audit report is the staff, I think.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Comes from the staff. The audit that's going to be done summer of this year. I don't know whether you're going to be ready by June or not.

MR. TONACCI: I'll follow up on that.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Okay. And then the next item that was discussed was Item #41 had to do with the lower drywell flooder fusible plug valve. A long discussion took place and I'm not sure what that item is. Is it still open?

The drywell flooder valve failure modes other than failure of fusible plug considered in FSAR or not, operating experience, question about the small leak normal operation, that can go undetected or not? Those were the three subquestions in there.

CHAIRMAN ABDEL-KHALIK: As far as I'm concerned the applicant has addressed these questions, unless somebody --

MEMBER BROWN: Well, they commented there was a sensor, there was some type of something that sensed leakage down in the drywell.

CHAIRMAN ABDEL-KHALIK: Yes, they could detect leakage.

MEMBER BROWN: I don't remember the explicit details of what they said, but there was something. I don't know whether its dribbles --

MEMBER SHACK: It's unidentified leakage, so they identified --

MEMBER BROWN: Right.

DESIGNATED FEDERAL OFFICIAL BANERJEE: And

failure modes of the fusible link, flooder valve failure modes other than failure of fusible link.

MEMBER ARMIJO: My question was just a question of whether it could fail other than by just simply getting warm and literally extruding out of that pipe that's in and leaking or draining before it was supposed to. But, you know it's just a matter of temperature and materials properties.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Temperature and timing.

MEMBER ARMIJO: Temperature and timing and materials properties and the applicant should know. You know, it's not just melting that can cause that thing to leak. It has that -- that link material will have no mechanical properties when it gets warm enough. So I didn't know if they had included that or not in their FMEA.

MEMBER SHACK: Well, is the test program under a head comparable to what they would expect? I mean, you --

MR. CHAPPELL: They're under a head. They're under -- this is Coley Chappell from STP.

They're under a comparable head to the most limiting case for the suppression pool and the temperatures --

MEMBER ARMIJO: That'll catch it if it's going to happen.

MEMBER SHACK: Yes. Sos that should address that question.

DESIGNATED FEDERAL OFFICIAL BANERJEE: So we can close #41?

MEMBER ARMIJO: Yes. Yes.

CHAIRMAN ABDEL-KHALIK: Unless somebody objects.

MEMBER ARMIJO: Well, you know, you were starting to raise it, you know why is it -- what is it 500?

CHAIRMAN ABDEL-KHALIK: Five hundred.

MEMBER ARMIJO: Why isn't 550 to get away from the slow probabilities of a steamline link. How close do you want it to be to the limit?

MEMBER BLEY: Right. How fast does the temperature go up?

MEMBER ARMIJO: Right, and how fast does it go up. It seems like you've got plenty of margin on the more likely events, but not much on the less likely event. So, why not get the same amount of margin for all of the events? But, you know, it's-- that a detail that the staff and the applicant --

CHAIRMAN ABDEL-KHALIK: Perhaps we should

just modify this Action Item. We see a possibility of sensitivity analyses on the selection of the 500 degree melting temperature.

MR. HEAD: Mr. Chairman, that is a part of the certified design.

CHAIRMAN ABDEL-KHALIK: Yes.

MR. HEAD: And went through a process that--

MEMBER ARMIJO: So it's finalized. But, you know separate that you guys may want to look at it yourself.

MR. HEAD: Yes, sir. But for this process--

CHAIRMAN ABDEL-KHALIK: You have a lot of other things to look at. I agree.

MR. HEAD: Okay.

CHAIRMAN ABDEL-KHALIK: I agree. Just take it off, please, at this stage.

DESIGNATED FEDERAL OFFICIAL BANERJEE: That's all I have.

CHAIRMAN ABDEL-KHALIK: In addition to the other items that we talked about today?

MR. HEAD: No, sir.

CHAIRMAN ABDEL-KHALIK: Okay. All right. Anything else that we --

MR. HEAD: Item 88, I believe.

CHAIRMAN ABDEL-KHALIK: Right. We closed that.

MR. HEAD: Okay.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Eighty-eight is closed.

MR. TONACCI: 51?

MEMBER ARMIJO:

DESIGNATED FEDERAL OFFICIAL BANERJEE: 51?

MR. TONACCI: 51 was the Part 21 we just went through.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Oh, we just talked about. We've closed Part 21?

CHAIRMAN ABDEL-KHALIK: Yes. Well, I guess ACRS in the normal course of action will review the proposed modification to the SRP and the Reg. Guides.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Right.

MEMBER SHACK: At least we'll have the opportunity.

DESIGNATED FEDERAL OFFICIAL BANERJEE: The opportunity.

CHAIRMAN ABDEL-KHALIK: Right. What was that item number?

DESIGNATED FEDERAL OFFICIAL BANERJEE: Number 51.

CHAIRMAN ABDEL-KHALIK: Fifty-one?

DESIGNATED FEDERAL OFFICIAL BANERJEE: Yes. Actually --

CHAIRMAN ABDEL-KHALIK: Oh, I see. Right.

DESIGNATED FEDERAL OFFICIAL BANERJEE: -- this had a previous item, but --

CHAIRMAN ABDEL-KHALIK: Right. Okay. Anything else? Mark or George? Okay.

At this time I'd like to see if there any members of the public who wish to make a statement?

Is the telephone bridge line open?

DESIGNATED FEDERAL OFFICIAL BANERJEE: Ah, looks like I don't have to write anything.

CHAIRMAN ABDEL-KHALIK: It is open. If there anyone on the bridge line, please make a sound so that we know that you're there. Hello?

MEMBER BLEY: Hung up.

CHAIRMAN ABDEL-KHALIK: Okay.

MEMBER BLEY: I ain't talking to nobody.

CHAIRMAN ABDEL-KHALIK: Anyone here wishes to make a comment or remark? Okay.

At this time maybe we can go around quickly and see if there are any additional comments

that Members would like to make on the material that was presented today?

Sanjoy?

MEMBER BANERJEE: I'd like to see a little bit more about this code or some more reference material on the ADCIRC

MR. CORRADINI: ADCIRC.

MEMBER BANERJEE: ADCIRC. If they could make that available. But I have no real comment. I just want to see the basis of the --

CHAIRMAN ABDEL-KHALIK: Now which chapter would that belong to/ That's presumably --

MEMBER BANERJEE: It's 2, isn't it?

CHAIRMAN ABDEL-KHALIK: Okay.

DESIGNATED FEDERAL OFFICIAL BANERJEE: It's coming up --

MEMBER BANERJEE: Well, if it's going to come up later, then it's fine.

MR. HEAD: We've already presented that in the first session.

PARTICIPANT: Yes. I suggest could you just make available the RAI response?

MEMBER BANERJEE: I'm happy to look at that if the reference is there.

CHAIRMAN ABDEL-KHALIK: Okay.

MEMBER BANERJEE: Yes, that's fine.

CHAIRMAN ABDEL-KHALIK: But let's keep track of it anyway. We'll look at the RAI.

MEMBER BANERJEE: I'll look at the response, yes.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Somebody has to give me the correct reference. I'll get it from ADAMS.

MEMBER BANERJEE: And the reference to the code so I can look at the code.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Reference to the code.

MEMBER BANERJEE: And its validation.

DESIGNATED FEDERAL OFFICIAL BANERJEE: Everyone has code validation in STP.

MEMBER BANERJEE: There are a lot of large cyclones in the Bay of Bengal. And I'm wondering if it has been validated.

CHAIRMAN ABDEL-KHALIK: Harold?

MEMBER RAY: I was in a learning mode today. I am most interested in the questions John asked, and so I'll be interested in what he has to say now. But that's what I was mostly wanted to learn about.

CHAIRMAN ABDEL-KHALIK: Okay. Sam?

MEMBER ARMIJO: No.

CHAIRMAN ABDEL-KHALIK: Dennis?

MEMBER BLEY: Nothing additional.

CHAIRMAN ABDEL-KHALIK: John?

MEMBER STETKAR: Nothing.

CHAIRMAN ABDEL-KHALIK: Okay. Bill? Charlie?

MEMBER BROWN: No. I'm fine.

CHAIRMAN ABDEL-KHALIK: Okay. Mike?

Okay. Thank you very much.

I'd like to express our thanks to both the applicant and the staff for very meaningful presentations. Thank you.

Meeting adjourned.

(Whereupon, at 3:33 p.m. the Subcommittee meeting was adjourned.)

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MEETING OF THE ABWR SUBCOMMITTEE ON STP COLA – OPEN/CLOSED
APRIL 21, 2011, ROCKVILLE, MD
PROPOSED AGENDA

ABWR Subcommittee Chair: Said Abdel-Khalik
Cognizant Staff Engineer/DFO: Maitri Banerjee Maitri.Banerjee@NRC.GOV (301) 415-6973

Topics	Presenters	Time
Opening Remarks	Said Abdel-Khalik, ACRS	8:30 am - 8:35 am
NRO/NINA Staff Introductions	Mark Tonacci, NRO Scott Head, NINA	8:35 am – 8:45 am
STP COLA FSAR Chapter 1 SER with No Open Items	Coley Chappell, NINA Stacy Joseph, NRO	8:45 am – 9:15 am 9:15 am – 9:45 am
STP COLA FSAR Chapter 19 SER with No Open Items	Coley Chappell, NINA	9:45 am – 10:30 am
Break		10:30 am – 10:45 am
STP COLA FSAR Chapter 19 SER with No Open Items	Rocky Foster, NRO Todd Hilsmeier, NRO Edward Fuller, NRO	10:45 am – 11:30 am
STP COLA FSAR Chapter 17 SER with No Open Items	Coley Chappell, NINA	11:30 am – 12:15 pm
Lunch		12:15 pm – 1:15 pm
STP COLA FSAR Chapter 17 SER with No Open Items	Michael Eudy, NRO Todd Hilsmeier, NRO	1:15 pm – 1:45 pm
Part 21 Program in New Reactor Licensing	Ram Subbaratnam, NRO Omid Tabatabai, NRO	1:45 pm – 2:30 pm
Break		2:30 pm – 2:45 pm
ACRS Action items	Coley Chappell, NINA	2:45 pm – 3:15 pm
Public Comments		3:15 pm – 3:30 pm
Subcommittee Discussion and Closing Remarks	Said Abdel-Khalik, ACRS	3:30 pm – 4:00 pm
Adjourn		4:00 pm

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- One electronic copy of each presentation should be e-mailed to the DFO/ACRS Contact one day before the meeting. If an electronic copy cannot be provided within this timeframe, presenters should provide the DFO/ACRS Contact with a CD containing each presentation at least 30 minutes before the meeting.
- To protect proprietary information, parts of the meeting may be closed to the public.
- A telephone bridge line (1-866-822-3032, pass code 8272423#) has been established to allow members of the public and stakeholders listen in the open portion of the meeting. Such participants may ask questions at a designated time at the end of the meeting only.

South Texas Project Units 3 & 4
Presentation to ACRS ABWR Subcommittee
Chapter 1 Introduction and General Description of Plant

Agenda

- Introduction/Attendees
- Items of Interest
- Summary
- Conclusion

Attendees

Scott Head	NINA Manager, Regulatory Affairs, STP 3 & 4
Coley Chappell	NINA Licensing, STP 3 & 4

Chapter 1 Items of Interest

Since the Chapter 1 presentation at ACRS ABWR Subcommittee on March 2, 2010, the following updates have been provided:

- Change in Licensees and Contractors/Agents
  - Nuclear Innovation North America (NINA) is the licensee responsible for design and construction of STP 3 & 4.
  - STP Nuclear Operating Company (STPNOC) is the licensee responsible for operation and maintenance of STP 3 & 4.

Items of Interest

- The design and construction of STP 3 & 4 will be completed by Toshiba America Nuclear Energy (Toshiba) and Shaw Group, Inc. acting in conjunction with subcontractors.
  - Toshiba and Shaw will have overall responsibility for design and configuration control.
  - Sargent & Lundy will provide architect/engineer services.
  - Westinghouse will provide engineering services, including design of instrumentation and controls.

Items of Interest

Departures

- In addition to the twelve standard Tier 1 departures and one site-specific Tier 1 departure (Site Parameters) noted in the previous Chapter 1 presentation, three Tier 1 departures have been incorporated into the application.
  - Addition of condensate booster pumps (STD DEP T1 2.10-1)
    - Shows the addition of condensate booster pumps on Tier 1 Figure 2.10.2a (RAI 10.04.07-3).
    - Discussed with Chapter 10 presentation on April 6, 2011.

Items of Interest

- Definition of As-Built (STD DEP T1 1.1-1)
  - Modifies the definition of as-built to clarify that determination of physical properties may be based on measurements, inspections, or tests prior to installation.
    - Provided that subsequent fabrication, handling, installation, and testing do not alter the properties.
  - Same as definition proposed by NRC staff at meeting with industry (2009) and as contained in NEI 08-01.

Items of Interest

- RHR, HPCF, and RCIC NPSH (STD DEP T1 2.4-4)
  - ABWR DCD provided a value of 50% for debris blockage of ECCS suction strainers for adequate NPSH margin, based on RG 1.82 Rev 0.
  - STP 3&4 design has been updated to RG 1.82 Rev 3, which provides guidance for mechanistically determining debris head loss across ECCS strainers.
  - Associated ITAAC for determination of adequate NPSH margin for RHR system, RCIC system, and HPCF system were revised.
  - Discussed during Ch 6 presentation on March 8, 2011.

Chapter 1 Summary

- All COL License Information Items have been addressed.
- All responses to Requests for Additional Information have been submitted.
- No previous ACRS action items for STP associated with Ch 1.

Chapter 1

Questions and Comments

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Protecting People and the Environment

Presentation to the ACRS Advanced Boiling Water Reactor Subcommittee

South Texas Units 3 and 4 COL Application Review

SER/OI Chapter 1
"Introduction and General Description of Plant"

April 21, 2011

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Staff Review Team

- **Project Managers**
  - George Wunder, Lead PM, DNRL/BWR
  - Stacy Joseph, Chapter PM, DNRL/BWR
- **Reviewers**
  - Earl Libby, DNRL/NRGA
- **Staff Technical Consultants**
  - Dr. John Larkins and Dr. Roy Karimi, ERI

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Chapter 1 Open Items

Open Item	Title
01-01	Tier 1 Exemption
01-02	Numbering discrepancy
01-03	**Plant aging management**
01-04	**Hydrodynamic loads**
01-05	Financial qualifications
01-06	Part 30, 40, and 70
01-07	**Aircraft Impact**
01-08	Table 1.9S
01-09	Table 1.9S-4
01-10	**Impacts of Construction**

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Open Item 01-3 and ACRS Action Item #18 Plant Aging Management

- STP FSAR describes Design and Aging Management Program
  - Design considerations to maintain plant's original design basis for life of plant
  - Condition monitoring
  - Design life maintenance
  - Aging Management
- Staff agrees that description of management plan satisfies COL license information item
- Staff determined that no additional review is required during COL licensing
- License renewal applications must meet requirements of 10 CFR Part 54

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Open Item 01-4
Alternate Vendor Qualification – Hydrodynamic Loads

- Follow-up audits performed in March and June 2010
- Staff examined Toshiba derivative documents to determine how hydrodynamics loads definitions were reconstituted.
- Staff determined that:
  - Toshiba possessed the necessary information to reconstitute the forcing functions
  - Toshiba has access to correlation data needed for the X-quenchers
- Toshiba qualified to supply certified design

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Open Item 01-7
Aircraft Impact Assessment

- Applicant incorporated by reference STPNOC aircraft impact application to amend certified ABWR
- NRC staff found STPNOC's application to amend certified design acceptable – currently undergoing rulemaking
- Staff requested applicant to identify any changes to COL application required to implement AIA

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Open Item 01-7
Aircraft Impact Assessment (continued)

- Further, staff requested applicant to:
  - Identify if any COL departures affect key design features of AIA
  - Provide a list of departures that could affect key design features
  - Describe evaluation process
  - Document conclusions of "no impact" in STP 3 and 4 COL departures report
- Applicant described evaluation process and committed to document findings in next revision of departures report
- Staff determined that applicant evaluated impact of departures on AIA
- Applicant meets requirements of 10 CFR 50.150

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Open Item 01-10
Impact of Construction Activities on Units 1 and 2

- FSAR provided evaluation of potential hazards to SSCs important to safety at Units 1 and 2 due to construction on Units 3 and 4
- FSAR also provided description of managerial and administrative controls
- To address additional guidance in COL/ISG-022 , applicant provided procedure “Interface Evaluations of Units 3 and 4 on Units 1
  and 2”
- Staff found applicant’s procedure and FSAR consistent with requirements of 10 CFR 52.79 (a)(31) as expressed in DRAFT COL/ISG-022

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Chapter 1 Appendices

- OI 01-1 Tier 1 Exemptions Evaluations
- OI 01-5 Financial Qualifications
- OI 01-6 Parts 30, 40 70 Licenses

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Remaining Open Items

- OI 01-2 Typographical Errors in Section 1.2
- OI 01-8 QA Regulatory Guides - Evaluated in Ch. 17
- OI 01-9 Table 1.9S-4 Tier 2 departures requiring prior NRC approval

Chapter 1 Conclusion

South Texas Project Units 3 & 4 Presentation to ACRS Subcommittee

Chapter 19 Response to Severe Accident Policy Statement (PRA)

Agenda

- Introduction/Attendees
- Items of Interest
- ACRS Action Item
- Summary
- Conclusion

Attendees

Scott Head	NINA Manager, Regulatory Affairs, STP 3&4
Coley Chappell	NINA Licensing STP 3&4
Gene Hughes	NINA PRA STP 3&4 / ETRANCO
Scott Bannert	NINA PRA STP 3&4
Ricky Summitt	RSC
Fred Puleo	NINA Licensing STP 3&4
Bill Mookhoek	NINA Supervisor, Licensing, STP 3 & 4

Chapter 19 Items of Interest

Items of interest that have been addressed since the presentation to ABWR Subcommittee on June 8, 2010:

- External events (hurricanes)
- Inadvertent flooding in lower drywell

External Events – Hurricanes

- High winds due to hurricanes
  - Since the STP site is close to the Gulf of Mexico, a quantitative assessment of hurricanes was performed that demonstrated the risk from hurricanes does not significantly affect the shutdown risk analysis or the external events analysis described in the DCD.
  - Related to the shared fire water system departure (dual unit departure STP DEP 1.1-2), the response to RAI 19.01-31 (2/16/2011) addressed impact on shutdown and hurricane risk, hurricane CDF, LERF, and risk significant SSC's.
  - STP Units 3 &4 have one diesel-driven pump (ACIWA), a fire (pumper) truck (ACIWA), and a portable diesel-driven fire pump described in the RAI response.

External Event – High Winds (cont'd)

- Specific hurricane shutdown requirements for STP Units 3 & 4 will be similar to those established for STP Units 1 & 2, and an abnormal operating procedure will require the following:
  - At least 2 hours prior to sustained winds > 73 mph, initiate action to place the units in Mode 3 Hot Shutdown.
  - Prior to sustained winds on site > 73 mph:
    - One EDG per unit is started and loaded onto its safety bus.
      - If unstable grid, remaining EDG's are started and loaded onto their safety buses (disconnect from offsite).
    - The portable diesel-driven fire pump will be staged in an on site Seismic Category I structure.
  - If applicable for current mode, RCIC will be verified available.
  - If containment is inerted, it will remain inerted.

Flooding in Lower Drywell

- RAI 19-5 responses (Aug 2009, 5/27/2010) address avoiding inadvertent flooding of the lower drywell, preventing steam explosion.
  - STP 3&4 plant specific technical guidelines and emergency operating procedures will incorporate industry guidance as necessary and use site specific features to address flooding in the lower drywell when the lower drywell flooder:
    - Does not operate
    - Does not operate as designed
    - Prematurely operates
    - Operates as designed during a severe accident scenario that involves a core melt and vessel failure
  - STP 3 & 4 will follow NEI 91-04 Rev 1 Severe Accident Issue Closure Guidelines, industry commitment to incorporate severe accident strategies into overall accident management program.

Action Item #41

Lower drywell flooder fusible plug valve (FPV) failure modes.

Response: On October 20, 2010, the results of a failure modes and effects analysis performed by Toshiba on the lower drywell flooder (LDF) fusible plug valves (FPV) was discussed.

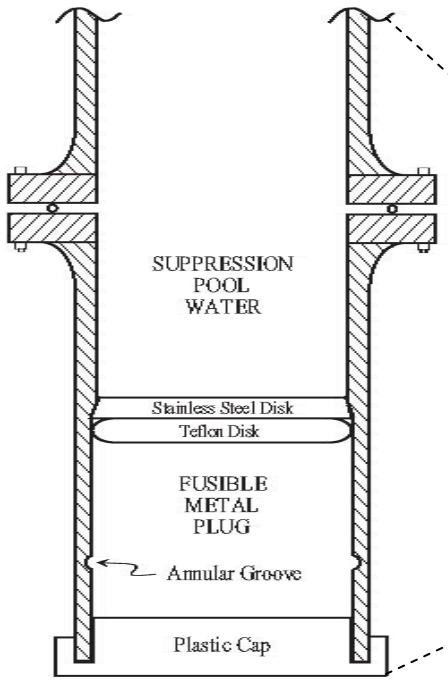
- FMEA functional requirement for the FPV is zero leakage under all operating and design basis accident conditions.

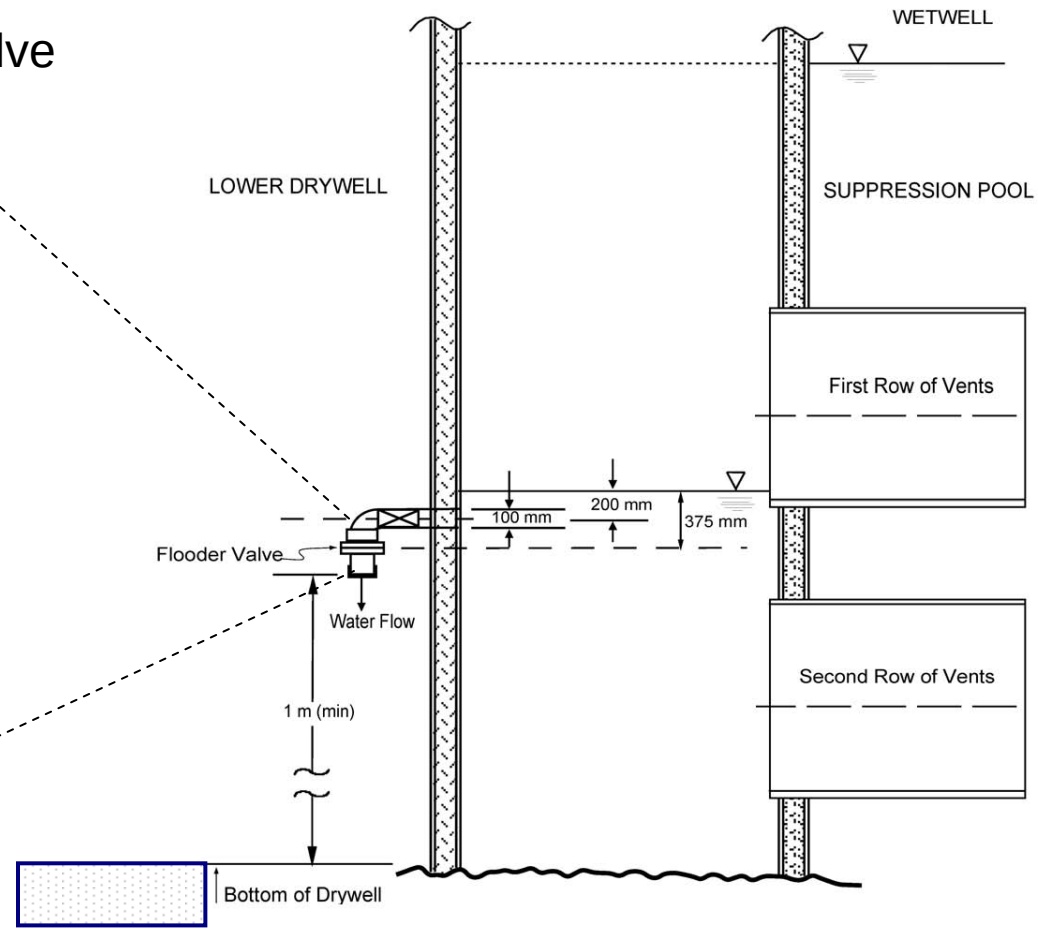
Additional question asked on valve leakage during normal operation:

- When opened, each flooder valve passes a minimum 10 L/s (~160 gpm) to the lower drywell (9.5.12.2)
- The primary detection method for small unidentified leaks within the drywell includes drywell floor drain sump pump activity, sensitivity 1 gpm, alarm at 19 L/min (~5 gpm) (5.2.5.1.1)
- Drywell floor drain sump monitoring system is included in Technical Specification 3.4.5.

Action Item #41 (cont'd)

Basic design of flooder valve





Location of drywell floor drain system sump

Lower Drywell Flooder System Arrangement/Configuration (Figure 9.5-3)

Action Item #41 (cont'd)

PRA based reliability and maintenance actions for the lower drywell flooder (LDF), from Section 19K.11.4:

> "In order to assure a dry cavity at the time of vessel failure, it is important that there be negligible probability of premature or spurious actuation of the passive flooder valves at temperatures less than 533K (500°F) or under differential pressure associated with reactor blowdown and pool hydrodynamic loads."

Activities suggested by RAP are given in Table 19K-4:

- The ten fusible plug valve flanges and outlets should be inspected every refueling outage to assure there is no leakage.
- Two of the ten fusible plug valves should be removed, inspected and their temperature setpoints tested every two refueling outages.

No testing of the LDF system required during normal operation (9.5.12.4).

Chapter 19 Summary

- No SER Open Items
- All COL License Information Items have been addressed
- All previous ACRS Action Items have been addressed

Chapter 19

Questions and Comments

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United States Nuclear Regulatory Commission

Protecting People and the Environment

Presentation to the ACRS Subcommittee

South Texas Project Units 3 and 4 COL Application Review

Advanced SE Chapter 19
Response to Severe Accident Policy Statement

April 21, 2011

Staff Review Team

- **Project Managers**
  - George Wunder, Lead PM, DNRL/BWR
  - Rocky Foster, Chapter PM, DNRL/BWR
- **Technical Staff**
  - Dr. Todd Hilsmeier, Reliability & Risk Analyst, DSRA/SPRA
  - Dr. Edward Fuller, Senior Reliability & Risk Analyst, DSRA/SPRA
  - Marie Pohida, Senior Reliability & Risk Analyst, DSRA/SPRA
  - David Jeng, Senior Structural Engineer, DE/SEB2
  - Jason Dreisbach, Senior Fire Protection Specialist, DSRA/SBPA

Open/Confirmatory Items Status

- All Chapter 19 open items are closed
- Notable confirmatory items (19-15, 17.04-9)
- Multiple LOLA confirmatory items
- No ACRS action items

Chapter 19 - Response to Severe Accident Policy Statement

- **Closure of Open Item 19-12 (RAI 19-30)**

- RAI 19-30 - address justification of the external probabilistic flooding analysis due to postulated main cooling reservoir (MCR) breach with significant watertight doors being normally open

- June 8, 2010, staff discussed with ACRS sub-committee this open item and its resolution (i.e., change the status for all watertight doors and hatches to be normally closed in FSAR)

- Final RAI Response (July 28, 2010):
  - Changed status for all watertight doors and hatches to be normally closed in FSAR (e.g., FSAR Sections 2.4S.10 and 2.4S.14)
  - Screened external flood scenarios from detailed quantitative evaluation using criterion (a) in ASME/ANS RA-Sa-2009, Section 6-2.3, “The Fundamental Criteria for Screening External Events Other Than Fire and Seismic Events”

Chapter 19 - Response to Severe Accident Policy Statement

- **Closure of Open Item 19-9 (RAI 19.01-31)**

- RAI 19.01-31 - provide the shutdown and full-power hurricane risk assessment that considered the shared fire water system under departure STP DEP 1.1-2
- Applicant provided a simplified quantitative assessment to evaluate:
  - Hurricanes at or below design basis wind speed (≤ 134 mph; frequency 0.01/yr)
  - Hurricanes above design basis wind speed (> 134 mph; fails fire water pump house and combustion gas turbines)
- Assessments met Commission guidelines for new reactors:
  - Crediting the compensatory measures to be documented in FSAR Section 19.4.6, "ABWR Shutdown Risk" and Commitment COM 19.4-1 (**Confirmatory Item 19-15**)
  - Assumed LRF ≤ CDF
- Key Compensatory Measures

Chapter 19 - Response to Severe Accident Policy Statement

- **<u>Closure of Open Item 19-8 (RAI 19-3)</u>**
- RAI 19-3 – concerning startup and shutdown operations when the containment would not be inerted.
  - Hydrogen combustion during severe accidents
  - Impacts on LRF and CCFP from low-power and shutdown scenarios.
- RAI 19.01-31 (Open Item 19-9) related to the shared fire water system.
  - Description of the dominant sequences contributing to the shutdown and full power hurricane CDF and LRF estimates.
- The staff concluded the hydrogen recombiners would be ineffective for low power and shutdown severe accidents with the containment de-inerted. Staff does not assume that the risk associated with these conditions is very low since a shutdown Level 1 and Level 2 PRA was not performed for ABWR design certification.
- Because Open Item 19-9 is now resolved , Open Item 19-8 is also resolved.

Chapter 19 - Response to Severe Accident Policy Statement

- **<u>Closure of Open Item 19-5 (RAI 19-05)</u>**
- Open Item 19-5: Information in Section 19.9.14 is insufficient to establish the technical basis for developing accident management procedures:
  - Must address consequences of flooding the lower drywell (LDW)
  - Confirmatory assessment indicates that LDW temperatures may exceed 533 °K before vessel breach
  - The accident management strategies may have to consider the consequences of premature LDW flooding, including steam explosions
- The staff concluded that the existing containment flood guideline in the BWROG's EPGs and SAGs will revised as necessary to consider actions to address flooding the lower drywell, including ex-vessel steam explosions and the need to continue to provide water to the suppression pool in a controlled manner until ac power is restored.
- Since meeting commitment COM 19.9-30 would address these concerns, the staff considers that Open Item 19-5 is resolved.

Chapter 19 - Response to Severe Accident Policy Statement

- **<u>Closure of Open Item 19-13 (RAIs 19-1 & 19-28)</u>**

- Open Item 19-13
  - The LDW fusible plugs will melt at a temperature of 533 °K (500 °F), after molten core debris enters the lower drywell
  - Valves would remain open to allow water to flow through each flooder pipe into the LDW and cover the core debris
  - Debris coolability by an overlying water pool has not yet been conclusively demonstrated
  - Staff concern that the containment liner failure may not be averted for 24 hours after core damage. Staff performed a confirmatory assessment using the MELCOR 1.8.6 and MAAP 4.0.7 computer codes

Chapter 19 - Response to Severe Accident Policy Statement

- **Closure of Open Item 19-13 (continued)**

- Confirmatory assessment confirmed that liner failure would be averted for 24 hours after core damage. Could not be averted for more than 3 or 4 days unless more water was added to the containment.
  - Adding water within two days after core damage would minimize fission product releases.
- Use of the ACIWA system to provide firewater to the suppression pool, preferably via the drywell sprays is the best option.
- The staff concluded that adding this action to the BWROG RPV and Containment Flooding SAG, as applied to the ABWR, as part of meeting COM 19.9-30, resolves Open Item 19-13.

Chapter 19
Seismic Margins Analysis

- **Open Item 19-14 (RAIs 19-24 & 19-33)**

- STD DEP T1 2.15-1 reclassified Radwaste Building from Seismic Category I to Non-Seismic per Reg Guide 1.143
  - RAI 19-33 - requested details on the analysis procedures used for II/I analysis.
  - FSAR Sec 3H.3 was revised to show that the RWB be designed not to collapse on adjacent Seismic Category I structures for SSE, DBT and DBF specified in DCD.
  - Stability against sliding and overturning evaluated using site-specific loading parameters.

- STP RAI response was accepted and the Open Item was closed.

Chapter 19
Seismic Margins Analysis

- **<u>Open Item 19-17(RAI 19-27)</u>**

- STP COL license information item 19-4 to include an update of the system model developed in the DCD to incorporate capacity reductions due to site-specific effects and site-specific SSC.
  - STP committed to perform the following prior to fuel load:
    - Site specific and as-built HCLPF capacities
    - Assess margins against soil failures (e.g., liquefaction)
    - Update the systems model for site-specific capacities of SSCs to obtain sequence-level and plant-level seismic HCLPF capacity.

- STP response was accepted and the Open Item was closed.

Open Item 19-16 (RAI 19-22) AC-Independent Water Addition (ACIWA) Building Capacity (COL Information Item 19.19b)

- RAI requested more detailed information on approach, methods of analysis and seismic structural analysis.
- Fire Water Pump House is not a safety-related structure
- The staff finds the procedures for assessing against site-specific external events in PRA (i.e., earthquake, flooding, tornado and hurricane) to be acceptable.
- STP response was accepted and the Open Item was closed.

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Chapter 19
Loss of Large Areas of the Plant Due to Explosions or Fires

50.54 hh (2)

- Submitted May 2009 under 52.80
- RAIs October 2010-February 2011
- Confirmatory Items
- Commitments
- License condition related to implementation schedule and maintain strategies
- Staff find strategies and commitments acceptable

Chapter 19
Loss of Large Areas of the Plant Due to Explosions or Fires(Cont.)

50.54 hh (2) (i)

- **Fire fighting**
  - On site capabilities
  - Off site resources with MOUs
  - Communications
  - Fire Protection yard main backup supply

50.54 hh (2) (ii)

- **Mitigate fuel damage**
  - Portable pump (1000GPM) for SFP and RPV
  - SFP configuration
  - EDGMs
  - Makeup sources
  - Manual operation

Chapter 19
Loss of Large Areas of the Plant Due to Explosions or Fires (Cont.)

<u>50.54 hh (2) (iii)</u>

- **Minimize radiation release**
  - Vent (active and passive means) to stack
  - Sprays for scrubbing using portable pump
  - Injection to drywell and wetwell

Chapter 19 - Response to Severe Accident Policy Statement

- **<u>Conclusions</u>**
- All Chapter 19 open items are closed.
- With the exception of the confirmatory items, the applicant has addressed the required information relating to Response to Severe Accident Policy Statement and Loss of Large Areas of the plant due to Explosions or Fires.
- With the exception of the confirmatory items, the staff concludes that STP FSAR Chapter 19 is acceptable and conforms to regulatory requirements.

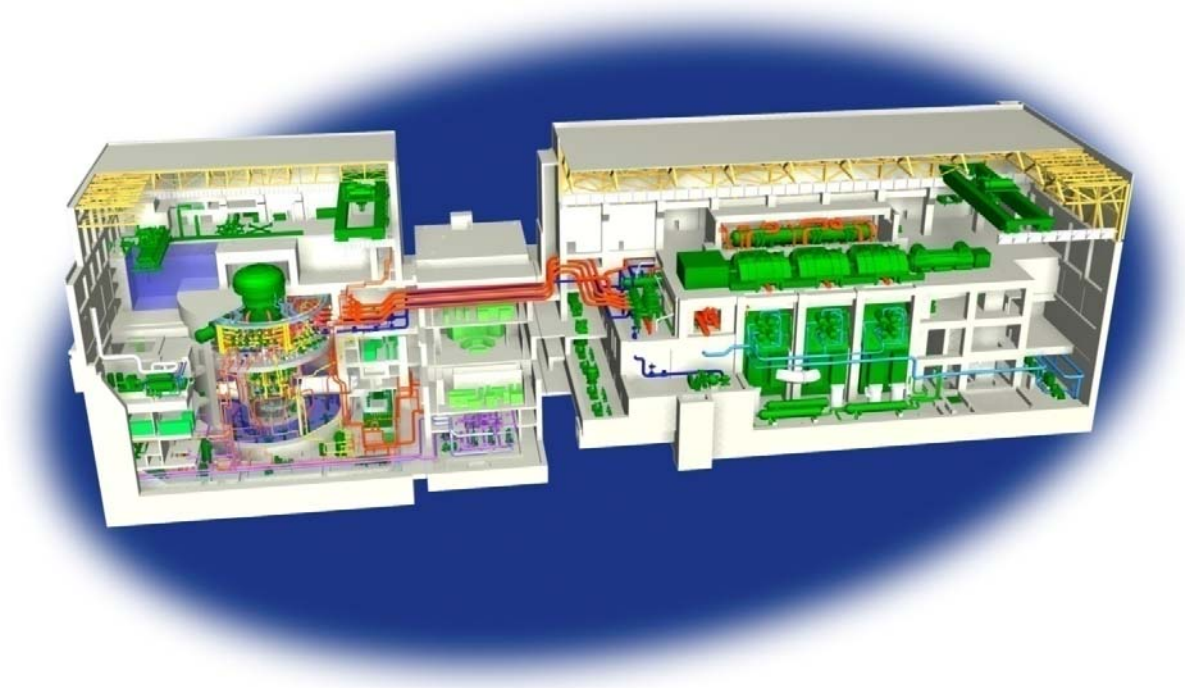
Chapter 19 - Response to Severe Accident Policy Statement

- **<u>List of Risk-Significant SSCs</u>**

- Staff's review of STP FSAR, Appendix 19K (i.e., list of risk-significant SSCs), will be discussed under Chapter 17 (**Confirmatory Item 17.04-9**)

Questions/Comments

South Texas Project Units 3 & 4
Presentation to ACRS ABWR Subcommittee
Chapter 17 Quality Assurance



Chapter 17 Agenda

- Introduction/Attendees
- Items of Interest
- ACRS Action Items
- Summary
- Conclusion

Attendees

Scott Head	NINA Manager, Regulatory Affairs, STP 3 & 4
Tim Walker	NINA Manager, Quality, STP 3 & 4
Bill Mookhoek	NINA Supervisor, Licensing STP 3 & 4
Evan Heacock	NINA Design Engineering Lead, STP 3 & 4
Coley Chappell	NINA Licensing STP 3 & 4
Scott Bannert	NINA PRA, STP 3 & 4
Gene Hughes	NINA PRA, STP 3 & 4 / ETRANCO
Jim Agles	NINA Licensing STP 3 & 4

Chapter 17

Chapter 17 was discussed at the ACRS ABWR Subcommittee meeting on March 18, 2010, and summarized as follows:

- DCD Sections 17.0, 17.1, 17.2 and 17.3 related to Quality Assurance and Reliability Assurance during DCD development were incorporated by reference.
- FSAR Supplemental Sections 17.4S, 17.5S and 17.6S added to address Reliability Assurance, Quality Assurance and Maintenance Rule, respectively.
- COL License Information Items addressed.

Items of Interest

17.5S Quality Assurance Program Guidance

- Quality Assurance Program Description (QAPD) revisions for:
  - North America Nuclear Innovation (NINA) organizational changes.
  - Incorporate latest staff approved NEI 06-14A QA template.
  - Incorporate responses to Requests for Additional Information (RAI).

Items of Interest

17.4S Reliability Assurance Program

- Expert Panel continues to refine and identify SSC's by:
  - Identify risk significant SSC's not modeled in the PRA.
  - Augment PRA techniques in risk ranking of SSCs using deterministic techniques and expert judgment.
  - Updated after each plant specific PRA update.
- Program has been implemented and expert panel members identified.

Items of Interest

17.4S Reliability Assurance Program

- Process for using PRA and deterministic insights is in place and results are being generated.
- Ongoing for the duration of construction.
- For the certified ABWR DCD, ITAAC exists for D-RAP:
  - Scope, purpose, and objectives
  - Process used to evaluate and prioritize SSC's
  - List of risk significant SSC's
  - Process for determining dominant failure modes (risk significant SSC's)
  - Key assumptions and insights considered

Action Item #30

Address when D-RAP list will be effectively populated and staff review is completed.

Response: An updated D-RAP list was discussed and provided to ACRS on 10/20/2010.

Examples of Deterministic Risk Ranking for system inclusion in D-RAP are provided on the following slides.

Action Item #30 (cont'd)

- Neutron Monitoring System (C51)
  - Expert Panel weighted score – 65

Question	Assigned Value	Weight Factor	Assessed Value
Is the function used to mitigate accidents or transients?	5	5	25
Is the function explicitly called out in EOPs or ERPs?	5	5	25
Does the loss of the function directly fail another risk-significant system?	0	4	0
Is the loss of the function safety-significant for shutdown or mode changes?	4	3	12
Does the loss of the function, in and of itself, directly cause an initiating event?	1	3	3
		Weighted Score	65

Action Item #30 (cont'd)

- Steam Bypass & Pressure Control System (C85)
  - Expert Panel weighted score – 48

Question	Assigned Value	Weight Factor	Assessed Value
Is the function used to mitigate accidents or transients?	3	5	15
Is the function explicitly called out in EOPs or ERPs?	3	5	15
Does the loss of the function directly fail another risk-significant system?	0	4	0
Is the loss of the function safety-significant for shutdown or mode changes?	3	3	9
Does the loss of the function, in and of itself, directly cause an initiating event?	3	3	9
		Weighted Score	48

Action Item #30 (cont'd)

- Example of Expert Panel ranking process:
  - **High Pressure Core Flooder-Injection Isolation Valve E22-F003B**

Question	Assigned Value	Weight Factor	Assessed Value
Is the function used to mitigate accidents or transients?	4	5	20
Is the function explicitly called out in EOPs or ERPs?	4	5	20
Does the loss of the function directly fail another risk-significant system?	0	4	0
Is the loss of the function safety-significant for shutdown or mode changes?	0	3	0
Does the loss of the function, in and of itself, directly cause an initiating event?	0	3	0
		Weighted Score	40

Action Item #30 (cont'd)

Any new SSC's identified later in the project are also subject to the same D-RAP evaluation.

PRA model changes are evaluated for impact on D-RAP.

Action Item #88

Startup Administrative Manual (SAM) does not seem to include SSC's going into RAP following PRA or Expert Panel review.

Response: SSCs added to RAP are included in start-up testing.

RG 1.68, "Initial Test Programs for Water-Cooled Nuclear Power Plants," is referenced in the SAM and requires the test program to include suitable testing of all SSC's important to safety.

- Any SSC included in D-RAP is defined as important to safety.

Response to RAI 14.02-4 (June 17, 2009) clarified that SAM Section 6.3, "Regulation and Regulatory Requirements," addresses systems important to safety that include non-safety systems with a safety function credited in the FSAR or ABWR DCD. The specific examples provided were not intended to be all-inclusive.

Chapter 17 Summary

- No SER Open Items
- All COL License Information Items have been addressed
- All responses to Requests for Additional Information have been submitted
- All ACRS Action Items have been addressed

Chapter 17

Questions and Comments

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

Presentation to the ACRS Advanced Boiling Water Reactor Full Committee

South Texas Units 3 and 4 COL Application Review

Advanced SER with no Open Items - Chapter 17 "Quality Assurance"

April 21, 2011

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Staff Review Team

Project Managers

- George Wunder, Lead PM, DNRL/NGE2
- Michael Eudy, Chapter PM, DNRL/NGE2

Technical Staff Presenters

- Garrett Newman, Reviewer, DCIP/CQVB
- Todd Hilsmeier, Reviewer, DSRA/SPRA

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STP Units 3 & 4 COLA SER Chapter 17 Presentation Summary

- **17.5S Quality Assurance Program Guidance**
  - Previous Open Item
  - Closure of Confirmatory Items
  - Change of ownership/applicant impact
  - COL item closure
- **17.4S Reliability Assurance Program**
  - COL item closure
  - Ongoing Confirmatory Item
  - ACRS Action Item discussion

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STP Units 3 & 4 COLA SER Chapter 17.5S Chapter Summary

- One (1) Open Item related to the QAPD previously identified regarding Regulatory Commitments. This open item had been closed for this chapter and is now confirmatory in the SER.
- The staff reviewed Revision 5 of the COL FSAR and associated QAPD changes. The staff issued RAI 17.5-10 regarding interfaces between NINA and STPNOC.
- The applicant has responded with proposed changes to the QAPD. The staff has reviewed the response and proposed changes and is tracking this item as Confirmatory Item 17.5-10.
- COL License Information Item 17.1 was addressed and found acceptable.
- No ACRS Action Items.

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STP Units 3 & 4 COLA SER Chapter 17.4S Chapter Summary

- FSAR Section 17.4S addresses COL License Information Items 17.2, 17.3, and 17.4 through the discussion of the following:
  - Essential Elements of D-RAP
  - Methodology for updating/maintaining the list of risk-significant SSCs
  - Integration of RAP into Operational Programs

- Status of SER Section 17.4S
  - No open items
  - One ACRS action item
  - One notable confirmatory item (17.04-9)

STP Units 3 & 4 COLA SER Section 17.4S Reliability Assurance Program

Addressing ACRS Action Item

- ACRS Action Item
  - Address when D-RAP list will be effectively populated and staff review is completed. How does staff ensure the D-RAP list and the process (COLA vs. ITAAC) related to it are acceptable?

- Purpose for Identifying the D-RAP SSCs
  - Scope of D-RAP applies to those SSCs, both safety-related and non-safety-related, that are identified as being risk-significant
  - D-RAP SSCs are subjected to D-RAP activities such as quality assurance (QA) controls for non-safety-related, risk-significant SSCs during the detailed design, procurement, fabrication, construction, and preoperational testing phases of the plant

STP Units 3 & 4 COLA SER Section 17.4S Reliability Assurance Program

Addressing ACRS Action Item (continued)

- STP's D-RAP List in Preparation of the COL Application
  - Initial identification of site-specific, risk-significant SSCs (i.e., D-RAP list) in preparation of the COL application incorporates by reference (with the appropriate departures and site-specific supplements) the D-RAP list in Appendix 19K of the certified and approved ABWR DCD
  - This process conforms to regulatory requirements
  - Completeness of this D-RAP list is directly attributed to the adequacy of the ABWR DCD PRA and the D-RAP list in Appendix 19K of the ABWR DCD, which is subjected to 10 CFR 52.63 on "Finality of Standard Design Certifications"

STP Units 3 & 4 COLA SER Section 17.4S Reliability Assurance Program

Addressing ACRS Action Item (continued)

- STP's D-RAP List in the Detailed Design and Construction Phases
  - STP committed to update the D-RAP list by September 2011 using the methodology described in FSAR Section 17.4S.1.4 (Commitment 17.4-1):
    - PRA (FV ≥ 0.005, RAW ≥ 2.0, consideration of risk insights and key assumptions)
    - Use of deterministic techniques and operating experience under the cognizance of a full expert panel to augment PRA techniques in the risk ranking of SSCs

STP Units 3 & 4 COLA SER Section 17.4S Reliability Assurance Program

Addressing ACRS Action Item (continued)

- STP's D-RAP List in the Detailed Design and Construction Phases
  - In accordance with FSAR Section 17.4S, STP will maintain and update the D-RAP list as changes are made to the plant-specific design and PRA:
    - This includes updating the D-RAP list for the plant-specific PRA developed to meet the requirements of 10 CFR 50.71(h)(1)
    - Any new SSCs added to the scope of D-RAP are subject to D-RAP program requirements (e.g., QA requirements)
  - Staff conducting ongoing audits on the implementation of this methodology to ensure that the D-RAP list will be effectively populated (**Confirmatory Item 17.04-9**)
  - Staff plans to conduct inspections prior to initial fuel load to verify implementation of D-RAP activities, including ensuring the D-RAP list is updated and maintained as necessary (e.g., as part of inspections for D-RAP ITAAC, initial maintenance rule program, quality assurance program, or the plant-specific PRA under 10 CFR 50.71(h)(1))

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STP Units 3 & 4 COLA SER
Chapter 17
Chapter Conclusions

In conclusion, with the exception of the confirmatory items identified, the staff has confirmed that the applicant has addressed the relevant information as specified in the referenced ABWR DCD. In addition, the staff concludes that the applicant has met the applicable regulations and is in conformance with applicable guidance with respect to the QA Programs, the RAP, QAPD and Maintenance Rule Programs.

In addition, the staff believes that they have successfully addressed the ACRS action item pertaining to D-RAP.

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Questions/Comments

Part 21 Process

ACRS Meeting April 21, 2011

Part 21 Process- NRO Internal ConE Review

- All Incoming Part 21 Notification:
  - Screened for NRO applicability and safety significance.
  - Evaluated once minimum safety significance threshold is met.
  - Applied to NRC programs upon completion of technical evaluation.
- Applicable NRO Office Instructions:
  - NRO-REG-112, "New Reactor Construction Experience Program"
  - Draft NRR/NRO joint office instruction LIC-403/NRO-REG-122, "Procedures for Handling Deficiency Reports."

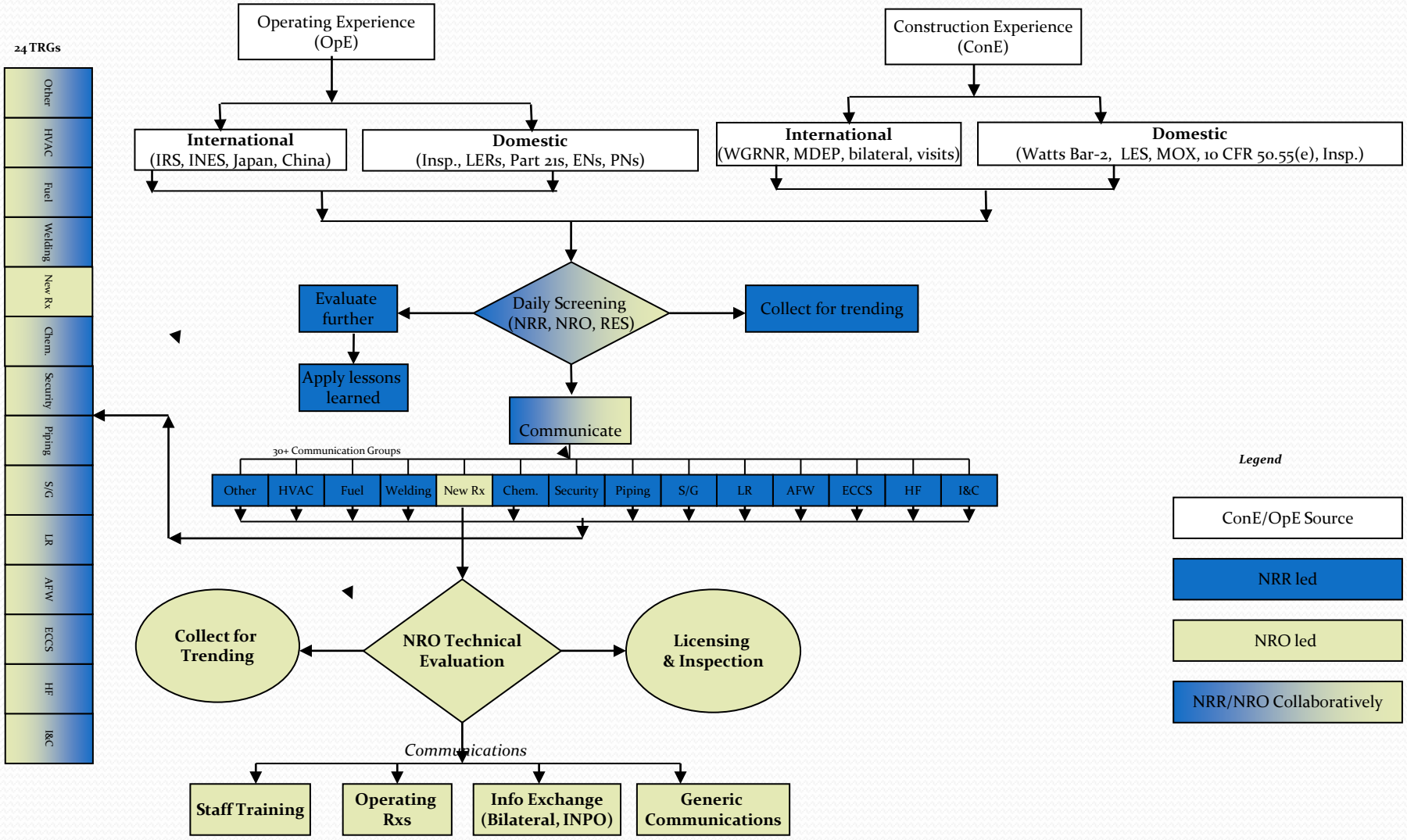
Part 21 Process - Proposed Changes to SRP Ch.1

- Modifying the SRP Ch. 1 guidance to include review of applicant evaluations of defects and non-compliances submitted in Part 21 notifications
- Definition of defect includes ESPs, DCs, and COLs
- All applicants should have a program in place for implementing the requirements of 10 CFR part 21
- Applicant evaluations should determine applicability and potential implications on DCs, DC renewals, and COLs that reference a DC, as applicable for the specific design center
- For DC renewals and COLs, evaluations should address those notifications issued between the original design certification rulemaking (DCR) and the DC renewal, or COL application
- Staff to perform review of applicants evaluations or perform confirmatory review and document results in SER

Part 21 Process (Backup Slides)

ACRS Meeting April 21, 2011

NRC Process for Collecting, Screening, Evaluating, and Communicating Construction and Operational Experience



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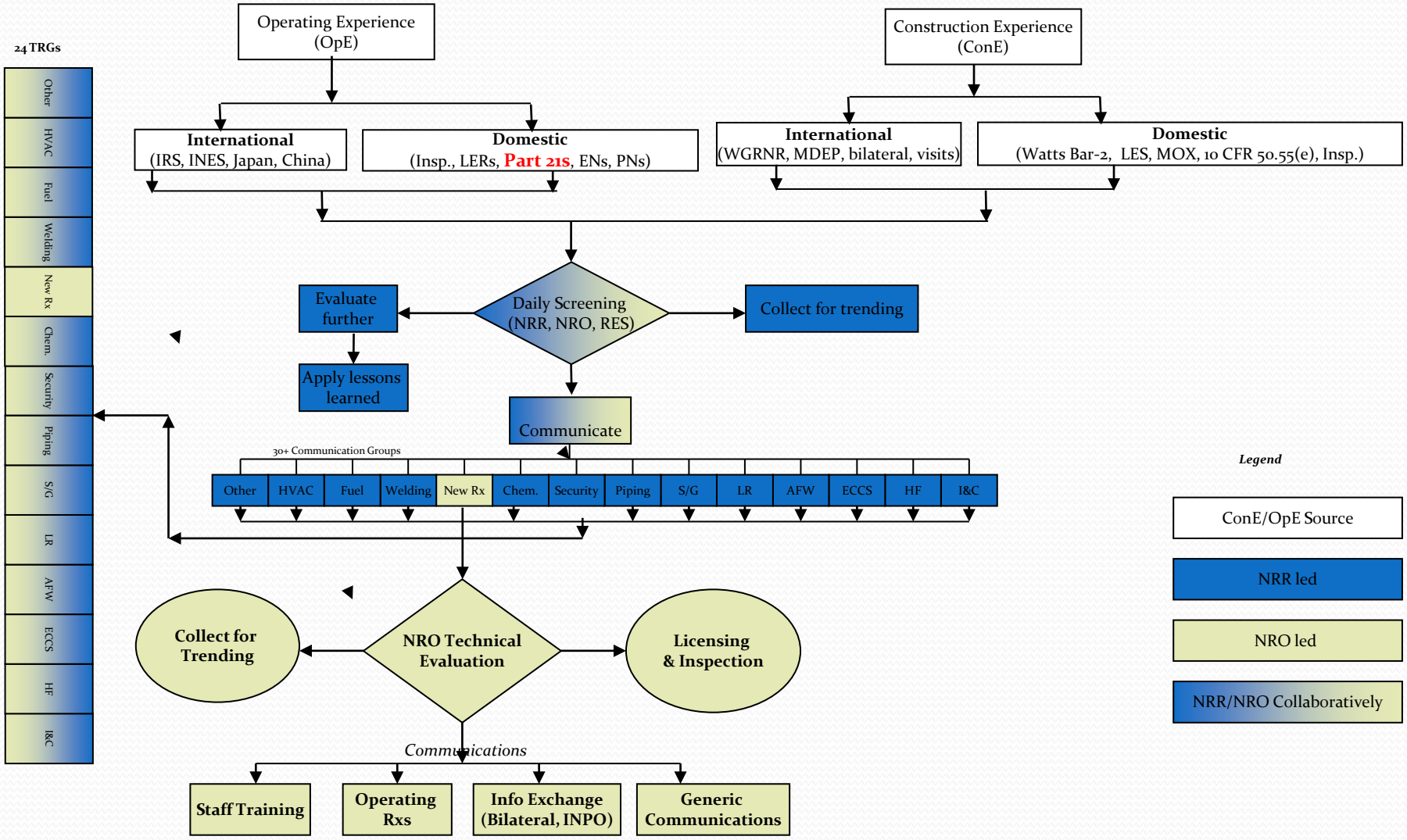

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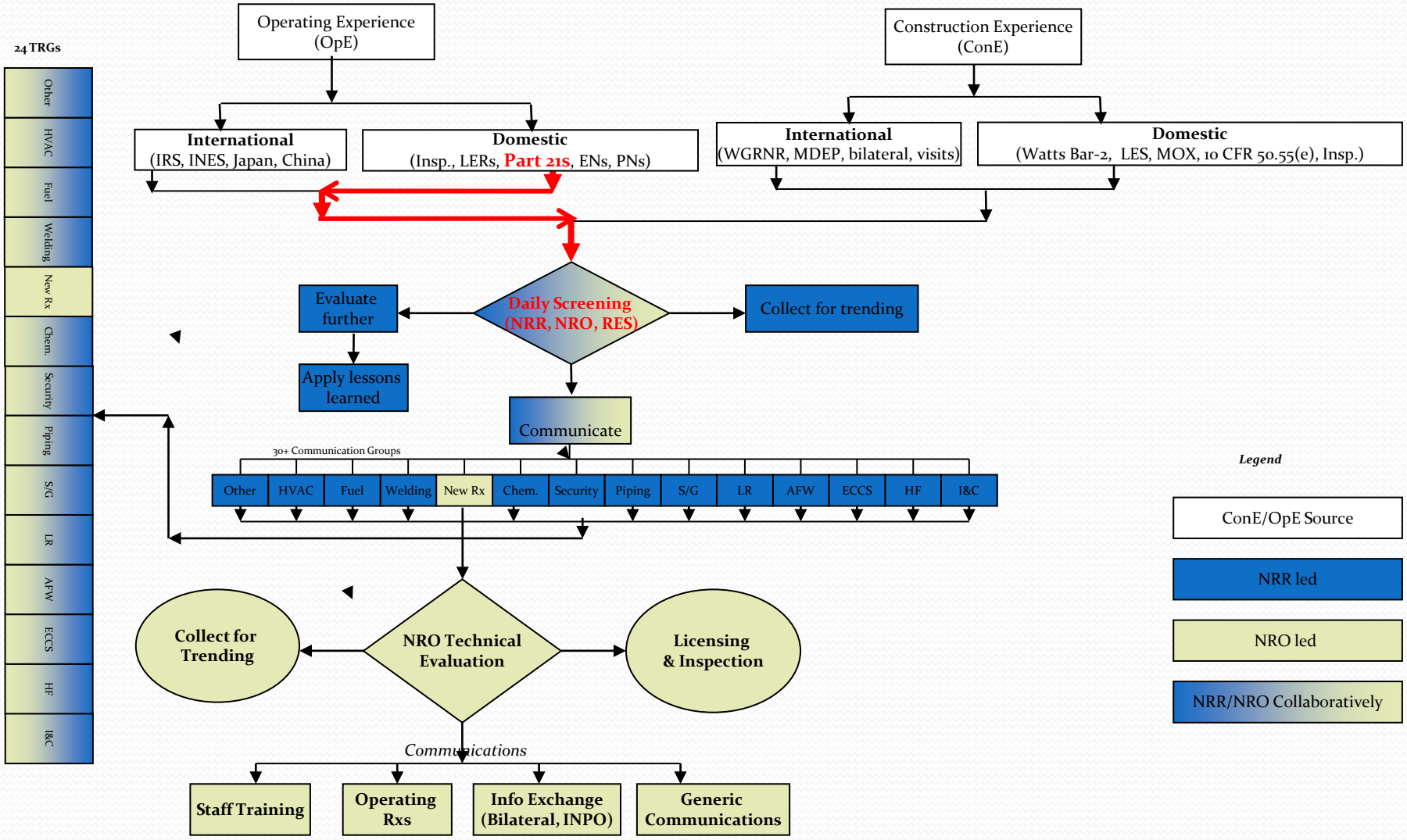

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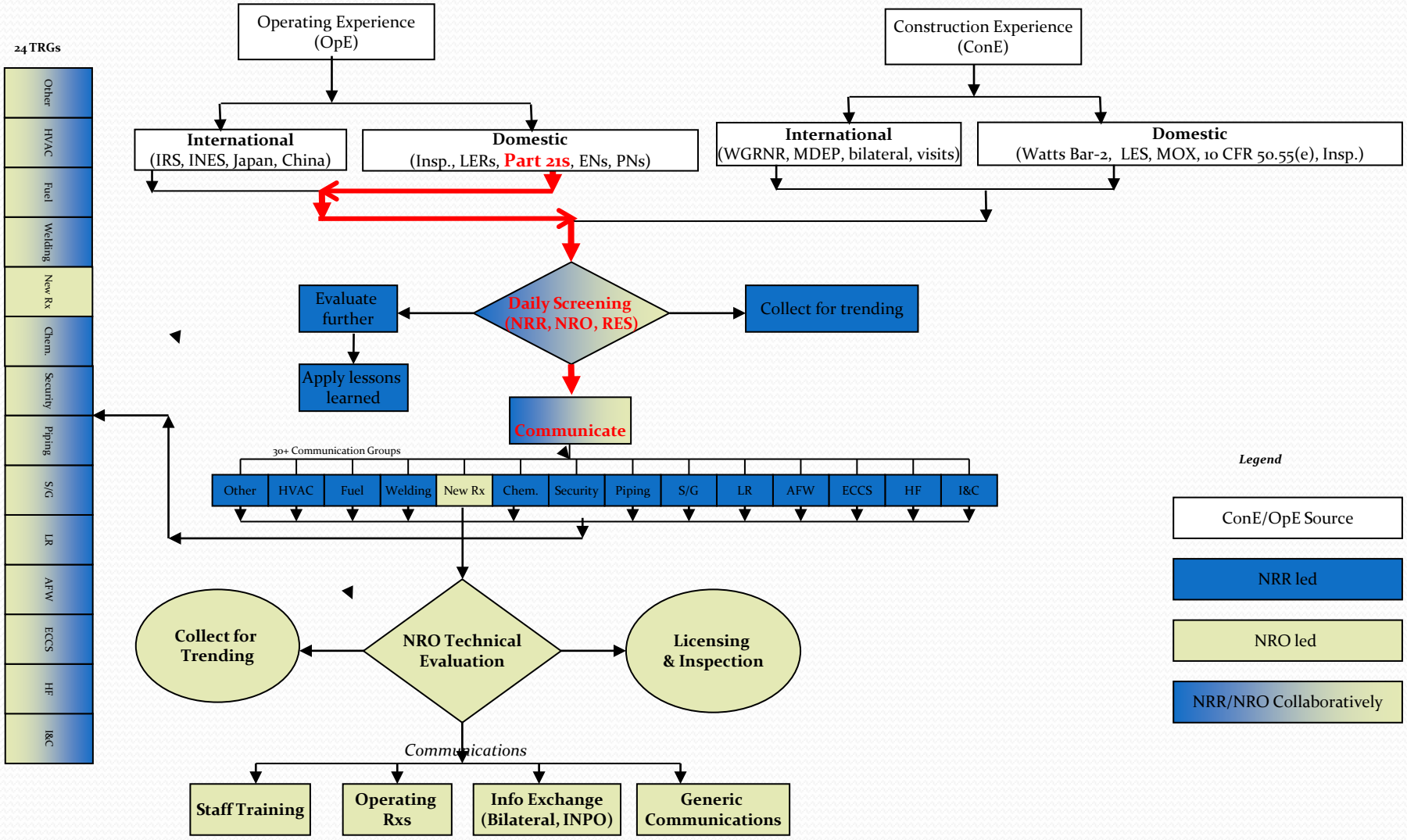

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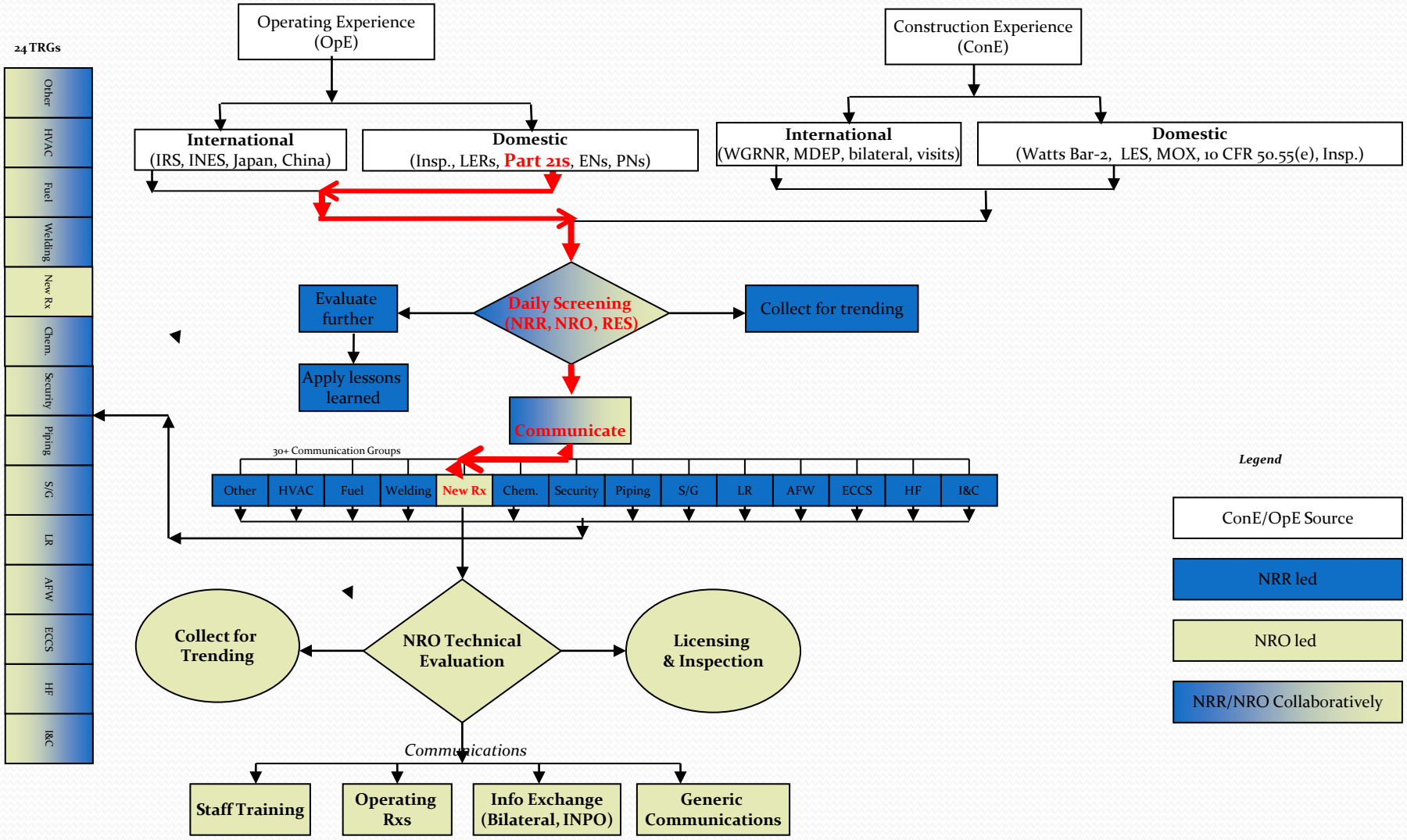

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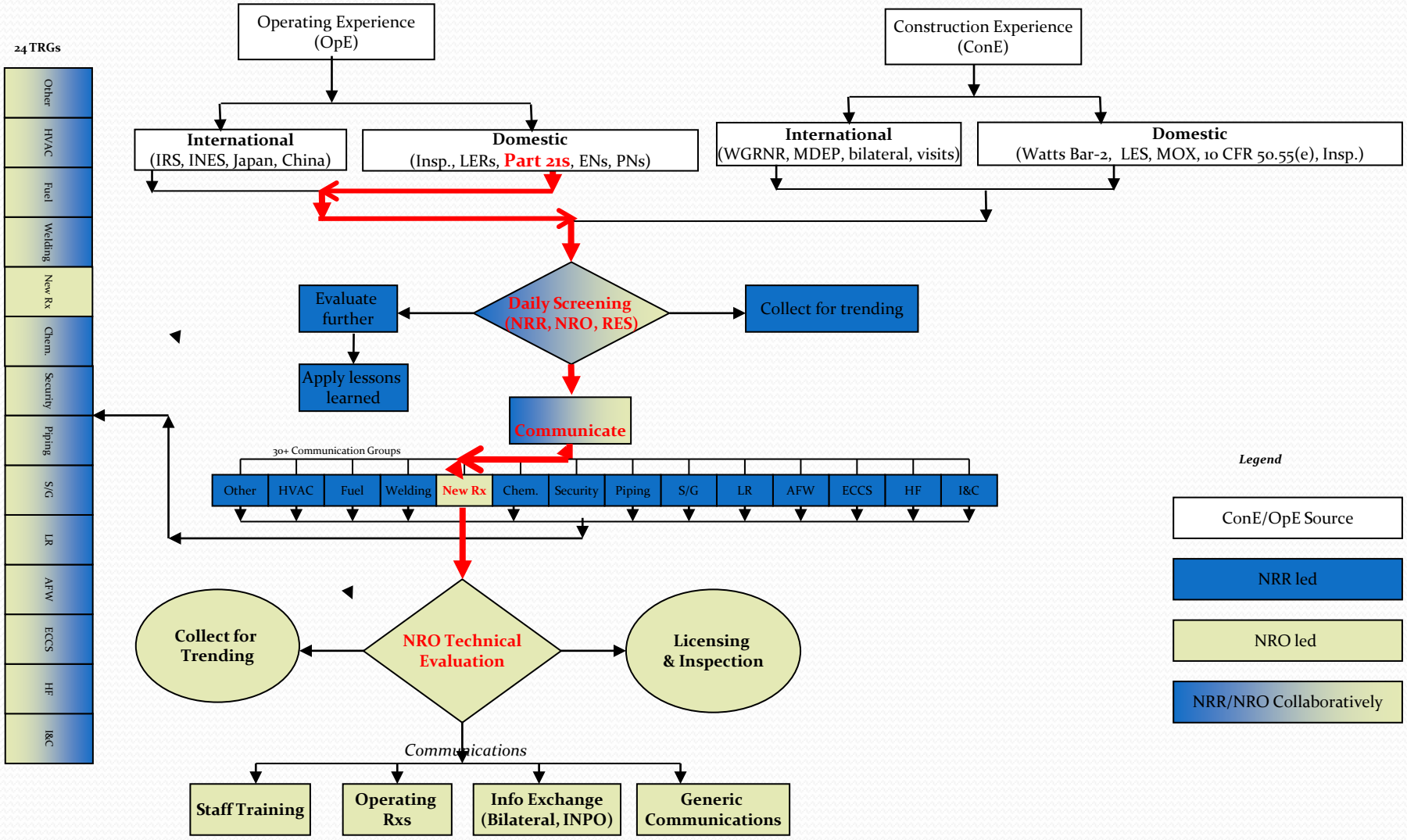

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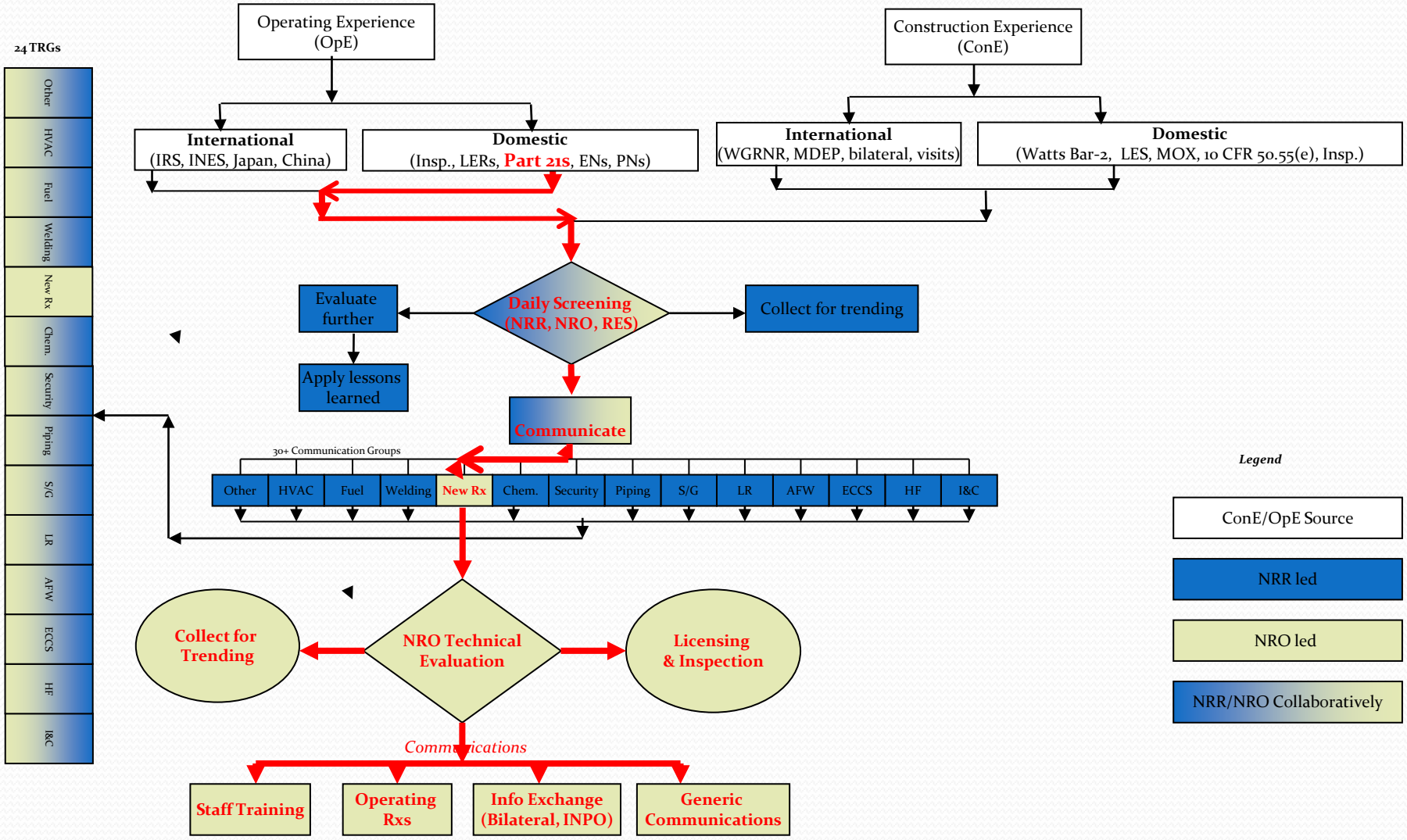

Part 21 Process

- Proposed Changes to SRP NUREG-0800 Chapter 1.0
- SRP Page 1.0-5
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- Part 21 Notification of Failure to Comply or Existence of a Defect and its Evaluation
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- An evaluation by the applicant of all defects and noncompliance reports submitted under 10 CFR Part 21 to determine their applicability and potential impacts on applications for design certification (DC) , DC renewal, and combined licenses (COLs) that reference a DC. For DC renewals and COLs that reference a DC, the evaluation should address those notifications issued between the original certification and the DC renewal or COL application, as applicable for the specific design center, and as stipulated in 10 CFR 21.21.

Part 21 Process

- Proposed Changes to SRP NUREG-0800 Chapter 1.0
- SRP Page 1.0-7

- 9. 10 CFR 21.21 as it relates to reviews of failure notifications and an evaluation of the impacts from operational experience and implementation of lessons learned on engineering design for the review of DC/COL applications. The applicability, relevancy and significance of these failure notifications in DC/COL reviews shall be determined by the individual applicant and specific to each design center with emphasis on significant notifications. The applicants evaluation shall include all defects and noncompliance reports submitted under 10 CFR 21.21 to determine their applicability and potential impact on the application under review by the staff. For design certification reviews, the scope of the applicants review should include notifications issued prior to submittal of the DC application. For DC renewals, and COL applications that reference a DC, the scope of the applicants review should include those notifications issued between the original DCR and submittal of the DC renewal, or COL application that references the DCR, as applicable.