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NUCLEAR REGULATORY COMMISSION

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622ND MEETING

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

+ + + + +

FRIDAY

MARCH 6, 2015

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ROCKVILLE, MARYLAND

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The Advisory Committee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B1, 11545 Rockville Pike, at 10:30 a.m., John W. Stetkar, Chairman, presiding.

COMMITTEE MEMBERS:

JOHN W. STETKAR, Chairman

DENNIS C. BLEY, Vice Chairman

MICHAEL L. CORRADINI, Member-at-Large

RONALD G. BALLINGER, Member

CHARLES H. BROWN, JR. Member

DANA A. POWERS, Member

HAROLD B. RAY, Member

JOY REMPE, Member

PETER RICCARDELLA, Member

MICHAEL T. RYAN, Member

STEPHEN P. SCHULTZ, Member

GORDON R. SKILLMAN, Member

DESIGNATED FEDERAL OFFICIAL:

EDWIN M. HACKETT, Executive Director

KENT L. HOWARD, SR.

MICHAEL R. SNODDERLY

ALSO PRESENT:

JOHN BUTLER, NEI
JOHN CARLIN, TVA
ED CRAIG, TVA
DENNIS DIMOPOULOS, TVA
YOIRA DIAZ-SANABRIA, NRR
GREG FISHER, TVA
MICHAEL HENDERSON, TVA
ALLEN HISER, NRR
BILL HOLSTON, NRR*
JEFF MITCHELL, NRR
CHRIS MILLER, NRR
GEARY MIZUNO, OGC
BEN PARKS, NRR*
JOEL RIVERA-ORTIZ, R-II*
STEVE RUFFIN, NRR
EMMANUEL SAYOC, NRR
ANTONIOS ZOULIS, NRR

*Present via telephone

A G E N D A

P R O C E E D I N G S

10:31 a.m.

CHAIRMAN STETKAR: The meeting will now come to order. This is the first day of the 622nd meeting of the Advisory Committee on Reactor Safeguards.

During today's meeting the Committee will consider the following topics; Sequoyah Units 1 and 2 License Renewal Application; industry prioritization and scheduling, and preparation of ACRS reports.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. Dr. Edwin Hackett is the Designated Federal Official for the initial portion of the meeting.

We have received no written comments or requests to make oral statements from members of the public regarding today's sessions. There will be a phone bridge line. To preclude interruption of the meeting the phone will be placed in a listen-in mode during the presentations and Committee discussion.

A transcript of portions of the meeting is being kept and it is requested that the speakers use one of the microphones, identify themselves, and speak with sufficient clarity and volume so that they can be

readily heard. I'm going to ask everyone to please check all of your little communications devices and make sure they're turned off.

Just so that we have it on the record because of our different schedule here, I'd like to read into the record our agenda for today in case there are members of the public out on the bridge line who are interested in later topics.

From 10:30 until 1:00 today we'll cover the Sequoyah License Renewal Application. We'll break for lunch, only a half hour, sorry; 1:00 to 1:30. Between 1:30 and 3:30 p.m. we'll address the Risk Prioritization Initiative. We'll have our Planning and Procedures, and Reconciliation session between 3:30 and 4:30, and we will be begin our deliberations for letter writing at 4:30. And then we'll decide how late we want to work tonight.

One last thing. I very, very much want to thank everyone who's here for being as flexible as you were and accommodating. I got up at 4:30 this morning, didn't know whether we were going to have this meeting at 4:30, and I'd really like to thank TVA for accommodating us over the last two days with this schedule. I'm very happy that we could actually pull it off this week and didn't have to regroup for Plan

C, what would have been at least Plan C. And, also, publicly like to acknowledge our Staff for all of the effort they've put in since Tuesday afternoon through this morning. It's been kind of a heroic effort to make sure that everybody was kept informed, and I really, really appreciate that. And as I understand, most of you can actually get home tonight which is nearly miraculous.

So with that, unless there are any other issues that any of the Members would like to bring up at this point, I will turn the meeting over to Dick Skillman to lead us through the Sequoyah License Renewal. Dick.

MEMBER SKILLMAN: Mr. Chairman, thank you. As we begin, I would like to do a phone line check to make sure that we have three principals on the line from the NRC. If you are on the bridge line would you please identify yourself. Those who are able to hear me please repeat what you would say, please.

MR. HOLSTON: Bill Holston from the Division of License Renewal is on the line.

MEMBER SKILLMAN: Thank you, Bill.

MR. BRADDOCK: Louis Braddock (phonetic), Division of License Renewal is on the line.

MR. GAVOLA: Jim Gavola, Division of

License Renewal is on the line.

MEMBER SKILLMAN: Gentlemen, thank you very much.

MR. RIVERA: Also, Joel Rivera from Region II is on the line.

MEMBER SKILLMAN: Thank you. With that, I would like to welcome the TVA team. I recognize that this is the end of a very long journey. And, importantly, I want to recognize Chris Miller, and let Chris Miller take the lead from here on this proceeding. Chris.

MR. MILLER: Thank you, Mr. Skillman. I want to echo the remarks of Chairman Stetkar. I really appreciate everybody's efforts. You know, the roads aren't that great even this morning, you know, train lines aren't running, a lot of people did some heroic things to come in here and support this meeting, and I really appreciate it. And the scheduling throughout the week has been flexible, to say the least, so I really appreciate everybody's efforts.

We're happy to discuss this license renewal. Seated next to me is Yoira Diaz, the Project's Branch Chief for Projects Branch 1. In the audience we have Dennis Morey, Michael Marshall, Branc Chiefs also, and a whole host of staff supporting

them. Also, on the phone you heard some of the Region III team. I'm sorry, some of the Region II team that's supporting, Joel Rivera. I believe we also have Ben Parks on the line, as well.

When the Staff makes its presentation I will introduce the specific members, providing comments at the time. And at this ACRS Full Committee meeting for the license renewal of Sequoyah Units 1 and 2, we're here to provide an overview of the Staff's final review on this application. And right now I'd like to turn the presentation over to TVA and the Site Vice President, John Carlin, to make his presentation.

MR. CARLIN: Thanks, Chris. Again, not to be redundant, but we really do appreciate you being here today. I mean, this was hard to get everybody together, and the fact that we're here. This is the important place we could be, and we really do appreciate you being here to hear us today. I know many of you have done Trains, Planes, and Automobiles to get here and it isn't as much fun as the movie, I'm sure.

CHAIRMAN STETKAR: Not as funny.

MR. CARLIN: My name is John Carlin. I'm the Site Vice President of Sequoyah. We really

appreciate the opportunity to be here today to talk about our license renewal application.

As Mr. Skillman said, our journey to this point, it really has -- while it's been long, it's wielded a better understanding of our plants, and we've walked away as a stronger site as a result of this. This meeting represents another important milestone in that journey to extend the life of the plant.

At this time, I'd like each member of the team to introduce themselves.

MR. PIERCE: William Pierce, Site Engineer and Director.

MR. DIMOPOULOS: Dennis Dimopoulos, Engineering.

MR. HENDERSON: Michael Henderson, Engineering Programs Manager.

MR. LUNDY: Dennis Lundy from the License Renewal Project.

MR. CARLIN: We've also brought a team of subject matter experts with us today to support our discussions. I'd like the team to stand up so that people can recognize them. And I'd also like to thank them. Many of them have made some sacrifices, personal sacrifices to make this all work out. Thank you all

very much for being here. And we also have some team members that are listening in on the telephone supporting us back at Sequoyah today.

I will go through a little bit on the plant history and our background. William Pierce will talk about major modifications. Dennis Dimopoulos will talk about the License Renewal Application and the Safety Evaluation. And then Michael Henderson will discuss the closure of the open item. And then, finally, I'll have a few closing comments from our end.

As we go through the slides, behind me you'll see the slide of Sequoyah. To give you a little bit on how the plant's situated, in the aerial view and on the screen in the upper right-hand quadrants, our switch yard area. That yard consists of 161 kV lines that provide offsite power and 500 kV lines that feed the station's output to the grid.

TVA owns and operates, and maintains that yard, and the direct oversight and control of the switch yard is provided by our Plant Operations working with our TVA partners using jointly approved procedures.

A little bit about the plant. It consists of approximately 525 acres and is located in

Southeastern Tennessee along the Tennessee River. The plants are located on the west shore of Chickamauga Lake just 18 miles northeast of the City of Chattanooga.

A little background; TVA also operates two other nuclear power stations, Browns Ferry, a 3-unit boiling water reactor which is located in northern Alabama, and Watts Bar, which consists of one operating unit with another under construction. Watts Bar is the sister plant to Sequoyah, and it's also -- it is located north of Sequoyah, also on the Chickamauga Lake.

The next slide does kind of give you a reference of where we are. We're about midway between Nashville and Atlanta. We're northeast of Atlanta and southeast of Nashville.

Sequoyah is two-unit Westinghouse ice condenser pressurized water reactor plant. We received our construction permit back in May of 1970, and we received our operating license for Unit 1 in September of 1980, and for Unit 2 in September of 1981. Commercial operations began in July of 1981 for Unit 1, and June of 1982 for Unit 2.

At this time, I'd like to turn the presentation over to William Pierce.

MR. PIERCE: All right. Thank you, John.

This morning I'll be talking about major modifications, and near-term improvements that have been completed at Sequoyah.

Moving on over to Slide 12, the first major modification I'll be discussing today includes where at Sequoyah we have installed full structure weld overlays on pressurizer locations. The first set of full structure weld overlays were performed on Unit 1 in 2007, and then on Unit 2 in 2006.

Also at Sequoyah we have replaced portions of our secondary side piping which is susceptible to flow-accelerated corrosion. And the materials of choice that we chose to utilize at Sequoyah has been 2-1/4 chrome, 1 percent moly.

Steam generators have been replaced on both units. Unit 1 steam generators were replaced in 2003, and then Unit 2 steam generators were replaced in 2013.

MEMBER SKILLMAN: Excuse me. What is the history of your new steam generators in terms of leakage, in terms of performance?

MR. PIERCE: Mr. Skillman, as far as the performance of the steam generators on both units, the performance has been strong. There has been no tube

leakage on the generators that have been newly installed on Unit 1 and Unit 2, and the material that we have utilized as far as the tubing is Alloy 690.

MEMBER SKILLMAN: Yes, sir. Thank you.

MR. PIERCE: Also, we have replaced main condenser tube bundles at the station. Also, from a tactical and a strategic perspective, we have replaced portions of carbon steel services and raw water piping. And, also, we have replaced the containment spray 1B, and component cooling water heat exchangers.

Moving to the next slide, which is Slide 13, which is where I'm going to talk about midterm and future plant improvements. For the upcoming spring refueling outage which is scheduled to start in April 2015, we will be replacing approximately 10 thimble tubes. In addition, we will be replacing the containment spray 1A heat exchanger.

What we have scheduled for the fall of 2015 on Unit 2 as far as refueling outage, we are also scheduled to replace approximately 10 thimble tubes on this unit, also.

Looking strategically, in the out years we will continue to replace portions of carbon steel piping. And, in addition, we are looking at design and begin installing cathodic protection, with design to

begin in 2016, and full implementation of the mod in 2017. And then to close out the future plant improvements, we are looking at replacing cooling coils in the unit at the station at Sequoyah.

VICE CHAIRMAN BLEY: Mr. Pierce, it seems to me it's kind of unusual to have to replace the containment spray heat exchangers. Is there a history of some problem there? What led to that?

MR. PIERCE: Mr. Bley, there has been a history of problems at the -- as far as the containment spray heat exchanger, and what we've noticed is that as far as the degradation mechanism, it was flowing induced vibration as far as the tubing. And that is leading us to replace the tubing on the -- replace the containment spray heat exchanger.

VICE CHAIRMAN BLEY: But only one. Yes, okay.

MEMBER SCHULTZ: With regard to the thimble tube inspection and replacement, is there a continuing program related to that that you can describe beyond just the two outages that you've described?

MR. PIERCE: As far as the thimble tubes, the reason that we are replacing the thimble tubes is because of wear on the thimble tubes. And what we do is that we have had a continuing program to replace

thimble tube. And the material that we're using on the outer surface of the thimble tube is chrome plating which is for wear resistance.

MEMBER SCHULTZ: Thank you.

MR. PIERCE: Okay.

MEMBER SKILLMAN: So let me back up to Dr. Bley's question. He asked if only one containment spray heat exchanger --

MR. PIERCE: Okay.

MEMBER SKILLMAN: -- has been susceptible to the flow-induced vibration.

MR. PIERCE: Dennis, I would like Ed Craig or David Lafever to respond to Mr. Bley's question.

MR. CRAIG: I'm Ed Craig from Site Engineering.

The containment spray heat exchangers were damaged on Unit 1, were damaged from pre-op testing. Following that damage there were numerous tube stakes installed. The 1B heat exchanger was damaged severely and a number of tubes were plugged with ongoing degradation that required replacement in 1998. The 1A was not damaged nearly so severely, but there has been ongoing tube damage, so it's just now coming due to replace.

VICE CHAIRMAN BLEY: Can you tell us

anything about that pre-op testing? What led to that problem?

MR. CRAIG: Oh, the design of the heat exchanger included 5-foot wide tube support spacing, and that was just way too wide, so there was flow-induced vibration large-scale.

VICE CHAIRMAN BLEY: You have a completely new design this time around?

MR. CRAIG: Yes, much improved design.

VICE CHAIRMAN BLEY: Okay, thank you.

MR. CRAIG: Okay, sir?

VICE CHAIRMAN BLEY: Thank you.

MR. PIERCE: Now, we'll be moving to Slide 14 where I'll be turning it over to Dennis Dimopoulos to discuss the License Renewal Application.

MR. DIMOPOULOS: So at Sequoyah, we submitted our application back in January of 2013. The application was submitted using the guidance and the requirements of NUREG-1801. The latest revision, Rev 2 of the GALL. The Scoping Guidance was delineated in NEI 95-10, and we conducted Aging Management Reviews in accordance with NEI 95-10 and industry guidance documents.

We did receive quite extensive peer reviews with over 15 different independent peer

reviews through our submittal process. In addition, we addressed six Interim Staff Guidance documents during the preparation of the license renewal application, and two more through the RAI process. So, in all there were about 4,100 Aging Management Review line items and that's looking at the component material versus the environment that it's exposed to. And as a result, we have 43 Aging Management programs, 31 existing and 12 new that are required to manage for the period of extended operation.

Moving on to Slide 16, this gives sort of a summary of our License Renewal Application as submitted versus the SER. As noted in their submittal, we identified 20 Aging Management programs consistent with the GALL, and 22 with Enhancement. And following a very extensive and a thorough review from the NRC here and in the Region, we had 18 consistent and 23 consistent with enhancements.

We did have one plant-specific for our periodic surveillance in our Preventive Maintenance Program, and we had one consistent, but it has some surveillance exceptions, and that's in our power water system.

CHAIRMAN STETKAR: Dennis, I didn't -- I don't remember whether I was able to attend the

Subcommittee meeting or not. I'm getting old. The -- I don't want to get into details of the body counts here, but am I correct that you only have one AMP that takes an exception to the GALL, or are there other?

MR. DIMOPOULOS: Chairman Stetkar, it actually did not take an exception to the GALL, it took an exception to an Interim Staff Guidance document. And that was -- mainly, it revolves around how to test portions of the fire system, like sprinkler headers and things like that, that instead of putting water on them, we're going to take exceptions, putting air, or smoke, or something like that.

CHAIRMAN STETKAR: Okay. But none of the other AMPs have any exceptions?

MR. DIMOPOULOS: That is correct.

CHAIRMAN STETKAR: Okay, thank you.

MR. DIMOPOULOS: So moving on to Slide 17, talking about our License Renewal Application commitments. They are included as Appendix A of our License Renewal Application. We're managing them in our Corrective Action process, in our Commitment Tracking System. In all, there's 44 commitments; 43 of those are associated with Aging Management programs we just discussed, and one associated with the Operating

Experience Program.

Moving on to Slide 18. For the implementation, many of the -- this is some of the team that stood up earlier that are here today, are part of the team that will be implementing that, and then many more back at the station. We are participating in the NEI License Renewal Implementation Working Group.

We have an Aging Management Coordinator selected, and she is here with us today. We've got several work orders already in place and several -- many things that we've already done to this point to get us ready for that period of extended operation. The owners that you see here today, they're going to help guide that along with some select contract staff is going to help us do the heavy work to get those programs in place in the next few years so that we'll be prepared.

So with that, that concludes my portion. Michael Henderson is going to talk about the closure of the one open item that we discussed in the Subcommittee.

MR. HENDERSON: Okay. Thank you, Dennis.

At this time, I'll talk about closure of our open item. So, this issue that was recently closed

deals with the Reactor Vessel Internals Program, and specifically deals with fluence at the upper core plate. So if we can go to the next slide, Slide 21, this will give you orientation of where the upper core plate sits with respect to the fuel. It's just above the top of active fuel region, about a foot above.

So, in October of 2014 we received an RAI that asked us to describe the fluence methodology and the fluence results for the upper core plate. We responded that that methodology is consistent with REG Guide 1.190, and also with our design basis at Sequoyah. However, the fluence was above a threshold for irradiation embrittlement, and it was below a threshold for irradiation-assisted stress corrosion cracking, so our projected 60-year fluence was just between those two thresholds.

After ACRS Subcommittee, we received another RAI that asked for various parameters and calculation outputs from that fluence calculation, and it also asked were there any intrinsic conservatisms in our calculation. So, we provided those parameters and those outputs and explained that there was no conservatism in the calculation; however, those two thresholds that I spoke about previously contain some inherent conservatisms in themselves. For example, the

threshold for irradiation-assisted stress corrosion and cracking is based on highly stressed components which the upper core plate is not.

As an added measure of conservatism, TVA made a commitment to add the upper core plate as a linked expansion item to the lower core barrel girth weld when we do our MRP 227 Reactor Vessel Internals exams, so that component is subject to higher fluence, and if we see degradation there, it will be a trigger for us to go do inspections of the upper core plate. So, between the conservatisms within the thresholds and the commitment we made to the add the upper core plate as a linked expansion item, we were able to close the open item.

MEMBER SKILLMAN: I would like to complement the RAI team for the graphic representation. But lest you think we're blind, you have a baffle on the left and a baffle on the right, and I think they're the same baffle but they're spelled differently. We do take our homework very seriously. But thank you for adjusting --

MR. HENDERSON: It was the first change we made in the presentation.

MEMBER SKILLMAN: Thank you, Mike.

MR. HENDERSON: At this time, I'll turn it

to Mr. Carlin for closing remarks.

MEMBER SCHULTZ: Before we leave that topic, the Staff also asked about not only the conservatism issue related to the evaluation, but also uncertainties. And you replied to that, their questions related to uncertainty in the calculation. Is that correct? Can you elaborate on that?

MR. HENDERSON: Mr. Schultz, I would like for Mr. Randy Lott or Greg Fisher to address your question.

MEMBER SCHULTZ: Thank you.

MR. FISHER: This is Greg Fisher, Westinghouse Radiation Engineering Analysis. Yes, we addressed the question about uncertainties in the calculations.

Briefly, there's very limited measurement data available up in that region, but the wider answer was that there is extensive conservatisms in the assumptions associated with MRP 227.

MEMBER SCHULTZ: Good, thank you.

MR. CARLIN: Again, thank you for meeting with us today.

In summary, our License Renewal Application is consistent with the GALL, and we're fully committed to continuously improve our Aging

Management Programs, as well as to enhance our Operating Experience Programs.

Our Sequoyah Program Owners have been engaged throughout this process, and deeply involved in our responses to RAIs. They now look forward to a successful implementation of our committed Aging Management Program changes.

Based on our commitments, our use of operating experience, and with the strong ownership of our Program Owners, we've laid out a fundamentally sound path to successfully manage plant aging effects through 60 years of operations. We will continue our activities to improve and advance our management of these aging effects. TVA is committed to continuously invest in plant modifications that insure safe, reliable operation through the period of extended operations.

Thank you, again, for the opportunity to be here today, and thank you all for putting up with this awful weather and conducting this meeting.

MEMBER SKILLMAN: John, what Senior Management actions will be taken to make sure that the commitments and the programs that you developed for entering the PEO are accomplished the way you've committed?

MR. CARLIN: Several. One is we'll continue to work with the team through the period of -- entering the period of extended operation. I had experience with this at Ginna, and so I found that the -- your oversight, leadership oversight has to be more intrusive looking at program health, looking at where we are in terms of managing it, and insuring that we have the right resources available to successfully support those programs. So, as the workload shifts and as the requirements shift, I'll be looking at that to insure that we have adequate resources to insure successful migration into a period of extended operations.

MEMBER SKILLMAN: Thank you.

MEMBER SCHULTZ: John, I just wanted to give you another opportunity to even expand on that, because at the Subcommittee meeting many of the Staff that are here today, if not all, were also supporting that meeting. And I thought the Committee would be -- would like to hear what was said then, and you've touched on it today. And that is, those individuals that had been involved in the -- not only the preparation of the application, but also responses to all of the questions and so forth are going to be taking responsibilities, management and execution

responsibilities into the period between now and 2020, the period of extended operation and beyond.

MR. CARLIN: And absolutely, we have a dedicated team, and we're committed to maintaining that team. We have -- you can see the group of people, and one of the advantages we've had at Sequoyah is that we have managed our -- the aging of our workforce, as well, so many of the people that are in these programs are -- have been -- came in and are relatively early -- still early career people. They'll be managing and helping manage this. We're actively working with them. They are -- and we have a process. We'll continuously meet and talk about our activities periodically going through the gaps and insuring it's there, that we've attended to any gaps.

MEMBER SCHULTZ: Thank you.

MEMBER SKILLMAN: So, I thank you very much and I think it's now time to invite the Staff to make their presentation. TVA Team, thank you.

MR. MILLER: Thank you, Mr. Skillman.

The Staff's presentation on Sequoyah's Safety Evaluation Report will be made by our Safety Project Manager, Emmanuel Sayoc, who's also joined at the table by the Division of License Renewal Senior Technical Advisor, Dr. Allen Hiser, and Safety Project

Manager, Jeff Mitchell. We also have many members our Management Team and Technical Staff in the audience to address any questions you may have.

In today's presentation, the Staff will go into more details on the resolution of the open item of which you've already heard a little bit about.

On November 5th, 2014 when we met with the ACRS Subcommittee on the Staff's SER with Open Items, we met on that date on the SER with Open Items, and that was issued on September 29th, 2014. Staff identified one open item at that time related to Materials Reliability Program MRP 227, Action Item 1.

Staff did an independent and thorough review of Sequoyah's License Renewal Application. The resolution of the open item is documented in the Final SER issued on January 29th of 2015. In today's presentation, the Staff will go into more details on resolution of the open item, so at this point I'd like to turn this presentation over to our Safety Project Manager, Emmanuel Sayoc, to lead the Staff presentation.

MR. SAYOC: Thank you, Chris. Good morning, Chairman Stetkar, Mr. Skillman, and the members of the ACRS Full Committee. My name is Emmanuel Sayoc, and I'm the License Renewal Project Manager for Sequoyah

Nuclear Plant Units 1 and 2, License Renewal Safety Review. We are here today to discuss the review of the Sequoyah License Renewal Application as documented in the Final Safety Evaluation Report which we issued January 29, 2015.

As Chris said, joining me at the table is Safety Project Manager, Jeff Mitchell, and Senior Technical Advisor, Dr. Allen Hiser, and Jeff will be running the slides. Seated in the audience are members of the Technical Staff who have participated in the review of the License Renewal Application and/or were at the audits conducted at the plant. Mr. Joel Rivera-Ortiz, Senior Inspector in Region II, and Ben Parks, Senior Reactor Engineer are joining us via the telephone. Next slide.

CHAIRMAN STETKAR: Be careful of your paper, if you hit that microphone it explodes in our reporter's ear. He's been through enough in the last two days.

MR. SAYOC: Okay. Today, we will present a general overview of the Staff's review, and then discuss the closure of the open items and the Staff's conclusions. Next slide.

This slide is an overview of the recent actions related to the current review of Sequoyah

License Renewal Application before the ACRS. The single open item in SER was related to the Aging Management Program in Section 3.0, and its resolution will be discussed here shortly.

The Applicant submitted 43 Aging Management Programs in the application, 31 of which were existing, and 12 of which were new. One plant-specific AMP was provided. All with the exception of the plant-specific AMP were evaluated by the Staff for consistency with the GALL Report.

On the basis of the audit and review of the AMPs evaluated against the GALL Report, the Staff concluded that 18 are consistent, 23 are consistent with enhancements, one is consistent with AMP exceptions, and one was plant-specific. The plant-specific AMP was reviewed for adequacy of its Aging Management attributes.

Let's now cover the open item related to the Aging Management Program and its resolution.

CHAIRMAN STETKAR: Emmanuel, you said -- it may be a subtlety I missed. You said that you did not review the plant-specific AMP with respect to the GALL Report, but you did review it with respect to its Aging Management attributes.

MR. SAYOC: That's correct, Chairman.

That's correct.

CHAIRMAN STETKAR: So, in that case you just look at that program and you examine each of the attributes of that program in a generic sense?

MR. SAYOC: That's right. In a situation where there are no GALL recommendations, we do a plant-specific -- a thorough evaluation.

DR. HISER: Yes, that would be an engineering evaluation. I mean, we don't have -- just don't have the GALL Report to use as a template for acceptability, so we have to do real engineering work to review that program. In all honesty --

(Simultaneous speech)

DR. HISER: -- is it consistent?

CHAIRMAN STETKAR: That's -- I, actually, wanted to get that on the record so that we made sure that we understood the level of review did that because we refer so often to the GALL Report as if it's this encompassing body of knowledge that -- to say we didn't review something against that can be misinterpreted.

DR. HISER: Yes. For this plant, 42 out of 43, so it's pretty close in almost all cases.

CHAIRMAN STETKAR: Good, thank you.

MR. SAYOC: Thank you, Mr. Chairman, that

was a very good point.

Okay, now next slide. The Applicant's PWR Vessel Internals Program implements the guidance provided by EPRI's Material Reliability Program, or MRP 227A, Reactor Internals Inspection and Evaluation Guideline. The Staff's Safety Evaluation of MRP 227A identified a number of Applicant or Licensee action items that each Applicant was responsible to address related to the plant-specific design and operating history.

The open item was associated with Action Item 1, where the Applicant is required to determine whether the technical assumptions of MRP 227A would be bounding for the design and operation of reactor vessel internal components at their specific facilities.

The Applicant was able to demonstrate the MRP 227A report was appropriate and bounding for all reactor internals with the exception of the upper internals that are located above the active fuel. The Applicant performed plant-specific evaluations to determine the susceptibility of the reactor vessel upper internals to irradiation-assisted stress corrosion and cracking, or IASCC, and irradiation embrittlement, or IE. However, the Applicant's

response did not provide specific information for the Staff to find the evaluation acceptable.

The Staff issued an RAI requesting the Applicant to provide a description of the analysis and methodology used to determine the projected fluence after 60 years of operation, neutron fluence thresholds for the IE, and IASCC for the upper core plates, and actual projected of neutron fluence values for the upper core plates through 60-years of licensed operation for both units. Next slide.

The Applicant responded to the RAI by providing the methodology it used to determine the projected fluence above the active fuel. The Applicant used Sequoyah Unit 1 and Unit 2 plant and fuel cycle-specific transport calculations to reach operating cycle and performed additional calculations to get data for the regions directly above the active fuel.

The Applicant stated that based on this evaluation, the neutron fluence for the upper core plate for the in-service units were projected to be below the fluence criteria of 3.0 dpa for inducing IASCC in the upper core plate.

The Applicant also stated that the projected fluence for portions of the lower upper core plate exceeded the fluence criteria of 1.5 dpa for

inducing IE in the upper core plates.

The Applicant stated that all the lower portions of the core plates for each of these units will exceed the IE threshold value of 60 years of operation. The upper core plate is not a leading indicator of IE and, therefore, its classification within the MRP 227A will be unchanged; that is, as an exception -- expansion component.

The Applicant further stated that IE would be added as a potential aging mechanism for the upper core plate. In addition, the Applicant stated that it would revise its ISI Category BN3 inspections prior to the period of extended operation to include visual examinations of the accessible regions of the lower portions of the upper core plate.

MEMBER BALLINGER: I have a question with regard to the IASCC, the 3 dpa. I went through 227 and looked at it, it's the 3 dpa. That's based on bolts, core barrel bolts, I think, actually, highly stressed. There's nothing that's going to happen during extended life that is going to cause distortion or anything like that in the upper structure that would induce stresses that are comparable to the -- that are, you know, high?

MR. SAYOC: At this point, let me call on

Ben Parks who's on the telephone to answer your question. Ben, are you on line? Roger from the Staff.

MR. KALIKIAN: Yes, the upper --

MR. SAYOC: Your name?

MR. KALIKIAN: Roger Kalikian from the Staff.

CHAIRMAN STETKAR: Thank you, Roger.

MR. KALIKIAN: The upper core plate, the fabrication of it is pretty straightforward. There are no residual stresses from fabrication. And, also, it doesn't see any operational stresses that would cause that kind of distortion. But the --

MEMBER BALLINGER: Okay. I'm not sure I buy the no residual stress part, but the fabrication -- the unstressed part I buy. But I'm just wondering about whether or not over a period of life the differential neutron damage, or whatever is going to happen up there will cause interference with parts or anything like that, that would induce stresses during long-term operation?

MR. KALIKIAN: Well, it's going to get the visual examination that it wasn't getting before, so I think if there were -- the portions that will see the higher fluence will be inspected.

MEMBER BALLINGER: Okay.

DR. HISER: Yes, I don't think -- I think the fluences are low enough up there that there would be very little, if any, neutron-induced --

MR. KALIKIAN: Actually, they did not exceed their threshold.

MEMBER BALLINGER: Yes, I was -- the threshold in my mind is 1 dpa, not 3, but --

CHAIRMAN STETKAR: For stress corrosion, IASCC.

MEMBER BALLINGER: For IASCC susceptibility.

MR. SAYOC: Okay. Shortly after Sequoyah ACRS Subcommittee meeting, and during the review of the RAI response, the Staff noted that the Applicant had not provided sufficient details regarding locations of the upper core plate where fluence projections would exceed the IE threshold margin of accuracy and qualification of the methodology. The Staff issued a follow-up RAI and requested the Applicant provide the following information; the upper core plate locations with peak projected fluence values, qualification and adequacy of the methodology, and any uncertainty or margin of accuracy. In addition, the Staff requested that the Applicant explain whether the projected fluence values reported

in the lower surface of the upper core plate for Sequoyah Unit 1 has been augmented to account for any uncertainty associated with the calculational methods, nuclear data, and modeling accuracy. Next slide.

The Applicant's response provided the radial locations with a maximum estimate of fluence values of the upper core plates for Sequoyah Units 1 and 2. In its response, the Applicant also stated that while there is limited actual measurement data available for benchmarking RVI calculated fluence values above the active fuel, available data agreed to within 10 percent of the Applicant's calculated values.

In addition to performing VT-3 examinations during ISI inspections on testable surfaces of the lower areas of the upper core plate surfaces, the Applicant stated that in addition, it would identify the observation of cracking in the lower core barrel girth welds as a basis for expanded inspections of the upper core plates by EVT-1.

The Applicant that doing so provides an additional level of conservatism since the lower core barrel girth welds will be inspected by VT-1, I'm sorry, EVT-1, and are exposed to higher irradiational levels and larger residual stresses than the upper

core plates. This new commitment, in addition to control rod guide tube lower flange welds acting as a primary component to the upper core welds again by EVT-1. Any degradation observed in either of the primary components will trigger EVT-1 examinations of the lower areas of the upper core plate surfaces.

The Staff finds the Applicant's response acceptable because (a) the Applicant performed the requested plant-specific evaluations; (b) the modeling approach and description was adequate and contains proper qualification and resolution for obtaining fluence data in the upper core region, thus providing reasonable fluence estimates for the Reactor Vessel Internals.

MEMBER REMPKE: Excuse me. Earlier in your discussion here you mentioned the available data were within a certain percentage of their calculations, and could you elaborate on what the available data are, and is there going to be a shortage of specimens in the future for benchmarking the calculations?

MR. SAYOC: Yes. Let me call on Ben Parks.

MR. PARKS: Yes, this is Ben Parks for the Reactor Systems Branch.

The available data for fluence qualification is largely focused on calculating

fluence and qualifying methods at the vessel, so the largest amount of qualification data comes from dosimetry capsules that are at the core periphery.

In our Request for Additional Information -- well, rather, in the Applicant's response, they mentioned that they had qualified against the VENUS PWR engineering benchmark, which included some more internal components, such as the core barrel and the baffle plates. But we acknowledge that (a) our regulatory guidance is focused on calculating vessel fluence, or vessel inner surface fluence, and so there is probably less data available for reactor vessel internal fluence estimates, such as at the upper core plates.

We are engaging in research right now to survey what qualification data would be available for that in the future, so more to come on that.

MEMBER REMPKE: Thank you.

MEMBER SCHULTZ: Emmanuel, in your previous slide as you discussed what was provided for evaluation in response to the RAI, you mentioned that the analysis was done for Sequoyah Unit 1.

MR. SAYOC: Right.

MEMBER SCHULTZ: Was that the lead plant unit evaluation that has been performed, or why are we

focusing on Unit 1 versus both units?

MR. SAYOC: Yes. Unit 1 was where they experienced the higher fluence levels. And I have Roger Kalikian here to expand more.

MR. KALIKIAN: The RAI was focused on --

MEMBER SKILLMAN: Sorry, your name?

MR. KALIKIAN: Roger Kalikian.

MEMBER SKILLMAN: Okay.

MR. KALIKIAN: We focused the RAI on Unit 1 because that had the higher fluence.

MEMBER SCHULTZ: Higher fluence just as a result of operation, or was there something done with regard to core management that makes it substantially higher than Unit 2?

MR. KALIKIAN: It wasn't substantially higher. It was just marginally higher, so it was --

MEMBER SCHULTZ: But because of reactor lifetime, or because of something different?

MR. KALIKIAN: Unit 1 started operations about a year earlier.

MEMBER SCHULTZ: And that's what we're accounting for, but in terms of a 60-year lifetime fluence we're not expecting significant difference between the two units?

MR. KALIKIAN: Those numbers that they gave

us were for 60 years, so they were slightly over. The Unit 1 just had a little bit over.

MEMBER SCHULTZ: Okay, thank you.

MR. SAYOC: Okay, continuing on. We're going over the reasons why the response was acceptable. Item C, the Applicant appropriately identified IE as an additional aging effect for the lower portions of the upper core plate which exceeded the established IE threshold. The Applicant revised its inspection scope to inspect those areas of the highest estimated fluence exposure during PO by VT-3.

And, finally, the Applicant conservatively linked the upper core plate as an expansion component to the lower core barrel girth welds and provided expanded inspections of the upper core plates by EVT-1 in the event of weld deterioration.

The Staff's concerns related to Open Item B.1.34-1 are resolved, and are closed as documented in the Final SER. Next slide.

In conclusion, on the basis of the Staff's review, the Staff has been able to determine that the requirements of 10 CFR 54.29(a) have been met and the license renewal of Sequoyah Nuclear Plants Units 1 and 2.

This concludes my presentation. Now, if

there are any questions, the Staff will take them at this point.

MEMBER RICCARDELLA: Yes. Is there any history of cracking of the upper core plate in PWRs?

DR. HISER: Not that we're aware of.

MEMBER RICCARDELLA: Okay, thank you.

MEMBER SKILLMAN: Colleagues, do any of you have a question or questions for the Staff? If none, Staff, thank you very much. And, Mr. Chairman, I turn the meeting back to you.

CHAIRMAN STETKAR: Okay. I will ask is there any member of the public in the room who has any statement you'd like to make? I don't know if we have any members of the public on the bridge line, and I don't know if we -- we need to get the bridge line open, see if there's anyone out there who'd like to make a statement.

MEMBER SKILLMAN: Kent is indicating it is open, Mr. Chairman.

CHAIRMAN STETKAR: Just because we have such a high tech system here, if there's a member of the public out there, just please say hello so that we can confirm that the bridge line is open.

PARTICIPANT: The bridge line is open.

CHAIRMAN STETKAR: Was that -- you are a

member of the public, and not one of the NRC people on the other line. Is that correct?

PARTICIPANT: That's correct.

CHAIRMAN STETKAR: Okay, thank you. And now I'll ask if there's anyone out there, members of the public, if you have any comments that you'd like to make. Please identify yourself, and make said comments. Hearing none, we will re-close the bridge line.

I'd like to thank the Staff, thank TVA. We're done a little bit early ahead of schedule here, so what I would like to do now, we'll keep on the record here for just a minute. This is pertinent for TVA and the Staff. In the spirit of constant changing our schedule for today, what I'd like to do is we're going to go off the record now and hold our Planning and Procedures part of our meeting between now and about 12:30 or so.

Why is that important? Well, it's important because it is open to the public, so if anyone is out there and wants to listen in, it is part of the meeting. We don't typically put it on the transcribed record, but it is open to the public, and I'll make sure everyone is alerted to that.

The reason it's relevant to TVA and the

Staff is that we'll hold to the agenda for 1:30 to 3:30 to have the briefing on the Risk Prioritization Initiative. Shortly after 3:30, after a break we will then start our deliberations on, first, the letter for Sequoyah. So, if there's any members of the Staff or TVA who want to sit in on that part of our letter writing session, it would begin shortly after 3:30 this afternoon, say 3:45, something like that. That's why I wanted to alert everybody to kind of the change in schedule.

And with that, we will go off the record and recess for about 10 minutes while I go figure out what the heck is available.

(Whereupon, the above-entitled matter went off the record at 11:23 a.m., and resumed at 1:32 p.m.)

CHAIRMAN STETKAR: We are back in session. And, again, because several of you were not here this morning, I would like to express my gratitude to the Staff. Everything that you've been through over the last 48 hours, not only putting up with the weather, but interactions with our Staff to make sure that we could pull this off this afternoon. We really appreciate that. We know that it's been a difficult time since Wednesday or so, and we appreciate and

really thankful that we had all of your cooperation on this.

And the topic we're going to address this afternoon is the Cumulative Effects of Regulation and the Risk Prioritization Initiative. And I guess I'll lead through that discussion.

Some background for the Full Committee, we have received written comments that have been distributed to the Committee from the Union of Concerned Scientists. Unfortunately, Dave Lochbaum briefed us on those early at a Subcommittee meeting in February. Dave wasn't available this week, so we have the written comments. And, Mike, I trust the ML number for any reference.

MR. SNODDERLY: Yes. For those who are interested, Dave Lochbaum's comments can be found in ADAMS ML-15058A784.

CHAIRMAN STETKAR: So, that's on the record. Thank you.

MEMBER BROWN: Did you bother to send them to us, or do we --

CHAIRMAN STETKAR: We have them. They have been distributed.

(Simultaneous speech)

MEMBER BROWN: Oh, at the Subcommittee

meeting?

MR. SNODDERLY: Yes.

MEMBER BROWN: Oh, okay, I'm good then. Thank you. They haven't changed.

CHAIRMAN STETKAR: We now have it on the public record for the ML reference.

We also will have an oral briefing at the end of the Staff's presentation by John Butler from NEI. He didn't come with any prepared slides. We also had a briefing from NEI at the Subcommittee meeting.

With that, I don't think there's anything more to discuss of an introductory nature. I will turn it over to Lawrence Kokajko of the Staff. Do you have anything?

MR. KOKAJKO: Thank you, and good afternoon. It's a pleasure to be here today. Seriously, it is.

CHAIRMAN STETKAR: Well, you're not out shoveling snow, so it's --

MR. KOKAJKO: Precisely. My name is Lawrence Kokajko, I'm the Director of the Division of Policy and Rulemaking in the Office of Nuclear Reactor Regulation, and on behalf of my division and the Division of Risk, we are pleased to provide this briefing to the ACRS.

Today our Staff will brief you on the Cumulative Effects of Regulation, known as CER, and the Risk Prioritization Initiative, or RPI, and the SECY Paper that is due to the Commission on March 24th.

As background, our CER efforts examine ways in which the Agency may be able to enhance the efficiency with which it implements regulatory actions while mitigating inappropriate impacts of regulatory activities. The goal of RPI is to enable NRC Staff and licensees to focus resources on issues that are most significant to public safety using risk insights and to incentivize the further use and development of probabilistic risk assessment.

CER and RPI were originally two distinct activities which had separate working groups, public meetings, and recommendations; however, as discussed in COMSECY-14-0014, these activities are closely related and we believe the RPI Initiative for operating reactors would help address aspects of CER. Thus, the CER and RPI working groups have merged to develop a paper that provides four consolidated options for operating power reactors. The SECY Paper also contains an update on CER efforts in the areas of fuel cycle and the Materials Program in addition to

operating power reactors.

As I mentioned at the Subcommittee we would welcome a report from the ACRS, and we look forward to seeing that, receiving that.

At this time, I'd like to introduce our presenters. The discussion on CER will be led by Mr. Steve Ruffin, a Project Manager in the Division of Policy and Rulemaking, and the discussion on the Risk Prioritization Initiative will be led by Mr. Antonios Zoulis, a Reliability Risk Analyst in the Division of Risk Assessment. And with that introduction, I turn it over to Mr. Ruffin.

MR. RUFFIN: Thank you, Lawrence. Good afternoon. I'm Steve Ruffin, and I will lead off the discussion on Cumulative Effects of Regulation. And as we go through the discussion there will be some switch back and forth between Antonios and I as we share some of the topics that will be discussed in the paper.

Our purpose today is to provide you with an overview of the Draft SECY Paper which is currently within the management concurrence process, and which is due to the Commission at the end of this month.

As background, in the outline there's a few points that we'd like to focus on in this meeting to kind of shorten the presentation from what we did

before. Before we went through the whole paper; today we have aligned this presentation so that we could present a few key messages, and then the four options along with the Staff's recommendation.

So, the paper responds to Commission direction in SRM-COMSECY-14-0014, which basically merged two SRMs, SECY-12-0137 and the COMGEA-12-0001 and 12-0002, which explains the way the paper is currently aligned so that we have basically merged the CER and the RPI discussions into one set of options and recommendations within the paper.

I'd like to begin by stating what is CER, and this was previously defined in SECY-12-0137, but for the benefit of the public I'll paraphrase that definition here. And, basically, the Staff characterizes Cumulative Effects of Regulations as the challenges that licensees or other affected entities face while implementing multiple regulatory actions within a limited implementation period, and with limited available resources.

MEMBER RAY: Okay, let me make a comment, probably. I don't think this will turn into a question, but I think this is the only place in your presentation that you have that phrase "limited available resources." Resources are always limited,

but how much they're limited varies tremendously. So, I guess I'm just going to make the comment as an individual here that I think it's better that we not get into well, this guy is in the market and he's more limited than this guy is in rate base, and he's not as limited, all that, because the idea that yes, some people are going to be really limited, and other people are not going to be as limited. And as I say, you're always limited, but there's a huge difference in how limited people are. It would be better to not talk about, or at least to minimize the discussion of how certain segments of the licensee population are really limited, and so we've got to be aware of that, because I think that's going to be very hard to manage. And I think it conveys a message that is neither correct, nor helpful.

MR. RUFFIN: Thank you. Any other questions or discussions on CER definition?

Slide 6. This is Staff's definition of Risk Prioritization Initiative, which we characterize as the use of a risk-informed prioritization methodology to enable licensees to focus resources on the most risk-significant issues before those that are determined to be less significant.

Next slide, Slide 7. In order to provide an

overview, the Staff has arranged for -- it's discussing three brief key messages slides here. The first one explains the Staff's efforts in the paper, which is to examine ways in which the Agency may be able to enhance the efficiency with which it implements regulatory actions while mitigating the cumulative impacts of regulatory activities.

RPI is viewed by the Staff as complementing CER, and if implemented could be used as an effective tool to reduce CER for operating power reactor licensees.

The next key message refers to the actions that the Staff has already taken, because the Commission has already approved in SECY-12-0137 several actions that the Staff has already taken. And this includes increased interaction with stakeholders throughout all phases of the rulemaking process, concurrent publication of draft guide, proposed rule, and final guide with the final rule, explicit request for stakeholder feedback on CER, and a public meeting and implementation during the final rule.

Slide 9, and the final key message. The Staff is evaluating the development of additional process enhancements to improve cost estimating based on the industry's case studies on the accuracy of

costs and schedule estimates. The Staff is examining whether incorporating case studies into the decision making process to prioritize NRC regulatory activities for operating reactors would enhance the efficiency with which it implements regulatory action and further mitigate the impacts of CER on operating reactors. And, finally, the Staff is exploring whether allowing licensees to use risk information to prioritize regulatory actions on a plant-specific basis commensurate with their safety-significance would mitigate the cumulative effect of regulatory activities on operating reactors.

CHAIRMAN STETKAR: Steve, just to make sure I've got it, and for the benefit of the other members. The first sub-bullet here is part of the initiative to update the -- I always get the -- it's NUREG/BR-0058, I think is the number, but it's the -- it's part of the regulatory analysis process. Right? The second two sub-bullets are part of what we're discussing in this meeting. Right?

MR. RUFFIN: Yes.

CHAIRMAN STETKAR: Okay. Good.

MR. RUFFIN: Slide 10. So, this slide is provided to illustrate the components of each of the four options as discussed in the paper, and illustrate

that the options build on each other, such that Option 2 includes the CER process enhancements already approved which is Option 1. Option 3 includes the expert panel, plus the risk-informed prioritization methodology in Option 2, in addition to the CER process enhancements in Option 1. Option 4 includes the CER and RPI enhancements in Option 1 through Option 3, and this also illustrates that the Staff proposes a phased approach. And as stated earlier, all four options pertain to operating power reactors.

So, let's discuss Option 1. Option 1 is the status quo. It includes those CER process enhancements that have already been approved. And I talked about some of them a moment ago, those things that were approved on 12-0137, and also the regulatory analysis improvements for cost estimates. And then the final bullet here is the expansion of CER to Generic Letters, which we also discuss.

The pros for Option 1 is that it doesn't require additional Staff resources. It maintains and continues the current regulatory approach that is well understood, and continues to implement those CER process enhancements that have been approved across the Agency.

The cons are that it would not incentivize

licensees to use or develop PRA models, and it may not resolve some of industry's concerns with existing or future requirements.

Option 2. As part of Option 2, Staff proposes that NRC either create an expert panel similar to the industry's GAET, or consider expanding the role of an existing panel to incorporate this function.

CHAIRMAN STETKAR: I'm sorry. You said industry's GAET. What is the industry's GAET?

MR. RUFFIN: Generic Assessment Expert Team.

CHAIRMAN STETKAR: Thank you.

MR. RUFFIN: The role of NRC's expert panel would be to make recommendations using risk insights and other relevant technical information to prioritize and eliminate, as appropriate, proposed regulatory actions. The expert panel or this function would be a recommending function which would make -- provide its recommendations to the NRR Office Director, who would be the decider.

MEMBER CORRADINI: And this involves the NRC Staff, and industry would already have -- I'm trying to understand how industry fits into this. I'm sorry.

MR. RUFFIN: Industry does not fit into the Option 2 expert panel. It's an internal -- it would be an internal expert panel that would use risk insights for the purpose of characterizing and prioritizing NRC activities that the Staff is proposing or considering.

MEMBER BROWN: I asked that question in the Subcommittee meeting from the standpoint --

(Simultaneous speech)

MEMBER CORRADINI: Get closer, Charlie. I can't hear you.

MEMBER BROWN: Oh, I'm sorry. How can they do this? But they called it more of a generic plant evaluate -- across the industry made by NRC, and if there plant-specific stuff, that would have to be addressed downstream by the industry. But they would try to do a screening just using, you know, generic plant information across the industry. That's the way they explained it to me. Now, whether that's right, wrong, or indifferent --

MEMBER CORRADINI: So, I'm trying to figure out where industry gets into this. That's what I --

MR. RUFFIN: At another phase of it. So, there are two parts of this. There's the NRC CER part of this, so the expert panel is CER. The Staff proposes some regulatory actions. We have an expert

panel, whether it's assigned as some function to a panel that currently exists, or we create it. And this panel is made up of senior managers and folks that have PRA expertise, using risk insights that the Staff has or gains. The Staff would then look at those regulatory activities and either prioritize them, or even eliminate some of those as far as what their recommendation would be.

MEMBER CORRADINI: Without industry input at this stage.

MR. RUFFIN: At that stage it would not be necessary. Not that, it would not be necessary to have industry input at that stage.

MEMBER CORRADINI: At this stage.

MR. RUFFIN: Yes.

MEMBER CORRADINI: And then just so I'm clear since I wasn't there, but I read something. Certain things are in, and certain things are out; that is, there are certain regulatory actions that aren't going to be considered in this evaluation.

MR. RUFFIN: Well, this is a pilot, so some of these things we'll want to sort out as we work the pilot out and kind of sort what's in and what's out, and how best to proceed.

MEMBER CORRADINI: Well, when you say

certain things are in or out -- in other words, all potential things that a plant would have to do being considered as a cumulative effect, or do certain things that you might determine to be on the way to being done, or of small value, they just have to go do. I'm trying to understand --

CHAIRMAN STETKAR: Let me see if I can try to say it differently.

MEMBER CORRADINI: Okay, sorry.

CHAIRMAN STETKAR: Suppose I'm a member of the NRC Staff and throughout the Nuclear Regulatory Commission there are various proposals, and let's say there's a dozen different proposals for regulatory actions that range -- address a variety of issues. Right now there's a process whereby each of those 12 regulatory issues walks through somehow internally to get to the point where decisions are made should we go forward with this issue. Right? And stop me when I'm wrong, because I'm trying to explain my understanding of this.

Industry is not necessarily involved in this. This is strictly in house. At some point, there are more formal analyses that are made; for example, that are governed under that NUREG that we talked about. At that point, risk actually is taken into

consideration. Does this potential regulatory action have a substantial effect on plant safety? But that's fairly downstream in the process, is my understanding.

MR. RUFFIN: Right.

CHAIRMAN STETKAR: My understanding of this panel is this panel would look at that dozen -- that pop of a dozen things and say what do we understand about risk of these dozen, and prioritize those dozen, let's say 1-12.

MEMBER CORRADINI: Based on risk.

CHAIRMAN STETKAR: Based -- partly based -- - at least using risk information to prioritize those so that the ones that would have higher priority to go through the system would -- part of that priority would be based on a risk --

MEMBER CORRADINI: Okay.

CHAIRMAN STETKAR: That's completely internal.

MEMBER CORRADINI: I understand, but is it all inclusive; that is, anything that a plant eventually would be subjected to is going to pass through this filter, or are there certain things that are small actions that will have to be done regardless of where they fit? In other words, that's what I --

CHAIRMAN STETKAR: These are regulatory

issues.

MEMBER CORRADINI: Right.

CHAIRMAN STETKAR: That would eventually --

MR. RUFFIN: It's not all inclusive. For example, an Antonios will discuss some of the things that the RPI addresses, for example. But, initially, we sort it in the paper, we're talking about rulemaking actions and Generic Letters, that are certainly part of the discussion right now. But as the pilot takes more shape, more specificity will obviously be drawn from it at that point.

MEMBER CORRADINI: But John's characterization was accurate, which means of this bundle of stuff that would be generic issues and rulemaking actions, and Generic Letters, sorry. But if there are -- well, let me stop. I understand, so it's a pilot. I'm still not completely there, but I'll wait. I'll wait.

CHAIRMAN STETKAR: But the key is there -- I mean, they might be for a sector of the industry in the sense that it might be a BWR issue, or a PWR issue, but it's not a plant-specific -- any plant-specific thought at this point.

MEMBER CORRADINI: Okay, thank you.

CHAIRMAN STETKAR: But that doesn't -- I

mean, you know, the Part 2 of Option 2 doesn't have a lot of elaboration on it, so that's why we're asking these questions.

MEMBER REMPKE: And we struggled with it during the Subcommittee meeting, too --

CHAIRMAN STETKAR: Yes.

MEMBER REMPKE: -- what its role is, and perhaps it needs to be fleshed out a bit more.

MR. RUFFIN: So, the pros for this expert panel that we talked about is that it could insure that NRC resources and skill sets are focused on the items of the highest safety-significance.

And then a con here that we've identified is that it would likely extend the overall development schedule of regulatory actions. Any other questions on the expert panel before we move on?

MR. ZOULIS: Thank you, Steve. My name is Antonios Zoulis. I'm going to be presenting the other three options to you.

For Option 2, the second part of the option builds on our existing regulatory processes, but augments it with a risk-informed prioritization process. So, a licensee who could conduct the prioritization process on site and evaluate that there's a regulatory action that needs to be -- their

schedule needs to be modified, they could submit to us via an endorsed process that we would look into revising the NEI guidance --

CHAIRMAN STETKAR: Antonios, just again to help us, we have two hours for this. This now, this part of Option 2 applies to regulatory actions, issues that have already gone through the internal NRC process. This is now issues that a plant is dealing with in realtime, so it's not this forward-looking, if I can characterize it that, of the NRC expert panel that we just finished discussing. This is now addressing how does an individual plant prioritize the regulatory issues, and whatever else is on their plate using risk information.

MR. ZOULIS: Thanks, Mr. Chairman. Let me step back a little bit. So, as the Chairman mentioned, these are for issues that already are out there, regulatory actions that could be rules, orders, license commitments that are already on their plate today. So, this part of the option deals with those. For future issues, Option 3, we'll get into that. So, there's kind of like distinction between Option 2 and Option 3.

MEMBER CORRADINI: Okay. I thought he just said it was --

MR. ZOULIS: The first part of Option 2 we just heard about future --

CHAIRMAN STETKAR: That is correct.

MR. ZOULIS: This is 2B if you want to call it that.

CHAIRMAN STETKAR: But the first -- we'll call them for the purposes of this meeting the first part of Option 2 which is actually the second part of Option 2, but the NRC expert panel part of Option 2 is strictly a forward-looking internal NRC --

MEMBER CORRADINI: Got it.

CHAIRMAN STETKAR: -- prioritization.

MR. ZOULIS: What you anticipate.

MEMBER CORRADINI: It's anticipate --

CHAIRMAN STETKAR: Right. Whereas, this is stuff that's already the plants have to do something with.

MR. ZOULIS: Right.

CHAIRMAN STETKAR: This is, in a sense, I hate to use the term but this is a reactionary prioritization for things that are already --

MEMBER CORRADINI: Or after lunch I would call it prospective and retrospective.

CHAIRMAN STETKAR: Yes, whatever.

MR. ZOULIS: I think maybe the next slide

will illustrate it a little bit. So, the NRC would endorse a prioritization methodology. The licensee would periodically evaluate the issues that they have on their plate today, and if they decide that there's some sort of schedule modification needs to be done, whether it be a rule, an order, a license amendment, or anything else, a license commitment, they would submit it and they would use this risk prioritization process to inform that decision.

We would then review that on a case by case basis, and approve or not accept on its own merits. So, it kind of streamlines the review of issues that they have on their plate now, and it kind of incentivizes the further use of PRA information to support those decisions.

So, as I mentioned, so the pros of this process is that it would further the use of PRA risk insights and potential development of PRA. It would support industry's efforts on the Cumulative Effects of Regulations, and focusing their resources on issues of greater safety-significance. And in the long term it could reduce the review time for exemptions, orders, commitment changes, et cetera.

CHAIRMAN STETKAR: And that would be because there was at least some sort of well

recognized process that's been used to develop these practices.

MR. ZOULIS: Exactly. We would be using a common frame of reference to make these decisions and, hopefully, as we do that, we'll get better at it.

Some of the cons are that in the short term it may increase the number of exemptions and the review times associated with those until, again, the Staff becomes more familiar with it. And, of course, it will require additional resources to develop the templates and Standard Review Plans which would support the more efficient review of these actions.

MEMBER CORRADINI: And everything on their plate using your cartoon on Slide 17, you don't --

MR. ZOULIS: Yes.

MEMBER CORRADINI: But anything on their plate will flow through this filter.

MR. ZOULIS: That is correct, if they choose. Remember, it's voluntary if they choose to adopt the process.

CHAIRMAN STETKAR: Okay. It's voluntary and it would be implemented from a regulatory perspective by a licensee filing a request for an exemption or changes to commitment. I don't remember what part of the law that's under, but that part of the legal

process would be used to enable this.

MEMBER RICCARDELLA: But in Slide 17 you refer to an ISG or a Reg Guide. You would prepare that? That doesn't exist now, does it?

MR. ZOULIS: No, no, that's what we would propose. And I think there was discussion last time whether or not a Reg Guide is necessary, some interim measure, and we'll evaluate that if this option gets approved by the Commission.

CHAIRMAN STETKAR: That's why I characterized the how of the -- how this process would be implemented is different than what the process is. Right now, the SECY Paper is focusing more on asking for Commission direction on the what, if you will, of these options.

MEMBER RAY: But the voluntary part of it presumes then that some people would do it, and some people wouldn't, just like fire protection.

CHAIRMAN STETKAR: Well, it's not like the fire protection.

MEMBER RAY: Well, it --

CHAIRMAN STETKAR: But it is a voluntary process.

MEMBER RAY: In the sense of whether you're going to do -- what I'm mulling over is, you have some

people in this system, each one of whom is different from the others, and then you have some people who are not in it at all, who didn't voluntarily --

CHAIRMAN STETKAR: That's right. Each plant would make their own value judgment to see if they felt the benefit to be accrued from implementing this is worth the effort.

MEMBER RAY: Yes. And so, presumably, you'd have different results depending on whether somebody was a part of the -- had opted into this, or had not. What I'm trying to figure out is for those who aren't participating, what happens to them in terms of the decisions that are being driven?

CHAIRMAN STETKAR: It's they do business the way they do business today.

MEMBER CORRADINI: For what's on their plate, but what's looking forward, it's -- they're included. But to answer Harold's question, those that are things on their plate, it's status quo.

MEMBER RAY: Yes, but I'm asking a question that has to do with the word "voluntary" that John used. And I'm trying to figure out what happens to people who don't participate in terms of requirements being applicable to them which this process might conclude should be deferred or not made applicable to

the people who participate? I mean, I used fire protection because that's an example of where some people participate, and some people don't, the consequences are different; some people have fire watches forever, and other people are able to avoid that, to use a simplistic model. And I'm trying to figure out what happens to the people who don't participate in this, do they get subject to the requirements that are being --

CHAIRMAN STETKAR: One of the things you may -- it's not my place to speak for the Staff. I think it's important for the members to understand that Option 2 applies to implementation schedules.

MR. ZOULIS: Correct.

CHAIRMAN STETKAR: It does not apply to removing --

MR. ZOULIS: Whether you do it or don't.

CHAIRMAN STETKAR: -- requirements from the plate.

MEMBER RAY: Okay, that's helpful, but still what's an acceptable approved schedule under this might be --

MR. ZOULIS: Can I -- maybe I can help you out. We currently have risk-informed license amendments which are voluntary. If someone wants to

come in and use a risk-informed argument they can. If they don't, they just use a simple deterministic evaluation. Same thing would occur here.

MEMBER RAY: Okay.

MR. ZOULIS: There's no difference in the way we would handle --

MEMBER RAY: I just want to make sure that I understood that, you know, something could get deferred here because people went through all of the boxes, demonstrated that that was appropriate given their risk situation, and others who didn't participate, or who did and came up with a different answer would be faced with a different set of requirements, a different schedule at least.

MR. ZOULIS: What I could speak is what we observed at the demonstration process. If the process is beneficial to the licensee and we observed that it was in many cases, they will use it. If they see that it's another burden or it doesn't support their evaluation, they won't use it. So, so far what we've observed is this is a helpful process for them to focus their resources on the most safety-significant issues and prioritize them using risk insights where they weren't doing that before.

MEMBER RAY: Okay. But they're starting

with a requirement that is generally applicable and we're now looking at each -- a person who wants to exercise the system to see well, on what schedule does it need to be implemented on my side.

MR. ZOULIS: Correct.

MEMBER RAY: Not is it something I don't need to do.

MR. ZOULIS: Correct.

CHAIRMAN STETKAR: For Option 2.

MEMBER RAY: Okay. I didn't get to go to the Subcommittee meeting so forgive my --

MR. ZOULIS: No, we're here to answer your questions. We welcome them.

For inspection enforcement we engage with our counterparts in the Division of Inspection and Regional Support, as well as the Office of Enforcement. They felt that any inspection enforcement impacts would be minimal since the changes will be done on a case by case basis. And, again, since we're reviewing it using existing processes that we have in place today that are only augmented with the risk-informed prioritization process.

Now, here's -- now, Option 3. Option 3 now deals with new rules, orders, or requirements going forward in the future. We would -- and I see Geary

Mizuno here who's been supportive of us in trying to craft the language for Option 3, that if a new rule or order is developed it would include in it flexible implementation language that the licensees could then use to prioritize or develop a plant-specific date for implementation. So, there could be a generic date that they could apply it if they could conform to the requirement, or they could use the risk prioritization process, the same process we discussed earlier to inform the date that they would implement this new rule or requirement.

MEMBER CORRADINI: And the difference here is that it's plant-specific?

MR. ZOULIS: Both are plant-specific.

MEMBER CORRADINI: Both are plant-specific.

CHAIRMAN STETKAR: Let me see if I can -- again, in my simple-minded, because I struggled with this one, too.

Case number one, I am a plant, a rule has been issued and I must comply with that rule. That's the situation today. Now, I decide to voluntarily adopt Option 2, and I look at everything that I'm doing, and I put the schedule for compliance with that rule somewhere in my list of priorities based on my plant-specific risk from that issue. That's Option 2.

Right?

MEMBER CORRADINI: But with review and agreement by the Staff.

CHAIRMAN STETKAR: With review and agreement by the Staff. Option 3 is a new rule comes up, Rule X New, and now as part of the rulemaking process for me, I am allowed to use risk information to develop my implementation schedule for that new rule. Is that correct?

MR. ZOULIS: Correct.

CHAIRMAN STETKAR: Okay.

MEMBER CORRADINI: So, can I clarify? Then in Option 2, the expert panel is only generic and, therefore, there is no scheduling. It just falls into -- I'm still trying to understand --

CHAIRMAN STETKAR: Don't think about the -- the expert panel is not part of this discussion. The NRC expert panel is not part of anything that we're talking about now.

MEMBER CORRADINI: Well, wait.

CHAIRMAN STETKAR: It's not.

MR. ZOULIS: It's part of Steve's presentation.

MEMBER CORRADINI: Well, it's -- the little white bar is in 2 and 3, so that tells me that if I've

got a new -- if I've got a bundle of 12 new things, in Option 2 you're going to determine internally how these things are risk prioritized.

MR. ZOULIS: Right.

MEMBER CORRADINI: In Option 3, you then allow the licensee to schedule it with his current plate of stuff upon review by Staff. That's what I read the difference.

MR. ZOULIS: If that action makes it out to a rule or requirement. It may not, as part of the expert panel evaluation.

MEMBER CORRADINI: Okay, fine. But if it makes it out --

MR. RUFFIN: So, let's say the expert panel, NRC's expert panel starts out looking at 10 issues, 10 regulatory activities, and maybe once it goes through, maybe only six of them make it out, make it -- maybe four of them they decide to eliminate. They don't -- and then the other six are ranked and prioritized, and the Office Director says okay, I'm going to do that. So, then of the six that have not gone out, then that's where the licensee would then have an opportunity to then propose their plant-specific implementation schedule.

MEMBER CORRADINI: For the six new ones.

MR. RUFFIN: So for what made it through that NRC --

MEMBER CORRADINI: Okay, but then wait. So my question is, I'm Plant X, and Plant X chooses to opt into Option 2 so that it has already prioritized with your approval stuff that's already on their plate. And six new things fall onto their plate. Why is it another option for that? Wouldn't they naturally prioritize those six with the other umpty-ump that they've already got?

MR. ZOULIS: The difference between Option 2 and 3 is that for 2, they would have to come in for an exemption to that requirement. In 3, the implementation language is already built in the rule. They would just inform us of the date of implementation, not come in and tell us -- you see there's a subtle difference, very subtle.

MEMBER CORRADINI: Boy, it is subtle.

CHAIRMAN STETKAR: On the other hand, Antonios, and this is where that subtlety comes in, but suppose we go through that process and I'm Plant X, and I today in all good faith for the new Rule N develop an implementation schedule that is now part of the rule as it applies to me. I do that, and I don't know what that implementation schedule -- that's out

over the next five years, something like that. Two years from now more stuff gets dumped on my plate. I can still go back under Option 2 --

MR. ZOULIS: Correct.

CHAIRMAN STETKAR: -- and request an exemption from my schedule for that new Rule N, but I have to do that through an exemption.

MR. ZOULIS: Correct. You would come -- of course.

CHAIRMAN STETKAR: So, I have the ability to do that.

MR. ZOULIS: The processes are built so there are checks and balances, again, to address issues of backstops and continuous defer -- and, also, for us to build more confidence in the process, so we have these checks, and --

MEMBER CORRADINI: So, under Option 2, any -- so, can I say it a different way so I -- because I'll forget this. So, for Option 2, any new thing that falls on the plate, they can only put it in some sort of rank order by an exemption. Under Option 3, they just do it and it's done. They do some sort of risk ordering and it's done. They don't have to go in for an exemption.

CHAIRMAN STETKAR: For a new rule the first

time.

MEMBER CORRADINI: For a new rule.

MR. RUFFIN: Because early in the -- in Option 3, because early in the process they got in with their plant-specific implementation schedule, so when the rule was --

MEMBER CORRADINI: Okay, fine.

MR. RUFFIN: It was in --

MEMBER CORRADINI: Okay. I think I got it.

MEMBER RICCARDELLA: But for Option 3, you write that into the rule.

MR. ZOULIS: Exactly.

MEMBER RICCARDELLA: You write that process into the new rule.

MR. ZOULIS: We're recommending piloting Option 3, and hopefully all those details will be fleshed out once we do that, but we're trying to still work through the actual implementation details of Option 3.

MEMBER RAY: Do any of these exemption requests trigger opportunity for public hearing?

MR. KOKAJKO: Excuse me. Lawrence Kokajko,. Geary Mizuno is going to --

MR. MIZUNO: Microphone on?

CHAIRMAN STETKAR: Yes.

MR. MIZUNO: This is Geary Mizuno of the Office of the General Counsel. If the exemption request is in itself sufficient to allow the licensee to do something without anything more, then there would not be a hearing opportunity associated with the issuance of the exemption. However, if the licensee had to do something else and get NRC approval by regulation; like, for example, if they had an FSAR statement or discussion which had to be in the FSAR pursuant to 50.34 or some other regulation, and they could not meet 50.59, and they would have to come in for a change in order to implement the exemption, then there would be a hearing opportunity associated with the associated change.

MEMBER RAY: Okay, that's good. Thank you. But the rule, frankly, that I'm asking for an exemption itself alone doesn't trigger that opportunity.

MR. MIZUNO: That is correct.

MEMBER RAY: It's only the conditions that you --

MR. MIZUNO: That is correct.

MEMBER RAY: -- described.

CHAIRMAN STETKAR: And those conditions wouldn't be any different if I'm filing an exemption

under this risk prioritization, or if I file an exemption today. Right?

MR. MIZUNO: Yes.

CHAIRMAN STETKAR: It's the nature of the exemption itself.

MR. MIZUNO: Yes, it is the nature of the exemption, and whatever conditions the NRC chooses to impose, or which the licensee proposes that the NRC impose. All that would be, again, within the scope of the exemption, and unless it involved a separate thing that required a license amendment --

MEMBER RAY: Yes, that's the key.

MR. MIZUNO: Right. There would be no opportunity for hearing.

MEMBER RAY: I do understand that part of it.

MEMBER CORRADINI: Thanks, Geary.

MEMBER RAY: But the real nub of the question was, can -- what's the likelihood or the opportunity to challenge the request, that exemption in the first place that we're talking about. Okay.

MR. ZOULIS: So, the next slide just illustrates, it's a graphic representation. You have a new rule, order; we would have a Reg Guide that endorses a method for risk prioritization. The rule

would contain the generic -- or in the rule there would be language embedded so that the licensees could use that to prioritize the date of implementation.

For the pros of this option, the pros are that it would further the use of PRA risk insights and the potential development. It, again, supports current industry's concerns on the Cumulative Effects of Regulations, and focuses their time and resources on issues of greater safety-significance. It allows the licensee to submit to us a flexible plant-specific date of implementation. And we feel -- the Staff feels that as more of these are developed it could reduce —- it may reduce the number of schedule exemptions going forward.

MEMBER SCHULTZ: Antonios, on 22, why does the box say that the rule would contain proposed generic date or other plant-specific approach? I thought it would include both.

MR. ZOULIS: Because for the licensees who don't choose to apply this process --

MEMBER SCHULTZ: It would be both. I understand the generic date is for everybody --

MR. ZOULIS: Oh, it's and. I'm sorry.

MEMBER SCHULTZ: Okay. Then the option exists if someone chooses to look for a plant-specific

opportunity.

MR. ZOULIS: Right.

MEMBER SCHULTZ: Thank you.

MR. ZOULIS: Of course, the cons would be that it would require additional Staff time and resources to develop the final rules, but Option 3 alone does not deal with current requirements. That's why Option 2 would handle that area, the ones that are already on their plate.

MEMBER RICCARDELLA: But your earlier chart showed that Option 3 is just adding something to Options 1 and 2. Right?

MR. ZOULIS: Correct. We may have to modify that. I was looking at the -- if you just implement Option 3 alone.

MEMBER RICCARDELLA: Okay.

MR. ZOULIS: For inspection enforcement, again, we engaged our counterparts and their feedback was that it could impact the inspection planning and schedules going forward. But, again, if there was overall coordination between the inspection staff and the Region, this could be a manageable issue.

CHAIRMAN STETKAR: I think even in the Subcommittee meeting there was mention that it in principle could improve efficiency because you could

-- you'd now have the ability to --

MR. ZOULIS: Plan.

CHAIRMAN STETKAR: -- schedule inspections in series out over time rather than having these parallel bow wave come up because of the schedule that applies uniformly to everyone.

MR. ZOULIS: That's right.

Now, for Option 4, this option, this one explores rulemaking to develop a new process, so you would develop a new rule, a risk prioritization rule that would allow licensees the flexibility to reschedule regulatory requirements without the need of prior NRC review. So, this would be something where we would then go out to rulemaking to develop a risk prioritization process and delineate the requirements of what would be necessary to be able to prioritize issues. And I'd like to use Steve's -- now, shuffle the deck, so they could -- multiple cards and shuffle the deck on their own without coming to us and informing us.

The pros of this option are that it would defer the use of PRA risk insights and, again, the potential development of PRA. It allows licensees flexibility in scheduling implementation of regulatory requirements. It would in the rule delineate the level

of PRA development and the regulatory flexibility available to them, and has the potential to obviate the need for schedule exemption.

The cons of the rule, the new rule itself, again, if you look at the Option 4 alone, it would not address currency concerns due to the nature of rulemaking, it may take two or three years to complete. That wouldn't address the currency concerns. It, of course, would require additional Staff time and resources to develop the new rule. And, again, even with a full scope Level 1, Level 2 PRA you wouldn't be able to -- you still have the issues of emergency preparedness, radiation protection, and security that are amenable to quantification, that you'd still have to figure out how to handle.

The inspection and enforcement issues, this would be my -- after similar performance-based risk-informed regulations, we would have a formal pilot, and then we would roll it out to all the licensees, and then audit them, and eventually we would include this into their baseline inspection.

The enforcement and inspection, this option is a little bit more involved. I'm not going to go through all of them, but you can imagine now you're the -- each licensee is allowed to re-prioritize and

reschedule regulatory actions on a plant-specific basis. They would require developing new baseline inspections, procedures, and additional resources. It's a little bit more challenging. There's a little bit more things that need to be thought out for this option if it's approved by the Commission.

Now I'm going to give it to Steve to go over the recommendations.

MR. RUFFIN: Yes. So, our last two slides here is on the recommendation. Essentially, what we're recommending to the Commission is that they approve Option 2 which has two parts. It has the expert panel part, which is CER. Right? Which is, you know, some of these things internally where we talked about prioritizing and possibly eliminating, so there's a CER part of that as a pilot. And then the second part of Option 2 is the Risk-Informed Prioritization methodology that we talked about, that would be used within our existing processes. It would complement that.

MEMBER CORRADINI: Just to clarify. You used the word "pilot" with Part 2 of Option 2, but yet in the slides you're talking about a pilot for Option 3. So, are there really two pilots?

MR. RUFFIN: There are two pilots.

MEMBER CORRADINI: Okay.

MR. RUFFIN: So, we want to pilot the expert panel because --

MEMBER CORRADINI: No, that's fine. I just-

MR. RUFFIN: Okay. So, essentially, we're asking the Commission to approve Option 2 which has the two parts we mentioned, and to allow us to pilot Option 3 which is the voluntary flexible implementation schedule.

MEMBER CORRADINI: And then just for a test for me, the difference is the exemption or no exemption path, the lack of need to go seek an exemption in Option 3.

MR. RUFFIN: Yes.

MEMBER CORRADINI: Okay. Whereas, in Option 2 they could it, but they'd have to come in and say I want to put it fourth in line, but I've got to get an exemption for it to be fourth in line.

MR. RUFFIN: Yes.

MEMBER CORRADINI: If they didn't get the exemption where would it appear, number one in line?

MR. RUFFIN: You know, whatever -- they could schedule their own.

MEMBER CORRADINI: Whatever date the rule is --

CHAIRMAN STETKAR: It's a schedule, so --

(Simultaneous speech)

CHAIRMAN STETKAR: -- it ties into the existing schedule.

MEMBER CORRADINI: Okay. All right.

MR. RUFFIN: So, and then what we say in the paper is after we've obtained feedback and Lessons Learned from the Option 2 and the pilot of Option 3, then we would go back to the Commission with a paper and provide them our results, and seek further direction if we believe it's warranted at that time. And that concludes our presentation today.

MEMBER SCHULTZ: Well, just on that last point, Steve. If you get approval to pilot the piece of Option 2 and pilot Option 3, it seems like you owe a report back associated with the results of that in any case, and then let the Commission decide what goes next. In other words, rather than the Staff piloting it and deciding on its own that it didn't work so well, or it worked really well.

MR. RUFFIN: Right.

MEMBER SCHULTZ: So, it seems like there's more action that needs to be taken on the piloted activities.

MR. RUFFIN: Yes.

MEMBER RICCARDELLA: On the previous slide, do I understand the --

CHAIRMAN STETKAR: Pete, sit up closer to the microphone.

MEMBER RICCARDELLA: I'm sorry.

CHAIRMAN STETKAR: Or speak louder.

MEMBER RICCARDELLA: Part 1 really allows the utilities or the licensees to do a risk-informed prioritization process. Correct?

MR. ZOULIS: Correct.

MEMBER RICCARDELLA: Then they must come to you for approval.

MR. ZOULIS: Correct.

MEMBER RICCARDELLA: Okay.

CHAIRMAN STETKAR: Anything more for the Staff? There is some pretty subtle stuff here, and it's important that the members understand the differences.

MEMBER SCHULTZ: Option 2, Part 1 has been piloted through the industry activities and the development of how that process would work. When you presented Option 4, you seemed to take at least some elements of that on the con side of Option 4. I guess my question is, is there something that was learned in piloting the licensee part of Option 2 that made the

Staff believe that Option 4 is a real high hurdle?

MR. ZOULIS: Well, I mean, there's a lot of -- it's effectively a change in how we would do business by allowing licensees to prioritize on their own schedules of the regulatory requirements without notifying us. Part of the issue when we observed the demonstration pilots is that the licensees knew that those alone aren't substantial enough to support those kind of regulatory actions, and then the documentation necessary to be available for review. In other words, it would make it a very burdensome process if we went down that path. So, when we concluded that, when we developed Option 2 we felt that if there was an item that rose to a level of a schedule change and was warranted, then they could submit the information that would be available in the -- we were giving in the Reg Guide as we endorsed it, or in the process, and then they could submit to us that one item for review, as opposed to now making sure that the information they had available to reschedule or reshuffle everything on the deck was available for inspection and all that rigor that entails those kind of items. So, that's kind of like the insight that we gained from that. So, there's a lot more when you just hand off, I don't want to use that term, but if you just allow licensees

to be able to shuffle everything on their deck, all the regulatory items. And I think the industry didn't feel comfortable -- I mean, John probably could speak to it later on, but in the Subcommittee last time, I don't think the industry thinks we're there yet, too.

MEMBER SCHULTZ: Right. But in Option 4, you have one slide, this slide that's labeled "Cons," but also on the inspection and enforcement slide, the previous slide to it, you had a number of reasons why inspection and enforcement would be difficult. And it may be difficult not only for the Staff, but also for the licensee, even though they think they're gaining ground. It would be the communication, as well as the implementation could need some pilot activities to see if it, in fact, would really work well.

MEMBER RAY: Could you go to 31. You're done?

MEMBER SCHULTZ: Yes, thank you.

MEMBER RAY: Here the word is a rule. On 21 it says rules and orders, and I guess I just -- do you always mean rules and orders, or do you just mean rule here on page 31, not order?

MR. RUFFIN: We just mean rule.

MEMBER RAY: Well, why --

MR. RUFFIN: The -- because we're talking

about -- you mean early when we're developing a rule. You're talking about 31. Right?

MEMBER RAY: I say 21 you says rules/orders.

MR. RUFFIN: Right. And on 31 we say rule.

MEMBER RAY: Yes. So, you don't mean rules and orders.

MR. RUFFIN: Yes, we just mean rule.

MEMBER RAY: Okay. I guess I'm groping here. Okay. I understood when rules and orders, either way you are impacting a licensee, but you mean what we're talking about here on 31 to only apply to rules. And so the next logical question is well, what about if they're being impacted by an order?

CHAIRMAN STETKAR: I'm glad you brought that up. I just pulled up the SECY Paper itself. The SECY Paper in Option 3 strictly discusses rules. It does not have this --

MEMBER RAY: Why would it not involve an order?

CHAIRMAN STETKAR: Order.

MEMBER RAY: When I saw it on 21, John, we were --

(Simultaneous speech)

MEMBER RAY: Well, either way --

CHAIRMAN STETKAR: No, that's right. I didn't even pick up on that because I was too close to it. The SECY Paper itself, Option 3 -- I'm trying to read things quickly here. I don't see the word "and orders." It just says "rule."

MEMBER SCHULTZ: I guess the question would be in the text, does it also refer to rules, orders, or other regulatory actions?

MEMBER RAY: It should be just rules here. Is that right? Okay.

CHAIRMAN STETKAR: In 3.

MEMBER RAY: Then I'm -- I've changed my perspective, I guess. I thought it was talking about rules and orders, and I only noticed that it had gone to limited to rules when I got to page 31.

MR. KOKAJKO: May I add? This is Lawrence Kokajko, regarding Option 3, is what we're talking about.

MEMBER RAY: Well, on 3 we're comparing what is the cause of the impact, is it different in 3 than 4?

MR. KOKAJKO: Well, right now 3 is the pilot approach for what we're trying to do, but when you're talking about orders or rules, I would rather think of that in terms of any requirement that we

would impose upon a licensee.

MEMBER RAY: That's what it looks like.

MR. KOKAJKO: It's easier for us to sort of shorthand it and say it's a rule, but --

MEMBER RAY: I'm sorry, I --

MR. KOKAJKO: But, quite frankly, you're correct. It could be an order, as well, but it would be any imposition of a regulatory requirement --

MEMBER RAY: Yes.

MEMBER RICCARDELLA: If you go back to 17, it -- in the chart it says -- in the third box over it says "rules, orders, license amendments," or other stuff.

MEMBER RAY: Yes. Well, that's what I thought we were talking about until I got to 31.

(Simultaneous speech)

MR. RUFFIN: But that's Option 2. That means they have to come in for approval.

MEMBER RAY: Okay. But I hadn't gotten -- I was trying to find out is there a meaning in not using rules and orders on page 31?

(Simultaneous speech)

MEMBER RAY: -- to be there isn't.

MR. ZOULIS: For the pilot we're going to focus on rules only.

MR. RUFFIN: Option 3 we're asking to pilot some rules.

MEMBER CORRADINI: Just for the rules.

VICE CHAIRMAN BLEY: But would that same process work with orders? I mean, you'd have to have it in place before the order came out, and orders tend to come more quickly.

MR. MIZUNO: This is Geary Mizuno again, Office of General Counsel for NRC. There is definitely a distinction between orders and regulations. And although the process in terms of the technical and regulatory considerations for both CER, in terms of how the NRC lines up requirements, as well as for RPI, which is how a licensee is going to deal with scheduling of regulatory requirements. The technical and regulatory requirements are essentially the same, okay, whether it's a regulation or an order, but the way you implement the NRC approval of a change in a schedule from that defined in a regulation versus that defined in the order is going to be different.

Now, for Option 4, if it were to cover orders to have this regulation cover a rescheduling of an order, I think that that's something that OGC has raised as a concern. I don't think we need to deal with it now, so I think that's what was reflected by

the Staff, was that right now the focus is on -- as far as Options 3 and 4, it's on rules. But for Option 2 there's no problem with having it by order. You just have to understand that the change in the schedule for an order is going to be accomplished through a different means, the issuance of an amended order or a superseding order as opposed to an exemption which is a rulemaking kind of a thing.

MEMBER RAY: Did you say that both 3 and 4 then are limited to rule?

MR. MIZUNO: Right now, the Staff is looking at that. There would be legal concerns. I'm not saying there is a -- that we couldn't get over them, but we have to consider them as to how we would write a regulation that allows for reprioritization and scheduling of a schedule that's set forth in an order.

MEMBER RAY: Okay, I got you. I agree that sounds correct.

MR. MIZUNO: For Option 2 there's no problem with having Option 2 apply to both regulations and to orders with respect to their scheduling.

MEMBER RAY: Yes.

MR. MIZUNO: Just understand that the way that the NRC is going to give that approval is going

to depend. For a regulation it's going to be through an exemption; for an order it's either going to be a superseding order, or an amended order of some kind.

MEMBER RAY: Okay. Well, I just one suggestion which is because I was going down the track the gentleman over here reflected in his comments, I think it would be good to be clear about the limitation that you just described.

MR. MIZUNO: Yes, that was --

MEMBER RAY: But that's the only force that we're talking about right now is the rule --

MR. MIZUNO: Yes, that's a very --

MEMBER RAY: -- in 3 and 4.

MR. MIZUNO: -- good observation, and it's already in my head.

MEMBER RAY: Thank you. Okay.

CHAIRMAN STETKAR: Any other questions for the Staff? If not, thank you.

MR. RUFFIN: Thank you.

CHAIRMAN STETKAR: It's a learning experience.

We've had a request by NEI, John Butler, to give us the industry's thoughts on this, so I'll ask John to come up and take the hot seat. Have the visual props, which we can't point at anything, but we

can at least listen.

MR. BUTLER: This is now called the hot seat?

CHAIRMAN STETKAR: That is the hot seat.

MR. BUTLER: I got you. Well, thank you. My name is John Butler. I'm Director of Strategic Programs at NEI, and I was very much involved in the piloting of the prioritization process last year at six different sites. And I thank you for at least allowing me the time to provide my perspectives on the Draft SECY.

A number of things came up in the discussion. I wish we would have had a little bit of opportunity to give you a more thorough brief of the pilot that we conducted last year. I think we learned quite a bit from that pilot, and I think what we learned, the positives and negatives are reflected in the Draft SECY that the Staff is putting forward. And I really do appreciate the time and effort that the Staff has put into the monitoring and commenting on the process that we developed and piloted. It certainly benefitted from the Staff's input.

CHAIRMAN STETKAR: John, just for the benefit of the record, we did have a Subcommittee meeting last fall --

MR. BUTLER: Yes.

CHAIRMAN STETKAR: -- where NEI and I think there were representatives from each of the plants.

MR. BUTLER: Yes.

CHAIRMAN STETKAR: I mean, we had presentations from at least three or four of them discussing in some detail the results of the pilot process. It was a Subcommittee meeting.

MR. BUTLER: Right. This is the first time the Full Committee is --

CHAIRMAN STETKAR: Yes, we had a meeting with NEI as a Full Committee, and it was sort of mentioned briefly in that meeting, but not in any detail. The Subcommittee has certainly heard a lot more of the details of that pilot process and the conclusions.

MR. BUTLER: As far as the Draft SECY, we're very encouraged with the direction that the Draft SECY has taken. Option 1, which is continuation of the Staff's current CER activities. We encourage that. Option 2, and I'll refer to it as 2A and 2B just to distinguish the two; 2A being endorsement of the plant-specific prioritization effort, and 2B being the Staff's expert panel. We're certainly pleased with the direction of Option 2.

Comments on Option 2A, the plant-specific prioritization, we would like to see the Staff activities to endorse that process moved with some dispatch. Our desire is that we be in a position to roll that out to the industry as quickly as possible. The draft SECY discusses endorsing the process through a Reg Guide. That process would provide a very durable endorsement, but can take some time to accomplish, up to two years. So, in the meantime we would like to see either endorsement through a letter, or an ISG in the interim to provide us the level of comfort, interim level of comfort so that they can proceed with implementing that process as quickly as possible.

It would also provide an opportunity with plants implementing it through that expedited means to provide some additional experience with the process before it's finalized through a Reg Guide, so I think it benefits both parties in doing it through that fashion.

If possible, we'd like to be in a position to roll this out to the industry as early as the end of third quarter, early fourth quarter of this year beginning with a work shop.

Option 2B, the expert panel. As you noted in your discussion today, there's a lot of detail that

has not been specified in the Staff's discussion of Option 2B, the expert panel, so it's difficult for me to provide any clear comments on a process that hasn't been well defined.

We do think there's a lot of value in exploring the expert panel use within NRC. I think there is an opportunity to use that prioritization process in a number of ways within NRC. Any new, emerging regulatory issue, be it a generic issue, any kind of regulatory issue, or even through the new rulemaking process as a way to kind of prioritize NRC resources and make sure that they have the appropriate Staff available on the schedule that's needed. Also, it would help define how you move forward with different regulatory issues in that it allows an opportunity to more clearly define what population of plants, or what characteristics of plants are most affected by the issues that are raised in the issue, so it does provide an opportunity to kind of direct how you proceed forward on emerging issues. We are supportive of both 2A and 2B.

Option 3 where the Staff is proposing to pilot a rulemaking that would allow a plant to specify within defined bounds their own implementation schedule. We're very supportive of that, also. What we

would like to see is that explored -- let me back up. How that's -- the value of that pilot application is very much influenced by the rule that you pick to pilot, so depending upon which rule is picked to pilot, it may be more valuable to pick multiple rules to give you some greater level of experience with that through the pilot, or you may be lucky enough to pick the right rule in the first place to pilot it, but it's very -- depending upon which rule you pick, you may not get adequate information through a single pilot to really inform whether it's appropriate to move forward. So, I'd like to see consideration of either multiple rules piloted within a time frame, or something along those lines to give us confidence that you'll have the adequate information to inform a decision in the end.

I've taken a little bit of time to think of what rules would potentially provide value as a pilot. The one rule that I'm familiar with that might benefit is the 50.46(c) rule. Right now, the implementation of that rule is -- the plant implementation schedule is defined primarily by the level of effort a plant would have to go through to implement it, whether they have to do an evaluation of their existing LOCA analysis or they're going to have

to do a re-analysis using a best estimate LOCA. That kind of defines which implementation bucket they exist. That may be a good starting point, but if you were to inform that implementation schedule through this process, you might provide a little bit more latitude for plants in their implementation schedule. So, that's one example of where you could pilot this process on rules that are currently in the pipeline.

Option 4, my opinion of Option 4 in terms of how to go forward with that is, I agree with the Staff that it's not quite ready for prime time. I think there needs to be a little bit more experience gained with this process through our implementation of Options 2 and 3. I think that would better inform how to move forward with Option 4, so while I don't see a problem with Option 4 sometime in the future, I would like to see a little bit more experience before we move forward with it. And I will stop there and answer any questions that you may have.

MEMBER POWERS: John, if we stipulated that it is useful to allow licensees to marshal resources in an optimized fashion, have you thought how the regulatory system could then do that in these various options?

MR. BUTLER: I'm sorry, I missed part of

the question.

MEMBER POWERS: Well, what you're saying is okay, I've got a bunch of things to do, and I have finite number of resources, which tend to be people resources. It may be money, but more often it's just skilled manpower to do things, and I'd like to use that in some sort of an optimal fashion presuming I have to get through all of these things that I have to do, but it may be more useful to do the five easiest ones first, and then put a bunch of people on the sixth really hard one, or some combination known best to the licensee than to me.

But now suppose I have a regulatory action. They want you to have that luxury of doing that. Have you thought about how they would cast it to prevent you from doing these things?

MR. BUTLER: How the --

(Simultaneous speech)

MR. BUTLER: -- cast it?

MEMBER POWERS: Yes, how it could be cast to undo the luxury of optimizing resources by the licensee?

MR. BUTLER: Well, I mean, under Option 2A, any change to a commitment or change to a rule schedule would have to go through a process, a

commitment change process or an exemption request, and as part of that, the Staff would have an opportunity to review the requested schedule change, and either come back with changes to it, or deny it all together. That process exists currently.

What we'd change with Option 2A is the basis supporting the licensee's request for that change. This provides now an endorsed, hopefully an endorsed process that would be used by the licensee to support the change they're requesting. Yes?

MEMBER RICCARDELLA: Is it the expectation that that process requires a full blown PRA with a quantitative comparison of risks, or are you allowing for some judgments to be made on qualitative factors to say I, you know --

MR. BUTLER: The process does not require a full quantitative PRA evaluation. If you have that information available, it's factored into the overall evaluation, but the factors we're looking at through this process in some cases, it would be very difficult to quantify using current PRA models. You're looking at plant safety, you're looking at security, EP, RP, and reliability, and a number of those factors quantifiable PRA numbers just won't be available.

MEMBER RICCARDELLA: Okay. That's your

expectation, and is that consistent with the Staff's expectations?

MR. KOKAJKO: Yes, that's consistent with our understanding, as well.

MEMBER RICCARDELLA: Thank you.

MEMBER POWERS: Here's what I'm worried about, quite frankly, is that we get a proliferation of orders for specific dates in the place of regulations that get deliberated. To subvert the prioritization we feel as if some perception that things are -- need immediate -- to be immediately addressed; particularly after an incident, we get a lot of orders. So, I'm just thinking about if you had this prioritization scheme, how does somebody undo it and circumvent it?

MR. BUTLER: Well, I want to --

MEMBER POWERS: Not the licensee, the regulatory system. I know how you guys could circumvent it.

MR. BUTLER: I mean, you're talking about problems that plants are dealing with right now, so if we look forward to a time when we had this process in place, there will be certain instances, certain things that you automatically exclude through this prioritization process. Any regulatory action under

adequate protection automatically is excluded from this process, so if you're talking about an order that is put forward under -- as a measure of adequate protection, it's not even included. It would never be --

(Simultaneous speech)

MR. BUTLER: All other actions, this process allows you to look at the plate of activities that a plant is dealing with, both plant-initiated and regulatory actions, and reshuffle that plate and the schedules in a manner that makes sense, that's prioritizing different aspects of safety, and to -- if that involves a change to a regulatory commitment or a rule schedule there's a process you would follow using that prioritization as the basis to recommend that change.

A lot of that process exists right now. The only thing we're adding to the process through this prioritization is a well understood process to support the basis of the change.

MEMBER SKILLMAN: John, is there any portion of current rulemaking that is not a candidate for Option 2A, 2B, or Option 3?

MR. BUTLER: Beyond what I've mentioned, an exemption, something that's adequate protection, I

can't think of anything.

MEMBER SKILLMAN: All right. Let me give an example. I could see a clever plant staff using a tool like this to stop doing preventative maintenance. I could see abusing a 50.65. I could see clever people saying it is so doggoned hard to keep testing those pumps out there. It's cold, it's miserable, it's wet, they're dirty, they're under all kinds of silt and goo, and right now we've got a quarterly surveillance. And you know what the likelihood of burning one up or not having one function is so low, we're not going to maintain the columns, we're not going to maintain those any more, or we'll do it once every 10 years instead of once every three years.

MR. BUTLER: The guidance that we put forward that's being reviewed by the Staff identifies activities, such as preventative maintenance, O&M, or any activity that you need to keep the plant in an operable state, or a safe state, those are excluded from this process.

What we're looking at through this process are the larger projects, the thing you schedule for the next outage, you know. Because this process does take time and effort to implement, you're putting together a very valued resource of personnel to review

this, this is not something that you would even want to include some of the normal, you know, plant activities as part of this process. This is probably -- it only makes sense for the larger project-type activities.

MEMBER SKILLMAN: Well, I appreciate your explanation, but how then are the types of things that I am speaking about excluded?

MR. BUTLER: We exclude normal preventative maintenance activities explicitly in the guidance to say these are not included in the process.

MEMBER SKILLMAN: Okay, thank you. Fair enough. Thanks.

MEMBER POWERS: The licensee can come in and say based on the risk analysis those pumps need to be done every 10 years instead of every quarter based on risk. I mean, they're still open for you to do.

(Simultaneous speech)

CHAIRMAN STETKAR: Plants can come in with, as Dana said, with a request to risk-inform their technical specifications, allowed outage times, and surveillance intervals provided that the -- I mean, that already exists. Some plants, in fact, several plants have done it with selected allowed outage times. That's already programmed, it's well

established.

MR. BUTLER: Thank you.

MEMBER SKILLMAN: Thank you.

MEMBER RICCARDELLA: You know, an example, plants that are now required to update their seismic ground motions as part of this Generic Safety issue. Would that be a candidate for this? Someone could say well, I have a March 2015 date, I'd like to extend -- you know, I'll show that I'm not as significant risk, and I'd like to extend that a couple of years.

MR. BUTLER: Potentially. During our pilot there were several Fukushima-related activities that were taken through the process and evaluated. I don't -- in no case did a plant act upon any results from that, but it did provide us some experience in looking at activities like that.

CHAIRMAN STETKAR: Anything more for John? John, thank you very, very much. It was really helpful.

MR. BUTLER: I appreciate that.

CHAIRMAN STETKAR: With that, what I'd like to do is see if we can get the bridge line open and ask, first, do we have any members of the public here, or anyone else in the room who would like to make any comments? Let's see if we can get the bridge line

open. Again, I have to apologize. If there's someone out there, could you just please acknowledge your existence by saying hello or something. That's the only way we know.

MR. DUBIE: Don Dubie out here.

CHAIRMAN STETKAR: Hi, Don. Okay, now if there's anyone out there on the bridge line who'd like to make a comment, please identify yourself and do so.

MR. CHAPMAN: Jim Chapman. Good meeting. Thanks for having the bridge line.

CHAIRMAN STETKAR: Thanks, Jim. Anyone else like to make a comment? If not, we will re-close the bridge line and I'll thank the Staff again and John for heroic efforts to accommodate us. I think we're all glad that we could have discussion.

I'll turn it back to me. Thank you, and we will now adjourn as far as the record is concerned, and let's reconvene at 3:10, and we'll take up first the Sequoyah License Renewal letter. After that we'll read through the letter for the Risk Prioritization, so if you folks are interested in hearing what we have to say it'll probably be 3:30ish or so. We're recessed until 3:10.

(Whereupon, the above-entitled matter went off the record at 2:54 p.m.)

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ACRS Briefing:
March 2015 Cumulative Effects of Regulation/Risk Prioritization Initiative Paper

March 6, 2015

Steve Ruffin
NRR Division of Policy and Rulemaking
Antonios Zoulis
NRR Division of Risk Assessment

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Purpose

- Provide an overview of draft SECY-15-XXXX, “Cumulative Effects of Regulation Process Enhancements and Risk Prioritization Initiative: Response to Commission Direction and Recommendations”

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Outline

- Background
- Key Messages
- Cumulative Effects of Regulation and Risk Prioritization Initiative Options
- Recommendation

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Background

- SRM-COMSECY-14-0014 (July 18, 2014; ADAMS Accession No. ML14199A187)
  - SRM-SECY-12-0137 (March 12, 2013; ADAMS Accession No. ML13071A635)
  - SRM-COMGEA-12-0001/COMWDM-12-0002, "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency" (February 5, 2013; ADAMS Accession No. ML13037A541)

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What is CER?

Cumulative Effects of Regulation (CER) can be characterized as the challenges that licensees and other affected entities face while implementing multiple regulatory actions within a limited implementation period and with limited available resources

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What is RPI?

Risk Prioritization Initiative (RPI) is the use of a risk-informed prioritization methodology to enable licensees to focus resources on the most risk-significant issues before those determined to be less significant

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Key Messages

- NRC staff's CER efforts examine ways to:
  - Enhance efficiency in implementing regulatory actions
  - Reduce the cumulative impact of regulatory activities on both the NRC and licensees
- RPI would complement CER
- If implemented, RPI could provide an effective tool to reduce CER for operating reactor licensees

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Key Messages (cont'd)

- NRC staff's already implemented several rulemaking procedures to address CER:
  - Increasing stakeholder interactions
  - Publishing supporting guidance concurrent with rules
  - Requesting specific comment on CER process improvements in proposed rules
  - Developing informed implementation timeframes

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Key Messages (cont'd)

- NRC staff's CER efforts being considered:
  - Exploring development of additional process enhancements to improve cost estimating
  - Examining incorporating risk-insights into the decisionmaking process to prioritize or eliminate NRC regulatory activities
  - Exploring allowing licensees to use risk information to prioritize regulatory actions on a plant-specific basis commensurate with their safety significance

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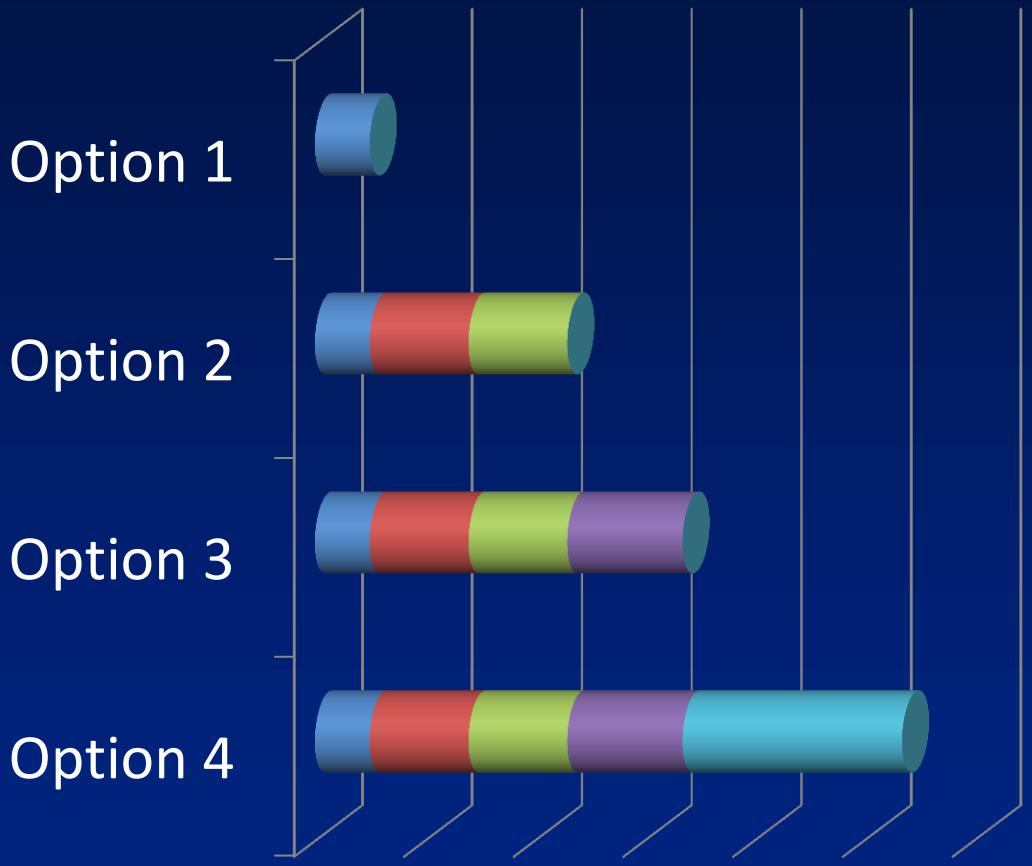
CER – Options*



* Options could be implemented in a phased approach

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Option 1

- Rulemaking process enhancements
- Continue to improve cost estimating within regulatory analyses
  - Increase (and early) interaction with stakeholders on draft regulatory analysis
  - Explore use of contractors to develop independent cost estimates
- Expanding CER to Generic Letters

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Option 1 (Cont'd)

- Pros
  - Will not require additional staff resources
  - Maintains the existing regulatory processes
  - Continues the current approach to regulation that is well understood
  - Continues to implement approved CER process enhancements across the agency

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Option 1 (Cont'd)

- Cons
  - Would not incentivize licensees to use or develop PRA models
  - May not resolve some industry CER concerns with existing or future requirements

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Option 2

- Establish pilot of an NRC expert panel to consider CER impacts for operating reactors
- Panel would characterize and prioritize regulatory actions using risk insights
  - Pilot across the operating reactor business line
  - Screen and prioritize prospective regulatory actions
  - Comprised of senior managers and subject matter experts

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Option 2 (Cont'd)

- Pros
  - Could ensure NRC's resources and skill sets are focused on the items of highest safety significance
- Cons
  - Would likely extend the overall development schedule of regulatory actions

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Option 2 (Cont'd)

- Existing applicable regulatory processes augmented with a risk-informed prioritization process for scheduling
  - Augments existing processes with a risk-informed prioritization methodology to facilitate the submittal, review, and approval/non-acceptance
  - Regulatory Guide that would endorse a risk-informed method to justify the regulatory action
  - Development of templates for the licensees to facilitate submittals and ensure consistency in the information provided

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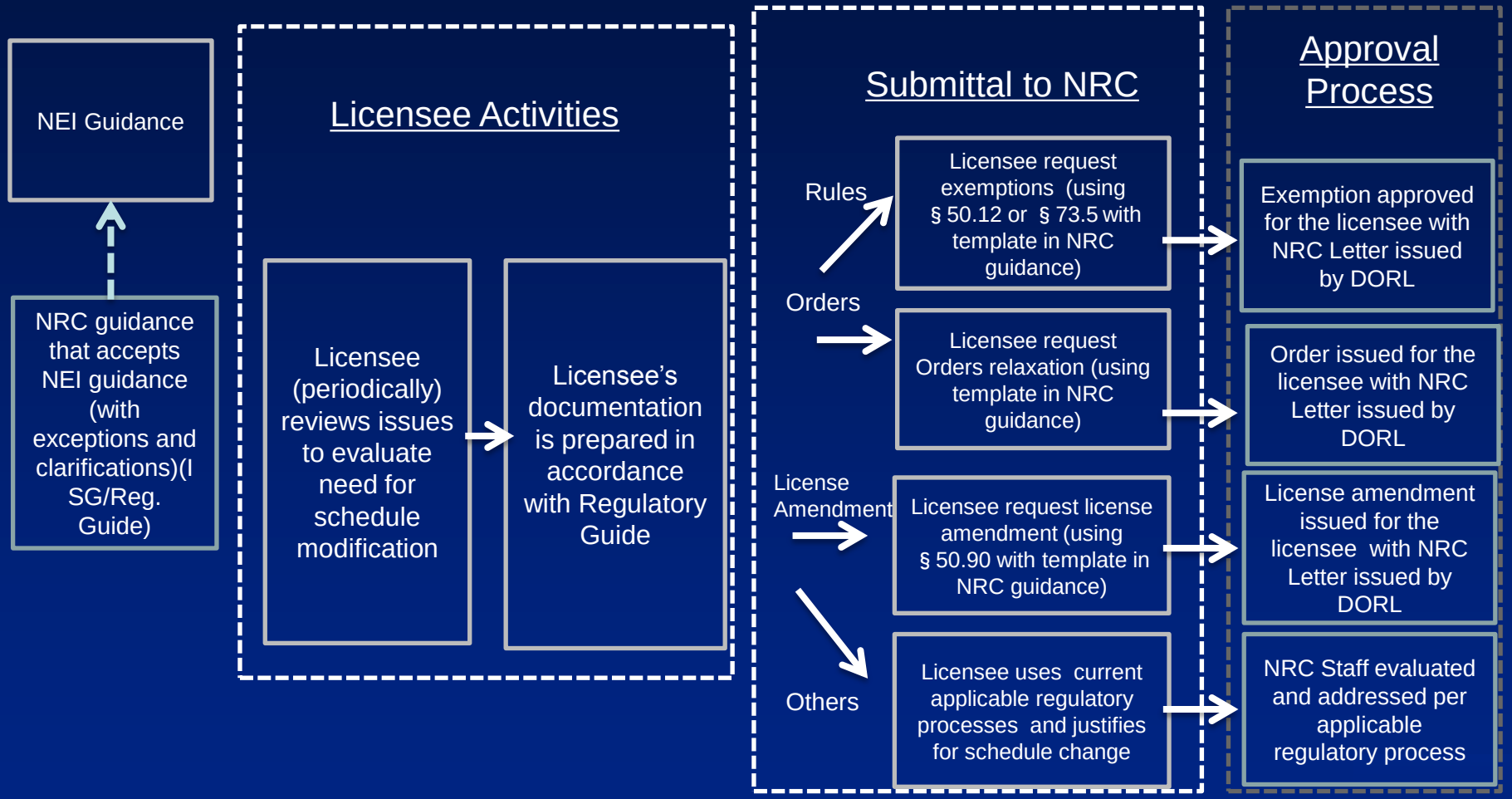
Option 2 (Cont'd)



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Option 2 (Cont'd)

- Pros
  - Further the use of PRA risk insights and potential development of PRA
  - Support industry and agency's efforts in CER (consistent with EO 13563) by focusing resources on current and future requirements of greater safety significance
  - May reduce review time for exemptions/order modifications/commitment changes in the long-term

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Option 2 (Cont'd)

- Cons
  - May increase number and associated review time of certain exemptions/order modifications/commitment changes and also the number of reviews in the short-term
  - Would require additional staff resources to develop supporting templates and standard review plans

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Option 2 (Cont'd)

- Inspection and Enforcement
  - Staff would review and approve any changes to the schedule of implementation in accordance with existing processes
  - Inspection and enforcement would be minimally impacted since changes would be made on a case-by-case basis

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Option 3

- Prospective rules/orders that allow for licensees to submit plant-specific implementation schedules using a risk-informed prioritization process
  - Licensees would be allowed to implement future rules or orders using a plant-specific schedule
  - Important feature is the use of plant-specific risk insights to inform the implementation schedules of new rules or orders or other regulatory actions.

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Option 3 – Plant-specific Schedule Implementation

Proposed Rule or Order

Regulatory Guide endorsing one method of risk-informed prioritization

Rule will contain some proposed generic date or language embedded in the regulatory requirement allowing licensees to propose a plant-specific date using a risk-informed prioritization process.

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Option 3 (Cont'd)

- Pros
  - Further the use of PRA risk insights and potential development of PRA
  - Support industry and agency's efforts in CER (consistent with EO 13563) by focusing resources on current and future requirements of greater safety significance
  - Allow licensees to propose a flexible plant-specific date of implementation of a new rule/order
  - May reduce the number of schedule exemptions

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Option 3 (Cont'd)

- Cons
  - Would require additional staff time and resources to develop final rules
  - Will not address current industry CER concerns with existing requirements

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Option 3 (Cont'd)

- Inspection and Enforcement
  - Inspections planning (e.g., temporary instructions, baseline inspections) would need to be adjusted to reflect licensees flexible implementation schedules
    - Potential to impact inspection schedules
  - Overall, enforcement and inspection would be manageable if sufficient coordination is provided

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Option 4

- Explore rulemaking to develop a new process that would allow licensees the flexibility to reschedule regulatory requirements without the need for prior regulatory approval

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Option 4 (Cont'd)

- Pros
  - Further the use of PRA risk insights and potential development of PRA
  - Allows licensees flexibility in scheduling and implementation of regulatory requirements
  - Delineate the level of PRA development and regulatory flexibility available to licensees
  - May obviate the need for schedule exemptions

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Option 4 (Cont'd)

- Cons
  - Will not address current industry CER concerns with existing requirements
  - Would require additional Staff time and resources to develop new RPI rule
  - PRA is not applicable in the areas of Emergency Preparedness, Radiation Protection, and Security

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Option 4 (Cont'd)

- Inspection and Enforcement
  - Modeled after other performance based risk-informed regulations
    - Pilot, roll-out to all licensees, audit of the process, and then eventual inclusion into the baseline inspection

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Option 4 (Cont'd)

- Inspection and Enforcement (Cont'd)
  - Enforcement actions may be more varied and require additional time and resources to close
  - Requires new baseline inspection procedure and additional resources
  - Requires additional training for inspectors
  - May be difficult to disposition a finding/violation
  - Potential to impact Regional inspection planning and create unforeseen resource challenges

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Recommendations

- Approve Option 2. Part 1 augments existing regulatory processes with a risk-informed prioritization methodology. Part 2 permits the staff to explore the use of an internal expert panel
- Approve the pilot for Option 3, which would provide a voluntary opportunity for power reactor licensees to submit a plant-specific implementation plan when NRC develops a rule

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Recommendations (Cont'd)

- After obtaining feedback and lessons-learned from Option 2 and results of the pilot of Option 3, the staff would provide the Commission a paper on the results, and seek further direction if the staff believes it is warranted

Sequoyah Nuclear Plant
ACRS Full Committee Meeting – License Renewal

March 5, 2015

John Carlin
Site Vice President

Introductions

Representing Sequoyah Nuclear Plant

- William Pierce –Director, Site Engineering
- Dennis Dimopoulos –Engineering Manager
- Michael Henderson – Manager, Engineering Programs
- Dennis Lundy – License Renewal Project

Personnel In Attendance

Site Licensing Manager Erin Henderson	**Systems Engineering Manager** Gary Garner	**LR Project Contractor-Lead** Alan Cox
ISI Programs Adam Keyser	**Reactor Vessel Programs** Chris Webb	**NSSS Design** Dave Lafever
Fire Systems/Aging Mgmt Coord Joy Williams	**Inaccessible Electrical Cable** Darren Boehm	**Steam Generators** Jeremy Mayo
Structures Monitoring Tyler Haraway	**Neutron Absorber Monitoring** David Brown	**Buried Piping** Kyle Loomis
Fatigue Management Dennis Lundy	**Service Water Program** Ed Craig	**Westinghouse-RVI** Randy Lott/Greg Fischer
Primary/Secondary Chemistry Bruce Vogel	**Fuels Design** David Brown	**Chemistry Monitoring** Harold Williams
Flow Accelerated Corrosion David Spears		**LR Project Contractor-Mech.** David Wootten

Agenda

• Introductions	John Carlin
• Plant History and Background	John Carlin
• Major Modifications and Near Term Plant Improvements	William Pierce
• License Renewal Application	Dennis Dimopoulos
• Safety Evaluation Report – Closure of Open Item	Mike Henderson
• Concluding Remarks	John Carlin

John Carlin
Site Vice President

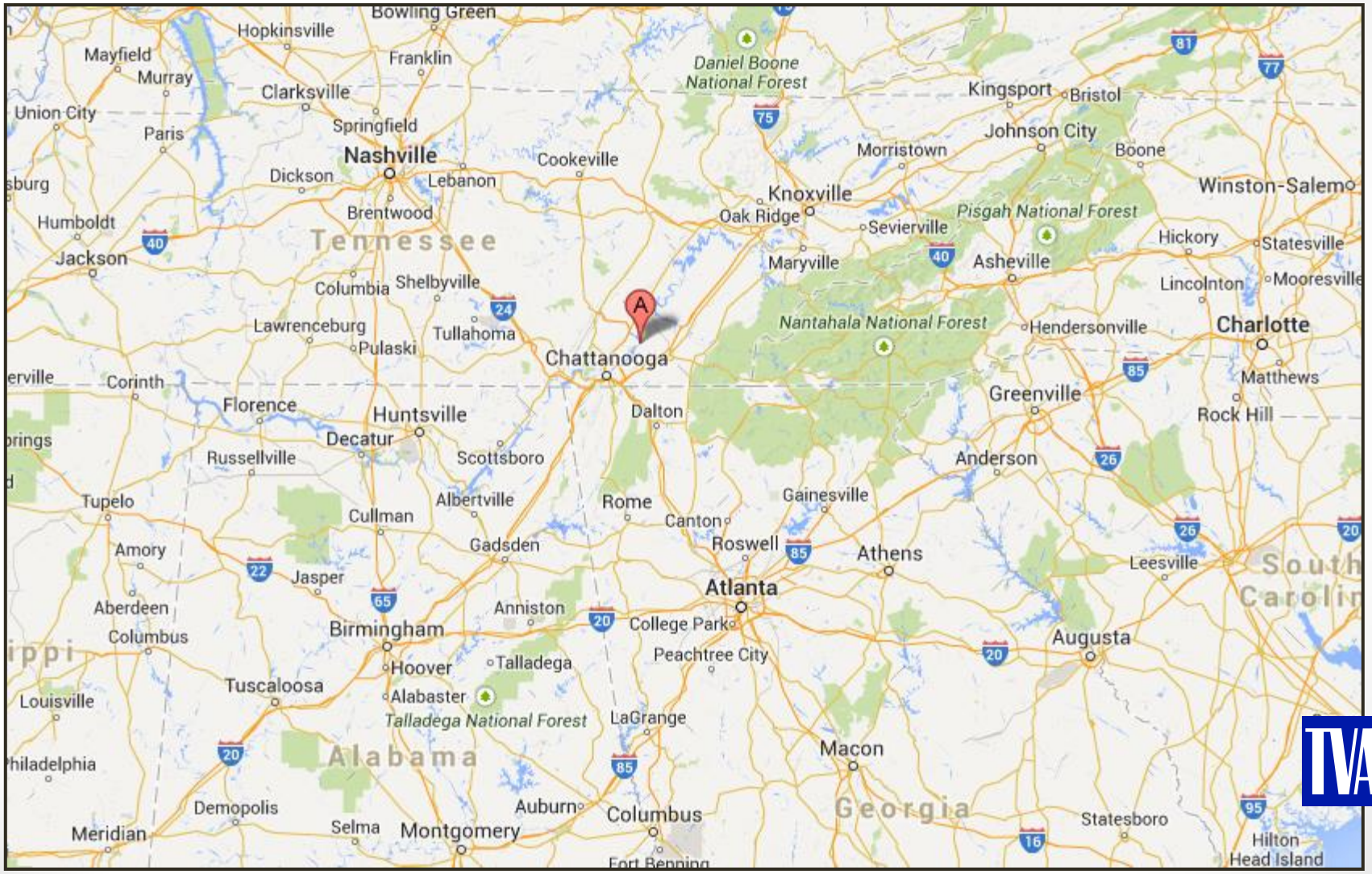
Plant History and Background

Sequoyah Nuclear Plant Site

Plant Overview

- Sequoyah Units 1 and 2 are located on 525 acres beside the Chickamauga Reservoir on the Tennessee River, approximately 18 miles northeast of the city center of Chattanooga, Tennessee
- Sequoyah supplies electricity to approximately 8.3 million people through 158 distributors in the TVA service area
- Sequoyah is a two unit Westinghouse 4-loop PWR
- Generator output for each Sequoyah unit is 1199 MWe for rated core power
- Each Sequoyah containment is a freestanding steel vessel with an ice condenser and separate reinforced concrete shield building
- Two natural draft cooling towers used in ”helper” mode as required for NPDES limits
- 161-KV and 500-KV switchyards

Site Location



History and Background

- Construction Permit – May 1970
- Operating License
  - Unit 1 - September 17, 1980
  - Unit 2 - September 15, 1981
- Commercial Operation
  - Unit 1 - July 1, 1981
  - Unit 2 - June 1, 1982
- 1.3 % Measurement Uncertainty Recapture Uprate (44MWt)
  - Unit 1 and 2 - 2002

William Pierce
Engineering Director

Major Modifications and Near Term Improvements

Major Modifications Completed or In Progress

- Installed pressurizer PWSCC-resistant full strength weld overlays (U1-2007, U2-2006)
- Replaced portions of secondary side piping with FAC resistant material (began in 1990s and ongoing)
- Replaced steam generators (U1-2003; U2- 2013)
- Replaced main condenser tube bundles (titanium tubes; titanium clad tube sheets) – U2-1996, U1-1997
- Replaced portions of carbon steel service/raw water piping (2014)
- Replaced containment spray 1B (1998) and component cooling water heat exchangers (1993)

Near Term/Future Plant Improvements

Refueling U1 Outage 20 (April 2015)

- Replacing ~10 thimble tubes
- Replacing containment spray heat exchanger 1A

Refueling U2 Outage 20 (November 2015)

- Replacing ~10 thimble tubes

2015 and 2016

- Replacing portions of carbon steel service/raw water piping
- Designing and begin installing cathodic protection (complete 2017)
- Replacing CRD and Auxiliary Building HVAC cooling coils

Dennis Dimopoulos
Engineering Manager

License Renewal Application

License Renewal Application - Details

- **Application Details**
  - Submitted application January 7, 2013
  - Developed using NUREG-1801 (GALL) Rev 2
  - Followed scoping guidance of NEI 95-10 "*Industry Guideline for Implementing the Requirements of 10CFR54-The License Renewal Rule*" Rev 6
  - Conducted Aging Management Review (AMR) per NEI 95-10 and industry guidance documents
  - Addressed six License Renewal (LR) ISG documents in the LRA and two LR ISG documents in RAI responses
  - Completed ~4100 AMR line items
  - 43 AMPs (31 existing and 12 new) required to manage aging effects for the PEO

Aging Management Program (AMP) Summary

43 AMPs Credited

	Consistent with GALL	Consistent with Enhancement	Consistent with Enhancements and Exceptions	Plant Specific	Total
LRA	20	22	0	1	43
SER	18	23	1	1	43

License Renewal Application (LRA) - Commitments

- **License Renewal Commitments**
  - Included in FSAR Supplement (Appendix A of LRA)
  - Managed by Sequoyah Commitment Tracking System and Corrective Action Program (CAP)
  - Total of 44 commitments
    - 43 associated with AMPs
    - 1 associated with the Operating Experience (OE) program

Implementation

- Participating in NEI LR Implementation Working Group
- Selected permanent Aging Management Coordinator
- OE process updated and reviewing OE for impacts to AMPs
- Initiated work to address commitments
- Sequoyah AMP Owners will guide the implementation effort assisted by experienced implementation contractor

Michael Henderson
Engineering Programs Manager

Safety Evaluation Report – Closure of Open Item

SER – Open Item B.1.34-9c & -9d

RAI Request and Follow-up

- Describe the fluence methodology and the projected fluence at the upper core plate (UCP) compared to the screening value for irradiation embrittlement (IE).

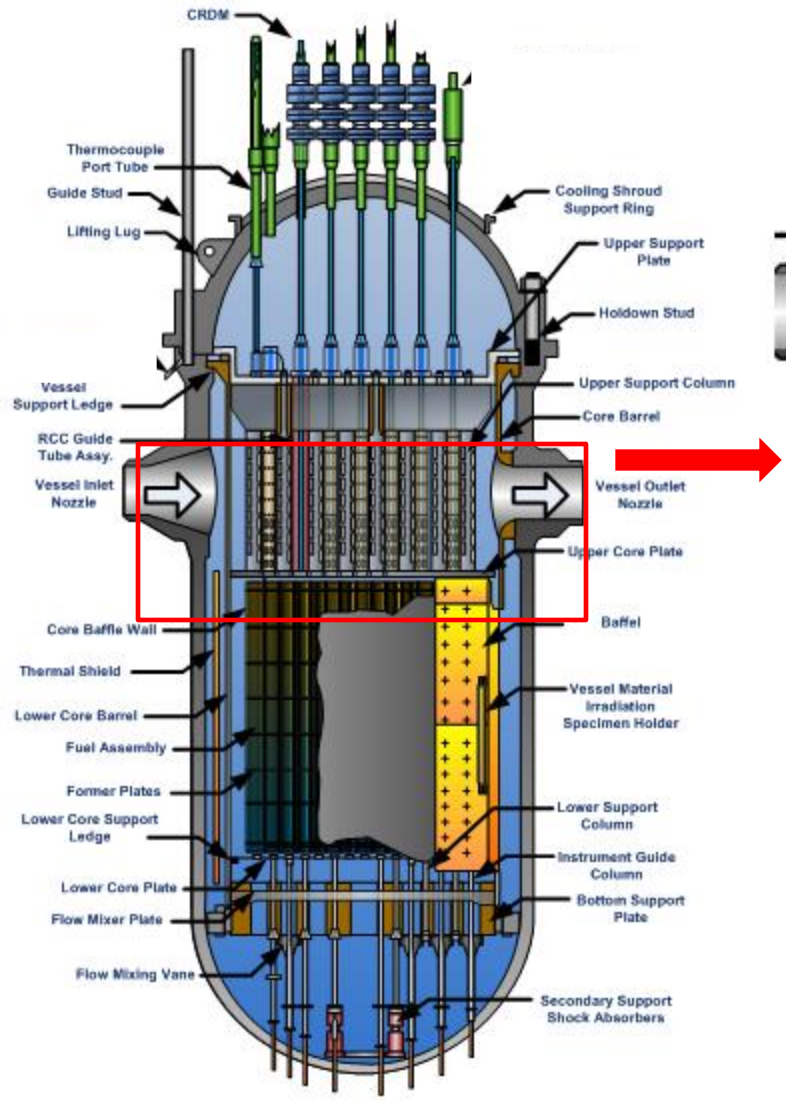
Resolution

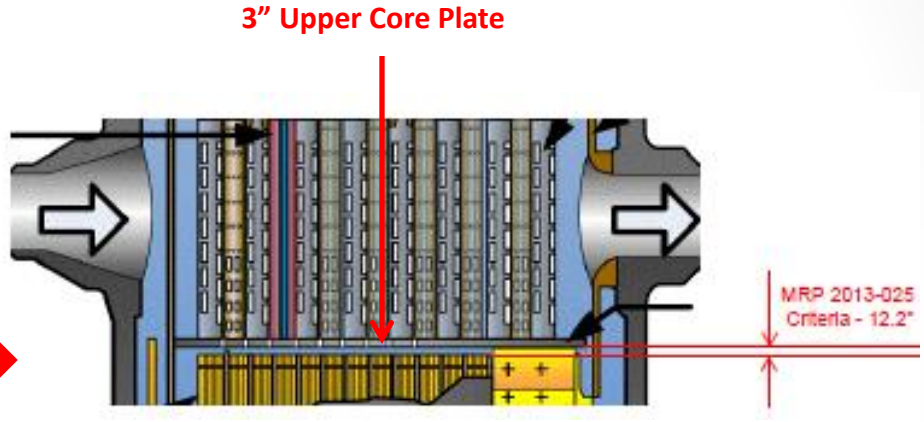
- Confirmed fluence methodology is consistent with Sequoyah CDB methodology
- Sixty year fluence reported at the lower surface of the UCP exceeds the IE screening criteria but is not the leading indicator of IE in the RVI
- Sixty year fluence reported at the lower surface of the UCP is significantly below the IASCC screening criteria for components with stresses up to 89 KSI
- MRP-227-A inspection protocol - add the UCP as an IE EVT-1 inspection expansion
- ASME Section XI program - perform a VT-3 examination of the lower surface of the UCP

Status

- Open Item closed with the NRC

Reactor Vessel Internals - Upper Core Plate





The upper core plate sits below the control rod guide tubes and upper support columns and on top of the fuel assemblies to hold them into place.

Concluding Remarks

- Sequoyah LRA based on NUREG-1801, Rev. 2 with exceptions only in the Fire Water Program for LR-ISG-2012-02
- 44 Commitments to improve existing AMPs, to implement new AMPs and to enhance the OE Program
- Sequoyah AMP Owners and SMEs involved in:
  - Development of the application, technical reports, audit & inspection interviews
  - RAI responses and commitment development
- Programs and program enhancements defined for managing aging effects at Sequoyah for the PEO
- Invested in plant modifications for continuing safe, reliable extended operation

Comments and Questions?

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Advisory Committee on Reactor Safeguards
Full Committee Meeting

Safety Evaluation Report (SER) Regarding Sequoyah Nuclear Plant, Units 1 and 2

March 6, 2015

Emmanuel Sayoc, Project Manager

Office of Nuclear Reactor Regulation

U.S.NRC
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Presentation Outline

- Overview of Sequoyah license renewal review
- Closure of the Open Item
  - Reactor Vessel Internals
- Staff Conclusion for the Safety Evaluation

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Recent Milestones Complete

- Safety Evaluation Report (SER) with Open Items issued September 29, 2014
- ACRS License Renewal Subcommittee Meeting held November 5, 2014
- Open Item (OI) for the SER closed
- Final SER issued January 29, 2015

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SER Section 3

3.0.3 – Aging Management Programs

- 43 Aging Management Programs presented by applicant and evaluated in the SER
- 31 Existing and 12 new
- Consistent – 18
- Consistent with Enhancements – 23
- Consistent with Enhancements and Exceptions – 1
- Plant Specific - 1

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SER Section 3 OI B.1.34-1

Issue 1: Fluence Values Not Provided

- The applicant's response to A/LAI No. 1 lacked sufficient information on the projected fluence values for the upper internals and upper core plate (UCP).

- Staff issued RAI B.1.34-9c, requesting the applicant provide:
  a) projected fluence values
  b) description of its analyses and methodology

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SER Section 3 OI B.1.34-1

Issue 1: Applicant Response to RAI B.1.34-9c

- Applicant provided its methodology
- Fluence of UCPs projected to be below the threshold for IASCC (3.0 dpa).
- Portions of the UCPs exceeded the fluence threshold for IE (1.5 dpa).
- Applicant provided commitment to inspect the lower portions of the UCPs.

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SER Section 3 OI B.1.34-1

Issue 2: Upper Core Plate Locations

- Applicant did not provide sufficient details regarding
  - UCP locations where fluence projections would exceed IE threshold,
  - Uncertainty associated with fluence evaluation, and
  - Qualification of the methodology.

- Staff's follow-up RAI B.1.34-9d requested the above information.

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SER Section 3 OI B.1.34-1

Issue 2: Applicant Response to RAI B.1.34-9d

- IE identified as additional aging effect for the lower portions of UCPs
- Additional license renewal commitment provided.
  - UCPs will be inspected by EVT-1, if cracking is observed on lower barrel girth weld

- Therefore, RAIs B.1.34-9, B.1.34-9c, and B.1.34-9d are resolved, and OI B.1.34-1 is closed.

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Conclusion

On the basis of its review, the staff determines that the requirements of 10 CFR 54.29(a) have been met for the license renewal of Sequoyah Plant, Units 1 and 2