UNITED STATES
NUCLEAR REGULATORY COMMISSION ADVISORY
COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

January 20, 2015

MEMORANDUM TO: ACRS Members

FROM: Michael R. Snodderly, Senior Staff Engineer **/RA/**
Technical Support Branch, ACRS

SUBJECT: CERTIFIED MINUTES OF THE MEETING OF THE RELIABILITY AND PRA SUBCOMMITTEE ON NOVEMBER 3, 2014

The minutes for the subject meeting were certified on January 17, 2015, as the official record of the proceedings of that meeting. Copies of the certification letter and minutes are attached.

Attachment: As stated

cc with Attachment: E. Hackett
M. Banks

cc w/ Attachment: ACRS Members

UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

MEMORANDUM TO: Michael Snodderly, Senior Staff Engineer
Technical Support Branch, ACRS

FROM: John W. Stetkar, Chairman
Reliability and PRA Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS RELIABILITY AND PRA SUBCOMMITTEE MEETING ON NOVEMBER 3, 2014, IN ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting are an accurate record of the proceedings for that meeting.

R/A **1/ 17 /15**

John W. Stetkar, Chairman Date
Reliability and PRA Subcommittee

Certified by: John Stetkar
Certified on : January 17, 2015

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF THE ACRS RELIABILITY AND PRA SUBCOMMITTEE MEETING
NOVEMBER 3, 2014

The ACRS Reliability and PRA Subcommittee held a meeting on November 3, 2014 in TWFN 2B1, 11545 Rockville Pike, Rockville, Maryland. The meeting convened at 8:33 a.m. and adjourned at 5:54 p.m.

The entire meeting was open to the public.

No written comments or requests for time to make oral statements were received from members of the public related to this meeting.

ATTENDEES

ACRS Members

John Stetkar, Chairman
Ronald Ballinger, Member
Dennis C. Bley, Member
Dana Powers, Member
Joy Rempe, Member
Stephen P. Schultz, Member
Gordon R. Skillman, Member

NRC Staff

Michael Snodderly, Designated Federal Official
Ed Hackett, ACRS
Antonios Zoulis, NRR/DRA
Bob Fitzpatrick, NRR/DE
Laura Kozak, Region III
Samson Lee, NRR/DRA
Joe Rivers, NSIR/DSP
Anthony Markley, NRR/DPR
Joel Wiebe, NRR/DORL
Jason Carneal, NRR/DPR
Ed Smith, NRR/DSSA
Brian Harris, NRR/DPR
Roger Pedersen, NRR/DRA
Ray Galucci, NRR/DRA
Fernando Ferrante, NRR/DRA
Paul Lain, NRR/DRA
Lawrence Kokajko, NRR/DPR
Kent Wood, NRR/DSS
Jeff Circle, NRR/DRA
Steve Ruffin, NRR/DRA

Other Attendees

Patrick O'Regan, EPRI
Don Dube, ERIN

Other Attendees (Continued)

Jim Chapman, Curtiss Wright
Gerald Loignon, SCE&G
Greg Johnson, Southern Company
Jim Miksa, Entergy
Tun Ho Kim, KHNP
Phil Lashley, First Energy
Jerud Hanson, NEI
Sonja Myers, Duke Energy
Kati Austgen, NEI
Bruce Morgen, Duke Energy
John Grubb, Xcel Energy
John Butler, NEI

SUMMARY

The purpose of the meeting was to discuss the status of the Commission's direction to further explore an initiative intended to enhance safety by applying probabilistic risk assessment to determine the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis. The meeting transcripts are attached and contain an accurate description of each matter discussed during the meeting. The presentation slides and handouts used during the meeting are attached to these transcripts.

SIGNIFICANT ISSUES	
Issue	Reference Pages in Transcript
1. D. Dube provided an overview and description of NEI's efforts to develop an option for implementing a prioritization and scheduling initiative.	11-53
2. Member Skillman asked how the impact of what is thought to be a minor change to a plant program that may actually have much larger risk implications was considered.	14
3. Chairman Stetkar questioned whether a generic assessment could influence a plant to mischaracterize the risk for a particular site. He and D. Dube discussed reactor coolant pump seal performance as a specific example.	16
4. D. Dube commented that he observed some of the most comprehensive considerations of risk information during the deliberations by the integrated decision-making panels.	21
5. Chairman Stetkar asked how the screening process accounts for plants that have less than full scope PRAs.	28
6. Member Skillman asked if day-to-day operational occurrences and equipment availability are considered as part of this prioritization process.	31

7. Member Powers asked how external events were considered and D. Dube described how external events would be addressed by subject matter experts on the integrated decision-making panel.	42
8. Member Bley asked how security was considered and D. Dube discussed the recently revised Security flowchart in the slide package.	47
9. J. Miksa presented Entergy's experience piloting the prioritization and scheduling process at the Palisades plant.	54-146
10. Member Schultz asked about the training the integrated decision-making panel received.	57
11. J. Miksa used three projects that were evaluated to demonstrate how the piloting process was conducted. Installation of incipient fire detection was the first project presented by J. Miksa.	65-86
12. Chairman Stetkar and Member Bley questioned how the panel determined that the risk associated with this project was at the lower bound of the high risk range without quantitative information.	70
13. Chairman Stetkar stated that a full scope fire risk assessment would look at fire damage to security systems. He then asked Mr. Miksa how Palisades compensated for this missing information. Mr. Miksa responded that electrical sources to security were looked at for secondary impacts.	79
14. The second project presented was installation of an open phase monitoring and isolation system on the start-up transformer and the safeguards transformer.	87-105
15. D. Dube offered to provide the generic assessment expert team's evaluation of the open phase issue (ML14297A530) and the staff's summary of pilot activities (ML14302A222).	89
16. Chairman Stetkar and Member Bley question the robustness of the quantitative assessment.	96
17. The third project presented was to rebuild the "B" cooling tower to improve reliability.	106-121
18. J. Miksa explains that the cooling tower rebuild scored lower from a safety perspective but scored high in the reliability area due to feedback from operators.	110
19. J. Miksa describes how the 20 evaluated projects were prioritized and aggregated for the Palisades plant.	122-146
20. Member Powers asked about the value versus burden of having someone outside the organization participate in the aggregation process.	145
21. G. Johnson presented Southern Company's experience piloting the prioritization and scheduling process at the Hatch plant.	147-191
22. G. Johnson used three projects that were evaluated to demonstrate how the piloting process was conducted. Replacement of safety relief valves was the first project presented by G. Johnson.	161-165
23. The second project presented for plant Hatch was replacement of the emergency diesel generator excitation panels.	166-169
24. The third project was increasing the number and size of the startup transformers to address a degraded grid voltage condition.	170-175

25. G. Johnson describes how the 20 evaluated projects were prioritized and aggregated for plant Hatch.	176-191
26. Member Schultz asked if by repeatable G. Johnson meant that if this listing was reevaluated again that you'd likely get the same answer or did it mean that moving forward the process could be applied consistently to other projects.	185
27. Member Schultz asked why the Fukushima initiative related to spent fuel pool instrumentation had a benefit provided in radiation protection but the Palisades evaluation found no benefit in this area.	188
28. Member Skillman asked G. Johnson if in hindsight he would have chosen the same 20 projects to evaluate.	189
29. J. Grubb presented Xcel Energy's experience piloting the prioritization and scheduling process at Monticello and Prairie Island. He discussed postponing the purchase of a backup circulating water pump motor versus implementing step eight of the cyber security rule.	192-195
30. S. Myers presented Duke Energy's experience piloting the prioritization and scheduling process at the Robinson plant. Robinson evaluated 11 projects as part of the pilot.	196-235
31. S. Myers summarized the 11 projects that were evaluated.	196-208
32. S. Myers presented three projects that were evaluated to demonstrate how the piloting process was conducted. Potential gas accumulation in the ECCS was the first project presented for Robinson.	209-218
33. Replacement of B Battery with a larger capacity battery was the second project presented for Robinson.	219-222
34. Installation of the Westinghouse RCP shutdown seals was the third project presented for Robinson.	223-236
35. Panel discussion with J. Miksa of Entergy, S. Myers of Duke Energy, P. Lashley of FirstEnergy, G. Johnson of Southern Nuclear and J. Loignon of SCANA.	237-289
36. Chairman Stetkar asked about applying the process to programmatic issues. J. Butler said it had only been applied to combining the SAMGs and EOPs. This came out as very low because of credit given to existing SAMGs. J. Loignon commented that the process works best when the issue and the proposed solution are well defined.	242
37. Member Skillman asked the panel about potential improvements to the process. All members of the panel except S. Myers responded that their suggestions had been incorporated. S. Myers mentioned better consideration of ALARA, containment performance, and balancing improvements in prevention with emergency planning.	263
38. Member Bley mentioned the importance of documenting the dependence of a potential modification with other ongoing plant activities and other potential areas for plant improvement. He used alternate seal injection and alternate RCP seals as an example.	281

39. J. Giitter, Division Director of NRR's Division of Risk Assessment started the staff's presentation with an introductory statement. J. Giitter mentioned the example of the circulating water pump motor and how on safety alone it was ranked a higher priority than some of the regulatory initiatives based on the fact that failure of the pump would initiate a trip and increase risk.	290
40. J. Carneal presented the history and current status of the staff's efforts to address the cumulative effects of regulation as directed by the Commission SRM (M091208), "Enhancements to Emergency Preparedness Regulations," January 13, 2010.	291-303
41. A. Zoulis presented the status of the staff's effort to respond to Commission direction on a potential initiative on prioritization using plant-specific risk insights. The so called Risk Prioritization Initiative.	304-329
42. Member Bley asked if the staff agrees with NEI on the use of qualitative screens even if quantitative risk insights may be available.	305
43. Member Powers challenged the staff's assertion that radiation protection and security are addressed qualitatively by the prioritization process. Member Powers countered that we have the ability to quantify increases or decreases in these attributes given a potential modification or change.	322
44. Chairman Stetkar asked the subcommittee for final comments.	330-340
45. Chairman Stetkar adjourned the meeting.	340

ACTION ITEMS	
Action Item	Reference Pages in Transcript
1. J. Giitter committed to briefing the subcommittee on the draft SECY being developed in February 2015.	290
2. J. Carneal discussed future interactions with the ACRS. He mentioned the Commission's direction that the ACRS be briefed ahead of the March 2015 SECY paper. He proposed a subcommittee meeting in February of 2015 and a full committee in early March 2015.	329

Documents provided to the Subcommittee

1. COMGEA-12-001/COMWDM-12-002, "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency," November 5, 2012 (ML12314A262)
2. SRM-COMGEA-12-001/COMWDM-12-002, "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency," February 6, 2013 (ML13037A541)
3. COMSECY-14-0014, "Cumulative Effects of Regulation and Risk Prioritization Initiative: Update on Recent Activities and Recommendations for Path Forward," April 9, 2014 (ML14069A061)

4. SRM-COMSECY-14-0014, “Cumulative Effects of Regulation and Risk Prioritization Initiative: Update on Recent Activities and Recommendations for Path Forward,” July 18, 2014 (ML14199A187)
5. Memorandum from John Butler, Nuclear Energy Institute, “Draft Guidance for Prioritization and Scheduling Implementation,” April 15, 2014 (ML14105A485)
6. Memorandum from Martin J. Virgilio, NRR, “Integrated Safety Assessment Program,” July 3, 1996 (ML13189A224)

Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards Reliability and PRA Subcommittee Meeting

Docket Number: (n/a)

Location: Rockville, Maryland

Date: Monday, November 3, 2014

Work Order No.: NRC-1193 Pages 1-346

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

+ + + + +

RELIABILITY AND PRA SUBCOMMITTEE

+ + + + +

MONDAY

NOVEMBER 3, 2014

+ + + + +

ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B1, 11545 Rockville Pike, at 8:30 a.m., JOHN W. STETKAR, Chairman, presiding.

COMMITTEE MEMBERS:

JOHN W. STETKAR, Chairman

RONALD G. BALLINGER, Member

DENNIS C. BLEY, Member

DANA A. POWERS, Member

JOY REMPE, Member

STEPHEN P. SCHULTZ, Member

GORDON R. SKILLMAN, Member

DESIGNATED FEDERAL OFFICIAL:

MIKE SNODDERLY

A-G-E-N-D-A

P R O C E E D I N G S

8:33 a.m.

CHAIRMAN STETKAR: The meeting will now come to order. This is a meeting of the Advisory Committee on Reactor Safeguards Subcommittee on Reliability and Probabilistic Risk Assessment.

I'm John Stetkar, chairman of the subcommittee. Members in attendance today are Steve Schultz, Dick Skillman, Dana Powers, Dennis Bley, Ron Ballinger and Joy Rempe.

MEMBER POWERS: That brought him to an abrupt halt. You can stun Jim.

CHAIRMAN STETKAR: I lost my place. It doesn't say what it's supposed to say here. Mike Snodderly of the staff is a designated federal official for this meeting.

Former Commissioners Apostolakis and Magwood, in a memorandum dated November 5th, 2012, proposed an initiative intended to enhance safety by applying probabilistic risk assessment to determine the risk significance of current and emerging reactor issues and in an integrated manner on a plant-specific basis.

The staff requirements memorandum dated February 6th, 2013 the commission approved an initiative to further explore the idea.

The commission also directed the staff to develop a notation vote paper for commission consideration that provides approaches for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis.

The purpose of today's meeting is to discuss the status of this initiative with industry representatives and the NRC staff. This is an informational briefing.

The committee plans to review and comment on the notation vote paper currently scheduled for March 2015 with an associated subcommittee meeting in February 2015.

This meeting is open to the public with the exceptional portions that may be closed to protect information that is unclassified safeguards pursuant to 5 USC 552(b)(c)(3).

Rules for the conduct of and participation in the meeting have been published in the Federal Register as part of the notice of this meeting. The subcommittee intends to gather information, analyze relevant issues and facts and formulate proposed positions and actions as appropriate for deliberation by the full committee.

A transcript of the meeting is being kept and will be made available as stated in the Federal Register notice. Therefore, it is requested that all speakers first identify themselves and speak with sufficient clarity and volume so that they can be readily heard.

I'd ask everyone to check your little beepy devices and please turn them off. We received no written comments or requests to make oral statements and understand that there may be individuals on the bridge line today who are listening in on today's proceedings.

The bridge line will be closed on mute so those individuals may listen in. At the appropriate time later in the meeting, we'll have an opportunity for public comments from the bridge line and for members of the public in attendance.

First of all, I want to say before we start the meeting that we're really interested in this initiative.

I'm glad that we finally got together. We've been trying to organize this meeting for the better part of six or eight months now and this is our first opportunity to really have some interactions with the people who are out there doing their work and I hope we'll have a really productive exchange.

With that, I'll call upon John Butler of NEI to open the presentations. John?

MR. BUTLER: Great. Thank you. Again, my name is John Butler. I am a director of strategic programs at NEI.

With me at the table this morning is Jim Chapman to my far right of Curtiss-Wright Scientech and my near right is Don Dube of Erin. Both Jim and Don were very instrumental in the development and putting into practice the process we're going to be talking with you today about.

So I'm glad that they're joining me here in case the questions get deeper than the surface on the process.

What we'd like to do today or at least start off today is give you a quick overview of the process so we'll give you that overview. But in talking with Chairman Stetkar what you really want to hear is or what he wants to hear is from the pilot.

So we've arranged for three of the six pilot plants to come before you this morning and give you the experience that they had this summer in going through the process for their plants. So Palisades, Hatch and Robinson are the three pilots who are prepared to come and discuss with you.

Following that, if there's time I'd like to have all six of the pilots come up here and kind of provide, you know, an opportunity for you to ask any questions of any of the pilots that went through the process. So if we have time we'll go through that panel discussion.

The - as was pointed out, this was really put into focus with the COMSECY that Commissioners Apostolakis and Magwood put forward and in that they put very simply they stated that nuclear safety is advanced when licensees and the staff focus their time, attention and resources on issues of greater safety significance at each plant and that's what we're trying to accomplish with the process we're going to be talking with you about.

We think the prioritization process that we've put together has an opportunity not only to assess the plants but also has - we have an opportunity to apply that prioritization process early on within our discussions with NRC staff on various emerging issues.

We hope that the earlier we apply this process the easier it will be on plant licensees because a lot of that prioritization will have already been considered in the issues when it reaches individual plant licensees.

Now, our quick run-through of the time line that we've used in developing this process - once the process was developed sufficiently we started off with some tabletop exercises.

The first tabletop exercises were on generic issues or issues that had a generic quality and we put together a panel that would go through and evaluate these issues to assess them on a generic sense, identify which aspects of the issue were of primary importance - what you had to then focus on when you looked at this on a plant-specific basis.

We then went through some plant-specific tabletops at three different sites in the February-March time frame. This was with a small number of issues just to kind of test out the process.

We then went through another set of exercises with generic issues and all this led up to our initiation of the actual pilot at six different sites during the summer of this year.

That process took several months and toward the end of that process we realized that the issues that we were evaluating we had not fully exercised some of the attributes of the process so we set up a - set up tabletops to look at EP - emergency preparedness - rad protection and security in a little bit more detail.

So we kind of ginned up some exercises that would challenge those aspects of the process a little bit - to a greater degree and we did that in September of this year. We completed all the pilot exercises early October and have been trying to pull together our lessons learned.

We've revised the guidance document to incorporate not only NRC staff comments on the process but the lessons learned from the pilot exercises and we are prepared to issue a revised set of guidance incorporating those lessons learned.

CHAIRMAN STETKAR: John, on those follow-up tabletops did you use the same panels that each - I'm assuming you ran them through the six sites or am I - bad assumption?

MR. BUTLER: No. The follow-up tabletops were done here in Washington -

CHAIRMAN STETKAR: Okay. So the - okay.

MR. BUTLER: - with expertise on those various areas from NEI and NRC staff.

CHAIRMAN STETKAR: So they were like the

initial tabletops?

MR. BUTLER: Yes.

CHAIRMAN STETKAR: Okay. Thank you.

MR. BUTLER: What I'd like to do now is turn it over to Don Dube to kind of take us through a quick overview of the guidance.

MR. DUBE: Thank you, John. Thanks for the invitation. I do want to recognize before beginning that my good friend and colleague, Jim Chapman, of many, many decades is - you know, plays an equal part in the development of the process.

In the interest of making this flow, I'll be presenting an overview of the process but I want to recognize that. I know you're here mainly to listen to the pilot plant results.

So in the interest of time I'll be going through this - the process overview a little bit quickly. But if there's any questions, please stop me.

So on the first slide on the overview, nuclear safety impact is the primary focus and we were sure to do that right from the beginning. In fact, of all the categories we spent most time on nuclear safety impact.

We decided to try to work within existing processes here at the NRC. So we used thresholds that are similar to the significance determination process except for we're looking at the reverse perspective.

Of course, an SDP is looking at performance deficiency so there's perhaps a change of risk that increases risk as a result of an inspection finding.

Here we're going in the opposite direction because if a particular plant modification was implemented how much risk reduction would there be but we're using the same order of magnitude threshold so that fits in with the third bullet there.

We're looking at broad categories spanning a decade of risk in our categorization. We adapted some of the screening questions from the 50.59 change process and there's a Guidance Document 9607.

We adapted those to screen a number of questions and provide questions as utility goals to do the process.

We have some definitions of more than minimal that are consistent with Reg Guide 1.174 on risk-informed changes to the licensing basis and the 50.59 guidance, and cost benefit is a factor but it's kind of a tiebreaker, if you will, that's done at the end.

And one of the important things we did as a result of the tabletop exercises and the lessons learned is we allowed for an adjustment for personnel burden reduction.

We had a number of - well, we had a hundred samples from the pilot plants and a number of cases - things like security measures or radiological protection measures, fire protection, what have you.

We weren't capturing modifications that would reduce those burdens and so we got feedback from the pilots and we said yeah, you're right.

So that's one of the things we did feedback in from the lessons learned and we can talk about that if you will.

MEMBER SKILLMAN: Don, two questions on that slide, please.

MR. DUBE: Yeah.

MEMBER SKILLMAN: Third bullet, decade of risk - would you explain what decade of risk means in that context?

MR. DUBE: We have categories of nuclear safety importance - high, medium, low, very low and next to none, and the high category spans the decade of change in core damage frequency or change in large early release frequency. The next decade would be medium and so on and so forth.

MEMBER SKILLMAN: Okay. So that's really

LERF and CDF?

MR. DUBE: Yeah.

MEMBER SKILLMAN: Okay. One more question.

MR. DUBE: Sure.

MEMBER SKILLMAN: On the last bullet - those who are out in the industry know that sometimes a change to a pipe pump valve instrument isn't the greatest risk. The greatest risk is a change in the program. It is very obscure - for instance, a slight change in how you implement your QA program.

Maybe the one that embeds the most latent risk is your mini-mods program where your plant people can make very slight changes and unintendingly create a large risk for the facility.

MR. DUBE: I see.

MEMBER SKILL MAN: To what extent were program changes considered?

MR. DUBE: Program changes can be considered in here. In fact, we had some examples with NFPA 805, for example. They are more qualitative than quantitative, of course.

The other thing, and Jim might add some words, is we can - we do capture if it's a negative impact on risk - of an increased risk -

MEMBER SKILLMAN: Okay. Thank you.

MR. DUBE: - that's captured.

MEMBER SKILLMAN: Thanks. Okay. Thanks.

MR. DUBE: Thank you. Next slide. You know, I don't want to spend a lot of time on block diagrams and the process but let me give you a 15-second overview.

There's two aspects. If there's a issue that has generic implications there's something called the Generic Assessment Expert Team. That's industry leaders and subject matter experts meeting to discuss what is the issue and what is the potential risk reduction - characterize it.

But then we may not assign a particular importance to a particular issue. We may span an issue and we had some good examples on tornado missile issues where we found certain categories of plants.

It was a small risk issue but there is older generation of plants where it may have been a greater issue and we discussed this and so an output from that team was a generic characterization.

But we identified classes of plants where the risk may span, you know, one or more orders of magnitude.

MEMBER BLEY: Don?

MR. DUBE: The purpose of that is to provide that information to the plant specific. Yes?

MEMBER BLEY: Although this is the plant process for scheduled prioritization it sounds like that first box is an industry or NEI organized effort on generic issues.

MR. DUBE: Yes.

MEMBER BLEY: Is that right? Okay.

MR. DUBE: We exercised that in May on three topics and our talk went very well.

CHAIRMAN STETKAR: Don, when I read through that I guess why - you know, what is the value added from that initial industry screening and -

MR. DUBE: I think a lot of value.

CHAIRMAN STETKAR: - organization? Well, a lot of value in terms of - I guess what I'm interested in looking at the plants how influenced am I as a plant by that effort that I would hope that I'm not influenced at all.

MR. DUBE: I think you'll hear from the plants. I found out some of the - there are some generic issues. For example, one of the issues that we looked at was enhanced drug testing for specific designer drugs.

CHAIRMAN STETKAR: Okay.

MR. DUBE: And we did kind of a generic assessment on that and that's applicable across the board to all the plants so why should you have 60 licensees reinventing the wheel.

So that's an example that lends itself very well to generic assessment. One that was in between was enhanced reactor coolant pump seal design.

These are the circ flow - for example, seal designs - where we found that there could be a plant-specific aspect to it but there was a strong generic aspect.

And then there's, on the other extreme, very plant-specific flooding issues where the best you can do on something like that is say these are the things to look for at the plant. But maybe you ought to hear from the plant representatives themselves.

MR. CHAPMAN: That's - yeah. Exactly.

MR. DUBE: I thought there was a lot of value added.

MR. CHAPMAN: This is Jim Chapman, and the simplistic view is it provides really good examples for the plants so they can learn from those examples.

CHAIRMAN STETKAR: Well, what I'm concerned about, I guess, is that we have a lot of experience of the industry telling the individual plants what's important for them.

MR. CHAPMAN: I understand.

CHAIRMAN STETKAR: And the initial emphasis on this was to get to a very plant-specific use of risk information and a structured prioritization process to make sure that we highlighted the differences between the individual units and each of their, you know, plant-specific risk profiles, how their influence - how they influence decisions about these relative issues.

Quite honestly, to be, you know, blunt, that's my biggest concern about this - the industry's prescreening is how much does that influence the individual plant's decision process -

MR. CHAPMAN: Right. Well, you'll hear from -

CHAIRMAN STETKAR: - either explicitly or implicitly because of the way that the issue is structured from that industry exercise.

MR. CHAPMAN: I think you'll be pleased when they speak.

MR. DUBE: Yeah, I think you will, too, and we'll get to an example of the buyer-in open phase issue spanned. The GAET found that it could span a large spectrum depending on very plant-specific -

CHAIRMAN STETKAR: Well, I mean, a lot of the issues - that's true. The issue that you brought up about the seals very - at a very high level sounds generic.

At a very plant-specific level, you know, can be very, very different depending on what the plants have done, you know, in terms of modifications or original design.

MR. DUBE: You'll see as part of the presentation - I think John's going to present it - when we aggregated the results among all the pilot plants there were examples where everything fit in line.

Other examples where they broadly spanned decades of risk reduction and we could explain it and that's the only one.

CHAIRMAN STETKAR: And you're going to present that roll up?

MR. CHAPMAN: Yes.

CHAIRMAN STETKAR: Good.

MR. BUTLER: I wanted to point out one thing. One of the values of the Generic Assessment Expert Team process that I hope to see come into flavor is to demonstrate its applicability and when it's used on emerging issues to kind of direct how those issues should be addressed.

CHAIRMAN STETKAR: See, those kinds of words - you have to be careful when you say those kind of words to me because to direct how these issues should be addressed is precisely my concern.

MR. BUTLER: To inform how those issues should be addressed. But you - hopefully you can understand what I'm - what I'm talking about.

CHAIRMAN STETKAR: I understand the concept.

MR. BUTLER: The more informed you are -

CHAIRMAN STETKAR: What I'm - what I'm interested in is the practice.

MR. BUTLER: The more informed you are early in the process the better off you'll be and that's what we're trying to accomplish.

MR. CHAPMAN: I think you'll find that we stressed in the training sessions early on what the safety people in this room know, that all risk is site and plant specific and I was extremely impressed with the pilots. They put really, really good people on it and they thought that way. So you can ask them.

CHAIRMAN STETKAR: Just make sure you speak up, Jim, because we -

MR. CHAPMAN: That's the first time I've

been asked to speak louder.

CHAIRMAN STETKAR: - you have to use your big boy voice - big boy voice today.

MR. DUBE: Okay. One more block on here that I want to spend any time on is that plant IDP - plant-specific importance characterization.

Each of the pilot plants put together an IDP multi-disciplinary and I sat in on a couple of the IDP deliberations and the aggregation and I - you know, I have a utility background of 16 years.

That was the first time I've seen a heavy discussion on risk impact of a proposed modification. I mean, very focused on okay, what is this project going to do and what's it going to do for risk and with risk being - nuclear safety risk being the primary focus and I thought of all the - of all the activities that was the most impressive and, again, you'll hear from them.

So we kind of talked about this. Let me just go through this slide quickly. It's consistent with a number of processes. The integrated decision making panel is - mimics some existing decision making panels on 5065 - that's maintenance rule - 50.69 is characterization of system structure and components and RITS 5(b) is risk-informed tech specs.

So what's get prioritized? Actions

addressing regulatory issues and findings, plant-initiated actions addressing equipment, the safety implications.

This is reliability and you'll hear some examples where - very good examples where because of the - because of the need to implement so many regulatory issues that this one component here that has reactor trip impacts, safety impacts has not been given the attention that it needs because of all these other regulatory-driven issues.

And why not, and we put it on an equal footing and you'll find - you'll see some interesting examples where a number of plant initiatives really should be high priority but had not been - you know, in the background there for some period of time. So that's an important one. What doesn't get prioritized general, you know, operations and maintenance - you know, you do this maintenance activity on a particular pump every quarter or some periodic basis - general facilities maintenance.

If there's an immediate action for continued safe operations that's not going to get prioritized. You just fix it. If there's an immediate repair for continued power production, like your main transformer just failed, you're not going to go through this process.

You got to replace that. There's one other that's not on this slide that we added lately as a result of the Hatch pilot.

There are some major programs out there and what comes to mind would be things like extended power upgrade, license renewal, maybe some generator replacement.

These are major multi hundred-million-dollar projects that get their own cost benefit evaluation by some corporate financial organization.

They're justified based on their own cost benefit. These probably are not good candidates to go through this process and we found that out with Hatch.

We have five importance categories or five categories: nuclear safety - that's mainly reactor core but spent fuel as well - we're not going to be worried necessarily with safety of low-level waste storage, for example; security includes cyber, emergency preparedness, radiological protection and the reliability of structure systems and components and I want to emphasize at first the thought was was this reliability of the plant - was this megawatt hours production and really it isn't.

It may - it may involve reliability of balance of plant systems but these balance of plant systems if you don't maintain them could institute a reactor trip.

So that's an important category and I think we'll see maybe a dozen examples of such structure systems of components evaluations and how important it is.

Let me just give you one example at Hatch. They had the reactor core isolation cooling controller obsolete - you know, very concerned with it. You know, the RCIC is a MSPI system.

It has high risk imports in the maintenance rule, it's tech spec, you name it, and we felt that it's important.

You know, if you just go through the - your PRA model and do a Delta CDF it's very hard to give a accurate measure of the risk impact of maintaining something that's obsolete or one-for-one replacement.

Yet, we felt that there should be an importance categorization for that where you're maintaining, you know, very important safety-related equipment and I think you'll see a number of examples.

So on the safety importance - next slide - we have a progressive screening process. Jim was very instrumental - Jim Chapman - in developing it. We have a three-step process.

In step one it's intended to be a 30-minute screening. In the practice it ends up being a little bit longer than that but is there any impact of the - or is there an adverse impact of the proposed change and what - that's asking a series of questions very much like 50.59 and saying, you know, do I even need to look at this issue or is it, you know, repaving the parking lot or refurbishing the cafeteria or lunch room.

Probably 90 percent of the time in round numbers it'll screen in and you'll move on to step two but there are those cases where we say why are we even looking at this - it's not a good candidate to prioritize.

In step two you ask a series of questions - very similar questions to step one. There's five questions but just asking is there more than minimal impact and the definitions of minimal impact we have a qualitative definition and a quantitative definition that are very similar to some of the 50.59 questions.

And then if you make it through there you're at a kind of a decision point and we did it deliberately.

If there's quantitative PRE information

and you can - the licensee can go in and give yourself or use the PRA model and get a change in core damage frequency or a change in large early release frequency, come up with a quantitative result, you could skip step 3-A which is more of a qualitative thing and go right to step 3-B, quantitative.

Or you could do step 3-A, come up with a qualitative and say I'm not sure that that makes sense. If I have some PRA let's maybe take a look at the quantitative results.

Again, it's progressive screening in terms of you got a half hour effort and a couple hour effort, a half day effort or maybe a day effort and it's purposely done that way to be efficient.

Coming out of those processes you say - you characterize the nuclear safety importance as very low, low, medium and high and again that's entirely consistent with the SDP - significance determination process - you know, bands of risk reduction. Go ahead.

MEMBER SCHULTZ: Don, is it prescribed who makes this determination in the process?

MR. DUBE: Yes. The subject - if there's an issue - enhanced reactor cooler pump seal replacement - you'll have a subject matter expert present to the integrated decision making panel, which is that multi unit - a multi disciplinary group typically.

Our experience is two or three SRO equivalence, maintenance, radiological protection, security, engineering, safety analysis, PRA. He will present - propose something and they will ask a series of very tough questions that justify that and if necessary they will fine tune it and change the reports.

MEMBER SCHULTZ: And they're moving through that guidance information associated with that questioning approach?

MR. DUBE: Yeah. Yes. And it worked very well. I observed a number of them so that's - ultimately they have the decision.

MEMBER REMPE: When I looked ahead I saw some of the plants had brought in people from other plants. Is that recommended or is that just -

MR. DUBE: I don't - do you recall?

MR. BUTLER: Yeah. I think it was Robinson brought in some of their corporate personnel to assist.

MEMBER REMPE: Mm-hmm. Generally it's people from the plant?

MR. BUTLER: Generally I think it was plant personnel.

MR. DUBE: Yeah. I mean, you can augment it with subject matter experts. If you have at the corporate office some experts on, I don't know, in-service inspection of piping or something you can bring them in.

CHAIRMAN STETKAR: Don, this notion of the screening on more than a minimal impact what's your notion of minimal may be different than my notion of minimal.

How do you - how do you struggle with that, especially if you have - I understand if you have a full scope PRA. I can - I can run it through there and get some quantitative information.

But the vast majority of the plants don't have that. So if I don't have numerical basis how do I as a typical nuclear power plant engineer operations maintenance understand what minimal may mean?

MR. DUBE: Well, good question. We pulled a lot of the qualitative guidance on that right from 50.59 guidance document in NEI and so there's a qualitative definition and a quantitative definition. Jim, you want to go ahead?

MR. CHAPMAN: Yeah. In 50.59, because sometimes you can just target the assessment to a component if you're going to change a component and the

NSB has been implementing 50.59 for as long as I can remember.

And so a couple of pieces of 50.59 are can you attribute to the change a discernible difference. If the answer is no, it's less than minimal.

Also, the 50.59 guidance has a quantitative value if the change is less than 10 percent. That's less than minimal so it screens.

We also invoked if you have the PRA information Reg Guide 1174 - yeah, 1174 - less than 1 percent change and less than 10 percent change. I'm pretty sure on those numbers. We can look them up.

And so far that has worked effectively. The whole key in steps one and two - the reason step one has taken more than 30 minutes it's where the subject matter expert and the IDP, really, you have to make sure they understand the issue and the proposed resolution, which is absolutely critical.

Anyone that's - many of you have I'm sure, if not all, in decision analysis is make sure you really understand the issue and the proposed resolution - what are the impacts.

And the screening questions - not screening questions - the larger questions basically also out of the SDP but they're common sense and we wanted to make sure you didn't have to be a PRA expert to understand them.

Change an initiating event. Change the mitigation system reliability availability capacity. Consequence - defense in depth. Oh, and safety margin, and this is - and work that way through so that if you do do a PRA analysis in step three Bravo you've actually understood what you should change in the model and you can also come to grips with the scope. You're right - not everybody has an all-seeing all-knowing PRA.

So I'm pretty comfortable with the minimal because it's worked in the industry basically for decades, and as Member Steven Schultz knows I used to sign 50.59s as did Dr. Schultz. So we know how it works - and did Don Dube. Thank you.

MEMBER SKILLMAN: Don, let me ask a question, please. I'm looking at what gets prioritized in your slide eight.

MR. DUBE: Okay.

MEMBER SKILLMAN: Plant-initiated actions addressing equipment and safety implications. In your - in your discussion, you mentioned changing the reactor coolant pumps.

MR. DUBE: Yeah.

MEMBER SKILLMAN: That's a capital

modification.

MR. DUBE: Yeah.

MEMBER SKILL MAN: That's one that's three years, five years in the making.

MR. DUBE: Oh yeah.

MEMBER SKILLMAN: So that one I understand how this process could be very valuable and very applicable. You also mentioned making decisions about equipment that might have failed.

MR. DUBE: Or are degraded, yeah.

MEMBER SKILLMAN: Okay. That sounds more like an issue that comes out of day-to-day plan ops. You're in your corrective action program. You've got a degraded device.

What is the - what is your perspective on timing and might some of the presentations later address that?

What I'm really concerned about - or not concerned, what I'm thinking about is the event that occurs overnight - the module failure and the RPS, the failure in a ES AS logic device.

MR. DUBE: That would not get prioritized. Can we back up?

MEMBER SKILLMAN: That gets fixed.

MR. DUBE: Next slide.

MEMBER SKILLMAN: Okay. Okay.

MR. DUBE: Immediate action necessary for continued safe operation - that's not going to get through this process.

MEMBER SKILLMAN: Okay. Now, is there - good. Is there hiding in that bullet the presumption that what is replaced meets the same design requirements as the device that was removed?

MR. DUBE: Yeah. Yeah. It's part of the process now.

MEMBER SKILLMAN: Okay.

MR. DUBE: Now, a change - let's say - take your, you know, channel failure one for one. But to go from analog to digital RPS - reactor protection system - that would go through this process.

MEMBER SKILLMAN: Oh, yeah. I mean, that=s a capital upgrade.

MR. DUBE: Yeah.

MEMBER SKILLMAN: So okay. I'm in line. Thanks.

CHAIRMAN STETKAR: I think the example used on the RCIC control is a good example. That's kind of a gray area where you see replacement of a not necessarily obsolete but on the way to obsolete technology with a new technology, not quite as dramatic as analog to digital, you know, reactor protection safeguards.

So there - I'm assuming there is some gray area in there in terms of what you feed into the process.

MR. DUBE: Yeah. I mean, we try to give general guidance but in the end each plant is on B

(Simultaneous speaking.)

CHAIRMAN STETKAR: But, again, that's a plant-specific decision. What you put in this - what you run through this process is up to the plant.

MR. DUBE: Yes.

CHAIRMAN STETKAR: Okay.

MR. DUBE: Okay. Next slide is very, very busy. I could spend the rest of this morning explaining it but again, Mr. Chapman lots of credit for working on this. We benchmarked actually this with some examples and it's - this has withstood the test of 60, 70, 80 evaluations.

So I feel pretty good about this matrix and it looks busy but there's - basically it's a two-step process. In the column on the left it says current risks associated with the issues.

You'll see the green, white, yellow, red bands. That's consistent, again, with the significance determination process. Remember I said order of magnitude.

So green represents less than ten to the minus six change in core damage frequency. White is ten to the minus six, ten to the minus five and so forth.

So in this two-step process if one just wishes to characterize as best possible without running through the whole PRA, I mean, they couldn't use the PRA but first assign what is the existing level of risk associated with a particular regulatory issue or plant initiative and puts it in one of these three major boxes, and if possible we've actually divide into three categories or if it's not quartile it's tritile or something - I don't know - within each color band and says what's the existing level of risk associated with this.

And then in the second step if I were to implement a particular fix, and usually there's a good enough characterization of what the plant modification is, how much am I going to reduce that existing level of risk associated with the issue.

If it's none and zero times anything is zero - that's why you see it in the second column all those very lows - I'm not getting any benefit, why am I even doing this - to the other extreme, which is high, which is greater than 90 percent reduction in the existing level of risk associated with that issue.

And the interesting thing about this is we found in practice that generally they'll do an evaluation and they may come up in some - one of these boxes.

I'll just pick a - let's say this box, for example - and the robustness of the process is - even if risk was off by a factor of two or three it's still within the same low category.

Or if their assessment of the risk impact was off by some amount they'll find - you'll typically find that they're still characterizing the risk significance - the risk abhorrence the same.

And in some cases it might straddle, you know, two importance categories in which case the guidance says well, you go with the higher one if there's any doubt, or if necessary go to step three Bravo which is, you know, use your PRA and spend the time and do a full quantitative analysis.

But in practice I think this matrix has worked very well and it's very robust and we'll have examples as the pilot plants get up here.

CHAIRMAN STETKAR: So, Richard, I hate the notion of very low highs. So I started thinking in the bottom of the pile, top of the pile, middle of the pile

- that kind of stuff - because this already biases the thought that everything is low or very low importance to safety and there - it's a lot easier to get into those very low and low categories.

In fact, I think it's too easy. But we'll see how the pilots did.

MR. DUBE: You will be amazed how many came out high.

CHAIRMAN STETKAR: Okay.

MR. DUBE: Okay. So I won't dwell on that. You know, we're moving along.

MEMBER SCHULTZ: So we'll go into the pilots and we'll get some examples but you just said you'll be surprised how many came out high. Can you give us a perspective on that?

In other words, in the experience with 80, 100 different elements of investigation most came out high? Many came out high? A few came out high?

MR. DUBE: Normal distribution with highs on the left and very lows on the right, yeah.

CHAIRMAN STETKAR: Well, it'd be interesting. I'm aware - we'll see one that I sat in on and zero came out high for that one out of six.

MEMBER SCHULTZ: That's what I'm trying to get an appreciation for.

MEMBER POWERS: I mean, it seems to me that most things should come out low. I mean, the plants aren't melting down like crazy.

MR. DUBE: I mean, there's selective choosing here because anything high means that the existing level of risk is greater than ten to the minus four core damage frequency. So but it -

MEMBER SCHULTZ: But, see, what I was reacting to you'd be surprised how many are high. That was what I took from your comment.

MR. DUBE: I mean, no - let me rephrase that. You would expect none but there were some. Let me put it that way.

MR. BUTLER: There were a number of mediums. Not a lot of highs but there were a number of mediums and they were issues that you're not - shouldn't be too surprised that they were mediums.

They were changes to address fire concerns with, you know, NFP 805. They were changes to enhance the RCP pump seals. So there weren't - at least I wasn't surprised that they were ranked medium or relatively high for those issues.

But by no means were they, you know, majority of the issues. Majority of the issues were, as you would expect, relatively low in importance.

MEMBER POWERS: And it just seems to me that the value of this process is exactly that. You've got a lot of low things and you've got to prioritize when you're going to deal with and the high stuff's going to get - I mean, excuse people for human failure - you know, not recognizing something is high and so it's a good process to find things that are high.

But in general those things are going to be taken care of and now you've got to - how low in the low do I go and how do I order how to do that. That seems to me the value of this.

MR. DUBE: Okay. I won't spend as much time on security, emergency preparedness and radiological protection but generally there's a nexus with nuclear and public safety on these.

Security certainly, emergency preparedness certainly, radiological protection maybe more but personnel safety in many regards. These have two-step processes - a little bit different than the safety importance but they are a two-step processes.

We first use a flow chart to assign high, medium, low, very low and step two is how effective is the proposed measure to address and here we use a matrix approach. I don't think we're going to go through those but they are in the backup slides.

MEMBER POWERS: I mean, it strikes me that you made probably a correct decision for this pullout date but we're going to have to come back to that because there's a lot of innovation going on now in the emergency preparedness effort and one cannot imagine that the lessons of Fukushima will be ignored in that area. At some point, we're going to have to go into those kinds of things.

MR. BUTLER: I doubt that we - you know, the charts that we have right now for EP and RP and security they've changed during the - based upon lessons learned during the pilot process and no doubt they will change as we learn more. They are areas that aren't quite as mature as our thinking on safety are so -

MEMBER POWERS: I'm going through lots of the ETE's and things like that and I at least am learning a lot from going through those, and I know that the staff is doing stuff in that area just going through the analyses that have been done and I'm learning a lot of about that.

Maybe the plants already know all this stuff but I'm learning a lot and I know that the staff - like I say, the staff's got a lot of work going on in that area.

CHAIRMAN STETKAR: How did you, in the security area, have kind of longstanding interest in this relationship between safety and security?

Did you find in the process that people were struggling with that or did they tend to okay, this is security so we'll put it in the security box and evaluate it according to that and by definition it's not safety?

MR. DUBE: No, because every issue goes through all five importance. So you may have a pure security issue or what you think is a pure security issue but it will have to go through nuclear safety evaluation, security, EP, radiological protection and liability. Or you may have a - what you thought is a pure reliability issue. It has to go through all five.

So any issue might start out as emergency preparedness but will get evaluated for all five categories. Now, there could be some overlap but that's okay.

The way the priority scheme is is, you know, you're not going to get double credit in the sense that you take the highest importance of all of them and with nuclear safety importance being one level above. So yeah, there's overlap but I think that overlap works fine.

CHAIRMAN STETKAR: Okay. Good. Thank you.

MR. DUBE: On the reliability importance, I personally think this is one of the most important categories that came up the first tabletop at Excel. It's concerned with aging management, availability, forced outage, power reduction, potential for reactor scram.

We had right from the beginning examples where very important equipment - it may not be your emergency diesel generator, it may be something more subtle like circulating water pump motor - but if that pump motor goes certain times of the year you'll have a reactor scram and it needs to get appropriate attention.

So we added this category a little bit late in the game but it turns out to be very important.

I think it's forward looking with regard to the nexus with safety. We gave the example of the reactor core isolation cooling, control replacement, but there will be - you'll hear a number of other examples where I think it's important that we give these attention.

The nexus with safety is - as you're aware there's a number of performance indicators under the reactor oversight process that measure everything from unplanned scrams and unplanned power changes.

Yours truly is very involved with the - has been involved with the mitigating system performance index. That's another measure.

Exceeding a threshold in a performance indicator could move a plant into a particular column in the actual matrix and I think there's a strong relationship between the reliability of SSC's and safety.

So that's our justification for giving this an important characterization.

MEMBER POWERS: A whole lot of this rightly depends on expert opinion, and expert opinion is borne of experience in the areas that I at least claim some expertise. It's because I've screwed up things in so many different ways that I know how you can screw up.

It strikes me that one of the areas where I at least have no expertise is in the area of external events because they happen rarely. I stay away from them when they do happen so I have no exposure to them.

How do you compensate for that or do you suffer my failing of lack of expertise on the effects of external events?

MR. DUBE: Well, we do have a job aide in there that says - at least asks the question of the IDP in the subject matter expert to look at external events. Fire, in some sense, is an - has been treated as an external event, seismic flooding, what have you - high wind.

They need to bring in the appropriate subject matter expert and there's also members of the PRA organization that sit in on the IDP and presumably they have some external event familiarization. They may not be the kinds of person we'd assign fragility analysis in a seismic PRA but external events needs to be considered.

MEMBER POWERS: But, I mean, isn't that what you want is somebody with expertise in fragility in the houses?

MR. BUTLER: I'll give an example of what happened during the pilot, at least at one of the pilots where they were looking at an issue and had - would have - the seismic risk at the plant would have some impact on the importance of the issue.

They went through their evaluation based upon the information they had at that time but recognized that they were in the process of reevaluating the seismic risk at the plant.

So they made an evaluation based upon what they knew at the time but specifically put a note in their evaluation that this be reevaluated, you know, periodically once, you know, further information or further development on the seismic PRA had been completed.

So, again, it's a point in time based upon the information they knew but they recognized that they were lacking some information on the issue that would be clarified sometime in the future and they just, you know, made a point to circle back around and reevaluate it when they had that information.

MR. CHAPMAN: Both the generic and the plant-specific assessment process have an alternative as follows. One is to develop additional information if there's not adequate confidence in the outcome.

The other alternative is to engage the NRC, and when we piloted a tabletop external flooding at the NRC I think last - I think it was last year - December of last year, we concluded the process worked because on external flooding the NRC developed and put together an expert team as did the industry and they worked on an industry process.

They got our hands around that topic because there's so much uncertainty, clearly, and it's all very, very plant and site specific. So the process has it in there.

There's a confidence check and there's two alternatives - do more analysis or engage the NRC before you conclude that you have adequate confidence in the outcome, and in the case of that particular pilot they have action to do an update as they gain additional information, correct?

So you'll find it in the process and I agree, external assets can be a challenge, that's for sure.

MEMBER POWERS: I mean, the problem is that this is risk information and I'm not sure that we have all the information you need here.

In particular, I look at the fragile - the order of fragile things that were identified in the IPEEE and make a noncomprehensive comparison to what we observed at a variety of plants subjected to earthquake mostly in Japan, and I don't see a great deal of alignment there.

MR. BUTLER: Agree.

MEMBER POWERS: And I think it's an area that deserves some more attention because, you know, we may be protecting like crazy things that just never fail in these seismic events and ignoring things that do fail.

We'll have to admit that by and large the Japanese plants have done very well in these earthquakes.

MR. DUBE: Okay. After all the importance were determined for those five categories comes time to assign a priority level.

Priority one are issues defined by the NRC as adequate protection or if it's high for safety or two or more highs for any of the other four categories - security, EP, RP, reliability - priority two are medium for safety or one high in the other four categories or two or more mediums and so on and so forth - priority three, four and five.

So a couple messages from this. First, we toyed around with let's assign so many points for this, so many points for that, and it got real complicated real fast and you need an Excel spreadsheet to come up with the answer.

So this is pretty straightforward. Safety is the most important. Adequate protection is the most important.

We do give, you know, consideration to the others but generally speaking all things being equal a medium for safety and a medium for radiological protection, the medium for safety kind of trumps it, if you will. But there's a semi infinite number of ways to do this.

CHAIRMAN STETKAR: Semi infinite?

MR. DUBE: Yeah. It's like on a one-dimensional plane it's finite in one direction.

CHAIRMAN STETKAR: And infinitely - okay.

MEMBER BLEY: You didn't talk very much about the security side of this and I guess there was one thing that kind of bothered me on the flow charts that you have in there, and that is wherever you get to the point of saying should we care about this, what's the chance this could have a negative impact - it's would the issue result in core damage - would the issue result in this problem instead of could or some probabilistic thing of it.

So it seems like it invites people to say gee, I don't think so and skip over some of those and I don't - didn't look. I don't know if those showed up in any of the tabletops.

MR. DUBE: You go to be careful on could versus would and so on and so forth because of safeguards issues. But it's part of the equation.

MEMBER BLEY: It just seems like it can let you trip past these.

MR. BUTLER: Well, I wouldn't be too concerned about that aspect of the chart since it has been revised and is no longer phrased in that way.

MEMBER BLEY: How is it phrased?

MR. DUBE: Do we have the most current?

MR. BUTLER: Yeah, actually it's at the end of the presentation. Do you want me to go to it?

MR. DUBE: Skip ahead if we got time? You've changed it, right? This is the revised?

MR. BUTLER: Yeah. First time in - we've combined the cyber and the physical security into a single flow chart and for the first time it addresses whether or not it affects security key function.

If it doesn't then you go down and ask the question on whether it's a administrative action and that determines whether there's none or very low security importance.

If it's yes to a security key function you ask whether compensatory measures address the effect. If yes you further ask if the compensatory measures can remain in effect until the issue is or impact is resolved.

If yes - and this is something we've added based upon lessons learned from pilots - you look at the cost - whether it's cost beneficial to maintain the compensatory measure.

If yes then you go to low. Every - if you answer no to any of those diamonds you go and ask whether or not if the issue is directly linked to a weakness in target set protection. If no, you go to medium. If yes, you go to high. So it's a much simpler chart.

MEMBER BLEY: Okay. Well, and that gives you some focus better than the other one.

CHAIRMAN STETKAR: Yeah, that diamond on the target sets gets it.

MEMBER BLEY: Yeah. Okay. I mean, there's another nexus between safety and security that you can't talk about much without getting into things you can't talk about, I guess.

But that is - scenarios can be affected. In-plant scenarios can be affected one way or another but I guess as long as you have it tied to the targets that's what - probably okay and that will at least flag it to look into more detail with those issues. That helps me.

MR. DUBE: So almost - I'm not sure if we're close to the end of this presentation.

CHAIRMAN STETKAR: Yes. This is the end. It's very close to the end.

MR. DUBE: So the whole purpose of this is to adjust the licensing and regulatory schedules. If necessary a licensee can process an exemption request. This is no different than current processes.

Any licensee can propose exemption or waiver against current regulations but this gives a little more perspective, if you will, and there's guidance already for managing commitment changes, and I think that's it.

CHAIRMAN STETKAR: Great. Members have any more questions for the folks up front? What I'd like to do, only because we're now going to start getting into focus things, let me - Mike, can you open up a bridge line?

I want to see - because if there are any general questions or comments that we get from the public. Does anybody in the room want to make any comments about at least this level of presentation?

The problem is I don't know how much we're going to get into proprietary information as we get through the - I know we've got it structured that all of the plant presentations are open but we could get into a situation where we're open and closed and I don't want to forget about asking for public input. We open?

PARTICIPANT: Yes.

CHAIRMAN STETKAR: If anyone is out there please do me a favor and just say hello or something. We have an incredibly sophisticated system here where I have no idea whether we can hear you. So is anyone out there on the bridge line?

PARTICIPANT: Yes, I am.

CHAIRMAN STETKAR: Thank you very much. Hi, Ruth.

PARTICIPANT: Hi.

CHAIRMAN STETKAR: Does anyone have any comments at this point? If not, we'll open up the bridge line later on. I just wanted to make sure, as I mentioned, in case we get into this kind of open-closed staccato that I didn't forget to ask for input.

And if not, we'll reclose the bridge line and, again, I promise we'll make sure we open it up for comments later in the day. So thank you.

Mike, I want to make sure we got that reclosed. And if there's no more comments on this phase let's start to hear from the plants. I guess Palisades is the first up. Is that true?

MR. SNODDERLY: Excuse me, John.

CHAIRMAN STETKAR: Yeah.

MR. SNODDERLY: This is Mike Snodderly from the ACRS staff. It was my understanding that the presentations by industry starting with Mr. Miksa are intended to be open.

CHAIRMAN STETKAR: Yes.

MR. SNODDERLY: So we're going to rely on the licensees to tell us if we're - if in the questioning we're starting to probe into areas that they believe are crossing into unclassified safeguards of information they let us know and then we'll close the line.

CHAIRMAN STETKAR: Right. That's - that's all.

MR. SNODDERLY: But right now we're going to reopen the bridge line so people can listen and we're going to rely on you guys to let us know when you feel we need to close and we will do so. Thank you.

CHAIRMAN STETKAR: Yeah, that's what I said. We have no problem closing the meeting. What I - if you do - if we do have a line of questioning that you feel was - is treading on proprietary or security information just let us know that and at the end of your presentation we'll close - we'll close the bridge line and address those issues.

I don't want to go open closed, open closed. Just let us know and we'll put it on the list and close it.

MEMBER BLEY: Before you go ahead, I just wanted to follow up on an issue Dana raised about how well many plants have dealt with seismic issues beyond the design point and just point out that there was an IAEA mission at the Onagawa plant after the big earthquake, and Peter Yanev and a great number of other people went with the IAEA.

But one of the big things they found was how well things survived beyond where they were designed including things that weren't designed to be seismically capable. So it's worth taking a look at that sometime if you're interested. It's IAEA 2012.

MEMBER POWERS: It is pretty clear to me that we have - we may have margins that are unanticipated and when you're in the business of prioritizing activities that's a margin you need to be aware of.

If we're relying on things of the vintage of the IPEEEs I think we're looking at a fairly anachronistic database and I think it would behoove us well to more aggressively mine the information that's come from some pretty substantial earthquakes, one here in the United States and a variety of plants in Japan that didn't undergo any core damage but certainly sustained substantial seismic motions.

Just to make sure our fragility perceptions the mental rankings that we rely on and the expertise we're relying on is in fact valid, of course, the problem - you have a twofold problem using Japanese data is they're Japanese designs and the seismic motions are peculiar to those particular earthquakes.

CHAIRMAN STETKAR: Jim?

MR. MIKSA: Hi. Good morning.

CHAIRMAN STETKAR: Good morning.

MR. MIKSA: I'm Jim Miksa. I'm representing Entergy Palisades and my current position is the regulatory assurance engineer.

Palisades was a pilot plant for the Cumulative Impact Task Force and myself I was the lead at the site for this initiative and this initiative ran from May through September of 2014.

So why Entergy, why Palisades? Certainly, Entergy is very interested. We were involved in the cumulative impacts initiative from the start and when the risk prioritization initiative came together and they were looking for pilot plants, Entergy was more than willing to participate in this.

If you look at Entergy's corporation we have ten sites, 12 different - 12 reactors. They are both PWR - pressurized water reactors - and BWR -

boiling water reactor - designs and we have also all of the different NSSS designs from General Electric, West Engineering, Westinghouse and B&W.

So we pretty much run the gamut. We realized all our plants aren't created or designed equally and different vintages. Also different locations - we have plants in the Midwest, on the East Coast and the South.

So we cover a majority of different regions so this really was a good fit for us.

Why Palisades? If you look at Palisades we have a lot on our plate. We're dealing with aging management. We are in the period of our extended operation, which ends in 2031, which brings along with it different aging management plans like MRP-227.

We have LI 600 inspections that we're required to do. We also are looking at adapting several of the risk informing initiatives - NFP 805, which is the risk informed fire protection program, and we're also doing a risk initiative for our GSI-191 containment sump.

So that's some examples of some of the items we have going on and we also are dealing with the emergent industry issues with Fukushima and open phase events.

So we are trying to manage our resources and prioritize correctly. So once again this was a good fit for Palisades as it was for Entergy because we have a lot on our plate.

How did we apply the pilot at Palisades? First we started out with subject matter expert selection. We had 12 different subject matter experts involved for 20 projects.

We picked the most knowledgeable individuals at the site. They were design engineers, system engineers, information technology engineers and project managers.

So there's a large gamut of individuals that were involved in this and people that don't typically look at things from a risk perspective. So we'll get that as one of the insights we have from this is extending the risk knowledge to other people at the plant.

IDP, the integrated decision panel selection, we had 11 members. It was chaired by the director of Regulatory Assurance and Performance Improvement.

We also had senior station managers from engineering, project management, security, radiation protection, regulatory assurance and production outage and then additionally we had a senior PRA engineer on the panel and our equipment reliability coordinator.

So I want to make sure we covered all of the topics that would have nexus to this pilot.

CHAIRMAN STETKAR: I didn't hear the word operations.

MR. MIKSA: Yes. Our senior manager of operations was involved -

CHAIRMAN STETKAR: Okay. Thank you.

MR. MIKSA: - on the panel. Several of them had SRO or past SRO experience, like myself. So we had at least four or five panel members with previous SRO or current SRO experience.

Training - we conducted training at the site. We took NEI's guidance for their training of the generic panel. We adapted that to Palisades and we provided training to all the subject matter experts and all of the IDP panel members.

So everybody went through training and then, additionally, prior to the actual IDP meetings and aggregation meetings we had just in time training to refresh everybody on the process to make sure we had a good understanding of it.

MEMBER SCHULTZ: Jim, so the training was on the process or was there a set of information that was also provided related to risk evaluation and other activities associated with risk prioritization?

MR. MIKSA: What I - what I did at Palisades, because I was aware that not everybody was as informed on risk assessment as others, was during the training slides I created, let's say, a diary or glossary of PRA terms to kind of breach discussion topics during the training.

So we kind of went through what I call a basic PRA glossary of terms and had the discussions on what things like risk significance importance meant in that. And then we also had the PRA individuals involved to help in that discussion during the training.

MEMBER SCHULTZ: And the training time B- give us some appreciation for what that involved in terms of an activity of one of the individuals on the IDP?

MR. MIKSA: It was a six-hour training session.

MEMBER SCHULTZ: Okay.

MR. MIKSA: And -

MEMBER SCHULTZ: Without homework?

MR. MIKSA: Yeah.

MEMBER SCHULTZ: Or opportunity for study

I presume in terms of -

MR. MIKSA: Absolutely. The materials were provided ahead of time.

MEMBER SCHULTZ: Okay.

MR. MIKSA: The guidance documents, and as we get into all the evaluations that were done the SMEs were given to the panel ahead of time so they had plenty of time to review and get ready and prepare for the types of questions they may have during the review meetings.

MEMBER SCHULTZ: In terms of the member selection, how would you characterize the experience level of the 10, 12 people that were on the team?

MR. MIKSA: On average, 20 years or more experience in industry or at the site. We had individuals like myself with over 28 years experience at the site on the panel.

We had those that had experience in other places in the industry. So on average I'd say probably about 20 years experience.

MEMBER SCHULTZ: Thank you.

MEMBER BLEY: I'd like to probe a little deeper on the training. We didn't talk to the first panel about this and it probably should have come up then.

There's another aspect of training I'm concerned about. Dana talked a little bit about what's meant by expertise for people who are on expert panels and, certainly, that's the technical side of the expertise.

There's another side of - that it's where very experienced people often go wrong and that's the process of processing how likely things are and for going beyond long-term experience.

I haven't seen that in 20 years. I dismiss it. I'm more interested in things that don't happen in a thousand years of experience. So people have to be conditioned to think beyond their own experience.

They've seen a lot of how things work and how they don't work but we're looking to - on each of these questions to think about how could this affect things in ways that we might not have seen but that we're prepared to think about.

Does the training dig into this for the expert panels, how to avoid the bias problem of real experts - technical experts - who aren't experts in thinking about likelihood and uncertainty and what might be here and what might not be here?

MR. MIKSA: Our experience was that the training touches on it. But until you actually get into the panel discussions and you have - and the subject matter expert who may be his only project - it may be the biggest thing in the world to that subject matter expert - but when you start asking different questions from different disciplines with different backgrounds and experience you start to realize or we start to realize that there is other importances out there that this can be compared to as a relative importance to what is going on.

So I guess going back to your question I think you can only touch on that in training. You can kind of give them the concept in training.

But until you actually start going through the discussions in a panel setting is where you really start to get into how probable is this and how does that impact the overall importance of it based on a probability.

MEMBER BLEY: One thing we could go into is what are those biases and how do they affect you so that you can think about avoiding them.

MEMBER POWERS: In my mind, the best exercise in the move of training nonexperts simply go through and say what does ten to the minus four CDF mean for a hundred plants operating for 40 years. There's a one third chance of core damage of that and that exercise is illuminating.

MEMBER BLEY: I think it is. It's one of the places you can go wrong.

MEMBER POWERS: I mean, yeah. I mean, you do just exactly that, what you said. I haven't seen this at our plant ever and that gives me a good .05 probability.

CHAIRMAN STETKAR: But to a lot of people .95 percent chance is it will never happen.

MEMBER POWERS: That's right. That's right.

CHAIRMAN STETKAR: Ninety-five percent chance it'll never happen is never.

MEMBER SCHULTZ: Could you describe the site lead training that you utilized?

MR. MIKSA: The actual lead training that occurred at the NEI offices it was, I believe, a setting that was put together for the generic assessment team type members and kind of just essentially went through the process of B-

(Simultaneous speaking.)

MEMBER SCHULTZ: Is it on process or is it on facilitation?

MR. MIKSA: It was on process.

MEMBER SCHULTZ: Okay.

MR. MIKSA: Yeah.

MEMBER SCHULTZ: And in terms of facilitation and ability to orchestrate the panel through the process of the investigation, was training provided there or was there an expected -

MR. MIKSA: No. It was more of -

MEMBER SCHULTZ: - assignment that the individual that had that capability?

MR. MIKSA: Other than the individuals that were involved as far as picking who would be probably the best person at the site to facilitate it, there wasn't - there was not any specific guidance or discussion on what traits it would take or how to facilitate.

We did lean on each other as pilot members talking to the other - that's the - going to observe I went and observed Robinson's pilot and aggregation before we did our pilots and aggregation. So that was very helpful in me in how to facilitate.

CHAIRMAN STETKAR: That's - and that's a good comment. One would think that we have a lot of experience now with expert felicitations and training of the facilitators - selection and training of the facilitators is a really important part of that process. I'm kind of surprised that the guidance doesn't stress that.

MEMBER SCHULTZ: And I'm also - I'm also thinking of whether you may have used a skeptic - you know, someone on the team that was not - someone not part of the team that could, you know, ask some probing questions that the team may not think about because of their focus on their expertise.

MR. MIKSA: We did not per se have a devil's advocate but I will say there was a lot of questioning of this process, what value it was going to add at the beginning by quite a few members and I think at the end they were all - everybody was really happy with what the actual insights were we got out of it.

MEMBER SCHULTZ: There's the - yeah, there's the aspect of questioning the process and then within the process making sure the right questions get asked through - bore down toward the right results.

MR. MIKSA: Right. And I think that was kind of - tried to cover by the different departments and different groups represented at the panel site.

So our schedule, once again, May through September. In May, we did the site lead training. Project selected Palisades. Picked 20 projects out of about a list of 200 we currently have in our asset management plan. Really, our focus was to select projects that would best exercise the process.

In doing that they weren't always the one that may at the end add most value to us as far as further action goes. But we really focused on what would best exercise the process.

So we looked at things that would maybe fall into safety - nuclear safety, emergency planning, radiation protection, security, reliability - tried to exercise as many categories as we could.

So in that respect, some of the projects we actually evaluated were ones that were - already had resources committed to already scheduled to be implemented and so at this point some of those, even though they may be a lower priority, we're going to end up going forward with them just because to take the resource off them now would not be of value.

With that, one of our first projects I have three examples here today. The first project - one of the first projects we looked at was incipient detection. This is part of our NFP 05 license amendment.

It's a modification at the plant as part of that. It's a very early warning fire detection system which is meant to detect fires prior to them causing any type of damage, hence the incipient name.

We looked - it's going to be installed in what we call our high risk areas for electrical fires and another part of this is going to replace our existing fire alarm control panel.

So that the key here it allows detection of a fire condition and acting against that prior to having damage to other associated equipment. That's the key to this project.

The first step is we go through the safety - nuclear safety importance. Overall, the result of this was a medium and we're going to walk through the steps on how we got to medium for this.

Step one is any impact and of the five questions we answered yes to any impact for question one. In question one - reducing the risk of a significant accident initiator - so for us the ability to detect the fire before it causes damage to adjacent equipment reduces the frequency of what we would consider a risk-significant fire.

In additional, it improves defense in depth and this is - incipient detection is an automatic detection and it's in defense in depth towards automatic suppression or mainly detection so it's a defense in depth - those two other items.

So those are the two areas where we found any impact. With that, we go on to step two. In step two, we're looking for more than minimal impact and we answered yes to question one for more than a minimal or discernible - in this case, discernible difference.

So our ability to detect a fire before it impacts other equipment has a direct effect on our core damage frequency, and having a more than minimal as far as allowing detection for defense in depth we determined that this was less than minimal because it improves the function of detection versus the - of automatic.

We also have additional defense in depth so there was not a discernible difference here from a defense in depth perspective of how we evaluated this because of the other automatic fire suppression and manual detection. So we already had two defense in-depth methods. Improving a third defense in-depth method wasn't considered, to us, discernible.

So then that leads us to step three and this was a qualitative approach we used for this project.

The issue risk level was considered high and this was based on our insights from our PRA - fire PRA personnel - and it's essentially allowing an NFP 805. If you can limit your damage to a certain fire area your risk of core damage goes down significantly.

So by having this early detection system we can limit our fire damage to one fire area or even before it damages adjacent equipment and that versus having it spread throughout the whole room creates a significant advantage to us, as fire is our core damage frequency. So that's why it was rated high for that aspect.

CHAIRMAN STETKAR: Jim, you said this is qualitative but you also mentioned that your PRA people used fire risk assessment. Could you explain a little bit more what that means?

MR. MIKSA: When they're creating the model for the fire - for our fire model, having the model in it with this incipient detection that limits it to this fire area versus not having it in the model is where you get the significant impact on core damage.

CHAIRMAN STETKAR: Okay. But I guess what I'm asking is did they actually do that type of Delta and explain it to the IDP so that they - so that the other folks on the panel could understand quantitatively what that might be? Where did -

MR. MIKSA: They discussed a - in this particular project they discussed it qualitatively on the panel versus quantitatively.

CHAIRMAN STETKAR: Palisades does have a fire risk model?

MR. MIKSA: We're just finalizing it as part of our LAR submittal.

CHAIRMAN STETKAR: Okay. Okay. Thank you.

MR. MIKSA: And then the other projected risk reduction here is 90 percent based on the ability to detect a fire in its incipient stage. As far as detection or prevention goes it's a high rating because of the ability to protect adjacent equipment.

So going forward, we then go into the table to determine the importance of - for this category and presented the table with the red lower bound and you have a high effectiveness. You end up with a medium overall importance rating in this category of safety for this project.

CHAIRMAN STETKAR: I guess one of the reasons I was probing is how did you - I mean, if you had determined that it was a red medium this would have become a high and it strikes me that by a qualitative assessment it's really difficult to differentiate within those high, medium and low or upper bound medium, lower bound on the left column.

Could you explain - maybe I missed it.

Could you back up in how you determined that it was the red lower bound rather than all medium without any quantitative information or what level of - I mean, why were you very confident that it was in that lower bound?

MR. MIKSA: There was information given by the - our PRA folks to support that lower bound and they do have the actual numbers that were submitted with our LAR - our license amendment request - as far as what our current plant is versus the future plant and a PRA risk-informed program. So they did it -

MEMBER BLEY: It kind of smells like qualitative means, not doing any modeling.

CHAIRMAN STETKAR: It smells like qualitative means not doing any modeling at all.

MEMBER BLEY: Yeah, but it's -

MR. MIKSA: In this case, there is - there is quantitative input into that value.

CHAIRMAN STETKAR: Okay.

MR. MIKSA: And I really don't have all the insights with me today of the model itself and -

CHAIRMAN STETKAR: Okay.

MR. MIKSA: - the values.

CHAIRMAN STETKAR: One of the things that I mentioned I think we asked each of the groups was I wanted to probe this, you know, the use of qualitative versus quantitative risk information throughout this whole process because initially part of this initiative was to more directly use the risk models and the risk insights to help inform at least this process, not necessarily lead the process because not everything can be quantified, obviously.

So that's why I'm probing a little bit in terms of this qualitative versus quantitative information.

MEMBER BLEY: You could help us understand this a little by telling us a little more. In your fire model, do you have incipient detection included in any form?

MR. MIKSA: In our future. We have - currently we have detection in our current - like, our current state - our current plant has detection. In our NFPA fire model - our LAR state going forward we'll have fire detection and co-compliant fire detection which this will be and then if you can - there's also an additional credit you can take for incipient detection.

MEMBER BLEY: So to pick this as red lower bound you make some assumption of what - I mean, say, full credit for incipient detection could do to your results and is that how you came up with that red lower bound or what -

MR. MIKSA: Essentially what we do is we said that without detection - without co-compliant detection -

MEMBER BLEY: At all?

MR. MIKSA: - at all, we're here.

MEMBER BLEY: Okay.

MR. MIKSA: If we apply incipient, which is also co-compliant detection, we're here and that Delta gives us that red significance that - the improvement.

It was very simple. We didn't spend a lot of time and resource to do that for the pilot. But it -

MEMBER BLEY: But I assume some effectiveness for the detection.

MR. MIKSA: Right. But it's kind of a very conservative and global perspective on without and with and what that would do to our PRA number.

MEMBER BLEY: I'm not sure what conservative with respect to with means. Does that mean the maximum change you can get or the minimum change?

MR. MIKSA: The - assuming that we have no detection is the worst.

MEMBER BLEY: That I get. Yeah.

MR. MIKSA: Assuming that we have a detection system is the - is the best.

MEMBER BLEY: And that has to have associated with it some idea of is it going to absolutely take care of the fire and detect it or it'll be, you know, effective with some probability. At least that must have been in the -

MR. MIKSA: Yeah, that was in - that's in the - that is in the model. I don't have those values.

MEMBER BLEY: Okay.

MEMBER SKILLMAN: Let me follow up on that -

MR. MIKSA: Sure. Mm-hmm.

MEMBER SKILLMAN: - Dr. Bley's question. The 90 percent that you award yourself is dependent upon the reliability of that system.

The 90 percent that you award yourself is dependent upon the reliability of that system. You only get that high reduction if you know for certain that that detection system is going to signal you an incipient level of an emergent fire.

MR. MIKSA: We looked at it in that respect from no detection to a detection. So it's more of not detecting anything versus incipient.

MEMBER SKILLMAN: But when you take credit - when you take credit for the risk reduction you are assuming that that device or series of devices are reliable.

MR. MIKSA: Right. We're assuming from a co-compliant perspective that that device will be - yeah, at least 90 percent.

MEMBER SKILLMAN: Does that suggest that when you award risk reduction of that magnitude that the device or the SSCs that are involved in that string are a specified quality or a maintenance rule or maintained in accordance with a certain level of pristine condition?

MR. MIKSA: In this case it would be what would be required to maintain its code compliance. So the code compliance of the equipment would be what you'd have to file to maintain its code of compliance. Is that -

MEMBER SKILLMAN: I hear the words.

MR. MIKSA: Yeah. I just -

MEMBER SKILLMAN: I don't - I kind of come from that school when we do 50.59s there's a lot of subjectivity in saying yeah, this is certainly - by answering the question this way I get this outcome and it's a templated process to come to an answer.

One could say by golly, if I have this system I'm good to go. On the other hand, there are a lot of applications where there have been incipient fire detection systems that fail, and unless it's understood the degree to which that incipient fire detection system is being cared for and maintained, tested, confirmed fit for duty, your assumption can be inaccurate.

MR. MIKSA: And that is one of the assumptions of processes. That's - there's a new - a brand new system that would be maintained and would always maintain function.

This isn't something we've installed yet at the plant so this would be a brand new system installation. So I guess it would be an assumption to this input is that that would be maintained.

So I'd say it wouldn't have, as it goes on in life, have an increased chance of failure - risk of failure. That's one of the underlying assumptions here.

MEMBER SKILLMAN: Thank you.

MEMBER SCHULTZ: The title of the risk reduction chart says - and maybe this is cleverly chosen - the potential impact - the potential impact. So it does give some latitude to talk about how the system might function and perhaps lean toward an optimistic interpretation of its functionality.

MR. MIKSA: Yeah. So for us, we're looking at it from a non code-compliant system to a code compliant system. So it's like having nothing to having something.

Now, if that something isn't reliable or not a good choice or has a history of failure, that would have to be modeled into that choice.

But we assumed a brand new system would be highly reliable and test - we actually did a test of the system at the site and had good results with it.

MEMBER SCHULTZ: Perhaps what you're saying too or what we're saying here, Dick, is this discussion prompts the understanding of the team that it has this potential and it may influence that team going forward to try to demonstrate or try to maintain the capability of the system in that - in that box - in that range of operation.

MR. MIKSA: And our design processes at the plant go through to ensure that we put in adequate industry-recognized good quality systems. So for this process we assume that the system we're putting in functions and that's going to be maintained.

CHAIRMAN STETKAR: John.

MR. BUTLER: Yeah. I'll just - let me help Jim out a little bit. As Don pointed out earlier this morning, this chart is very valuable in that it is forgiving of uncertainties.

So if there is some uncertainty on how reliable the system will be, you can evaluate that by looking at whether it will be, you know, highly reliable greater than 90 percent or if its effectiveness is in medium, small or very small, and in the case of the incipient detection system it's not going to change the answer of being a medium whether it's high or medium or small.

So there's some - you know, those type of discussions were engaged during the IDP meeting and a lot of them were addressed by looking at what's the impact of - we're a little bit off here by - off by a order of magnitude or off by, you know, a whole lot here. How does it change the answer? In many cases, it really doesn't change the answer.

MEMBER SCHULTZ: That's right. So what you see here is that you're well within the medium category.

MR. MIKSA: Correct, and if we apply this consistently to all our projects with the same assumptions -

MEMBER SCHULTZ: That's right.

MR. MIKSA: - you're going to find out that this is of relative importance. It's not an exact number. It's relative, and relatively speaking, compared to all our other projects you can find out this rings very high at Palisades compared to a lot of our other projects because of this.

That's really the value that we found is the relative importance, not the exact value. So for this project, if you go forward looking at importance of evaluations for the other categories, all of the other categories came out with the importance ranking of none.

If you look through, there's no specific nexus to security with this system. It does have a digital capability but it's air gap to all of our other systems and doesn't really have a control function and we assume that all the cyber controls would be applied to that digital asset for the controls.

CHAIRMAN STETKAR: This - and again, once we come close or step over the line just tell us.

MR. MIKSA: Mm-hmm.

CHAIRMAN STETKAR: This implies that the fire risk assessment does not address security systems.

MR. MIKSA: I can't - I guess I can't

answer that question directly. In this - in this perspective there - as you go through that security flow chart you could get to a point where you're impacting target function.

CHAIRMAN STETKAR: The reason I ask is some of the questions we were asking earlier is that a full scope fire risk assessment will look at fire damage to security systems in addition to the traditional PRA stuff and that's particularly important, for example, if that fire damage prevents access to areas that you may be taking credit for in the fire risk assessment.

And occasionally you find some interesting combinations of fire damage to cables or cabinets because of the location of the security systems that might prompt incipient detection in security because a fire in a particular area might cause not only safety but combined safety security issues.

So that's why I'm trying to probe whether any of that thought process went in here because you've now said well, this doesn't have any effect on security.

Well, in a fire risk assessment it might and that security effect might have a secondary effect on safety or a direct effect on safety.

MR. MIKSA: I can say electrical sources

to security are looked at secondary impacts.

CHAIRMAN STETKAR: Okay.

MR. MIKSA: So I guess -

CHAIRMAN STETKAR: Again, we don't want to get into where things are -

MR. MIKSA: Yeah, there's - yeah.

CHAIRMAN STETKAR: - where things are in Palisades. Okay.

MR. MIKSA: But I will say that that is - that is part of my -

CHAIRMAN STETKAR: Okay.

MR. MIKSA: Emergency planning - since this consistent performance is more of a preventive function versus mitigative function there is no real nexus to emergency planning, just detection system, and radiation protection is still carried outside the RCA - RCA and no direct impacts to radiation protection programs or effluence.

And then reliability - the onus of this project was not to improve reliability and it really had no - it's a new system to Palisades so no real improvement. We wouldn't see any improvement in reliability. The current detection system we have has been reliable.

MEMBER BALLINGER: With respect to the

emergency planning side, you say it doesn't affect - it's preventative as opposed to mitigative.

If you do have a fire or an accident of some kind, wouldn't this system actually help you with the mitigative function as well because it gives you a look ahead in some areas where if you have a fire that's spreading or something like that?

MR. MIKSA: Well here, again, it would prevent us from ever getting to a point where we'd be in the e-plan perspective. So -

MEMBER BALLINGER: Okay.

MR. MIKSA: - so you're really looking at the front. This is really more in the front end prevention before you even get into an area where you need to get into emergency planning.

MEMBER BALLINGER: But it's still operating continuously, right?

MR. MIKSA: Yeah.

CHAIRMAN STETKAR: Once you have the fire it either alerted you before the fire started or it didn't.

MR. MIKSA: True. But if it's spreading - well, never mind.

MEMBER SKILLMAN: I'd like to follow up on that because Ron's right. Say you're at Palisades and you begin to get this detection.

On the one hand, perhaps it spared you an unusual event because it's going to put you in EP if you get a fire. To what extent is the value of avoiding an unusual event considered?

So I agree, it doesn't impact the emergency plan per se but it is - it provides a mechanism to prevent from getting deeper into your EALs.

MR. MIKSA: Again, that's - and, you know, and we're looking at direct discernible effects with what we have now versus this new system. So our current system versus this new system, is there a discernible difference in that ability?

MEMBER SKILLMAN: What is the value of avoidance is really what I'm suggesting.

MR. MIKSA: And I look at that as covered more in the safety - the nuclear safety perspective as the avoidance and that's an additional avoidance.

But anything that would highly impact nuclear safety would more than likely probably get you into an unusual event of the EP plan.

So our interpretation of the guidance is that it's more geared towards the actual emergency plan process and mitigative functions of the E plan and the safety functions - the CDF, the LERF and then the consequential things that come along with that - like, if you have an event that would impact nuclear safety the consequences of that you're also going to have an unusual event - a site area emergency, what that goes with it. So we're looking more at the actual project benefit, not the consequences of it.

MEMBER SCHULTZ: Consequences to the emergency plan exercise?

MR. MIKSA: To the emergency plan exercise. It's more of what's the first direct impact to the - the project has. In this case, the more direct impact is on the nuclear safety perspective, not on the consequences if it were not to be successful.

MEMBER SCHULTZ: Thank you.

MR. MIKSA: So the results of incipient detection then as we go through the NEI priority came out as a two. A Palisades project priority came out as two and we'll discuss a little bit more in the future slides on how we got to a two.

The NEI process priority it's easy to go through the slides and present it earlier and you come up with a medium. In the nuclear safety category you end up with a priority two. That's right in the guidance.

Then for Palisades what we do is you look at all the projects that came up with a priority two and then you rank them. In this case, we had four priority two projects.

This came out number two out of the four, and I have more slides to discuss that in the future, how we did that. Looking at it from a scheduling perspective, the NEI process schedule would have this around June 2016.

Our project schedule is current for October of 2016 and one of the actions we're taking out of this is to look at the ability to move this project up, this importance in schedule, working with the project manager to do that.

CHAIRMAN STETKAR: Let me ask you kind of as a follow-up to where I was probing with the folks who are up front earlier, what - you said the NEI process priority came out two in this example. Your own internal evaluation also put it in the number two bin.

What benefit did you have from the generic evaluation of this? In other - or let me ask you in a more pejorative way. How strongly were you influenced by that NEI process priority?

MR. MKSA: In this case, well, the NEI process priority is strictly per the guidance. You have your five categories.

CHAIRMAN STETKAR: Yeah. Mm-hmm.

MR. MIKSA: As far as the generic, we - the generic has input to this but in this - for this particular project since we're into the 805 process we really relied on our subject matter experts and our PRA experts who've been doing this for the last six or seven years to give us this input.

So the generic piece of this was really, I'd say, small for Palisades in this perspective -

CHAIRMAN STETKAR: Thank you.

MR. MIKSA: - from our experience.

MEMBER SCHULTZ: I took your - we'll go through this with others. So just to be clear here, I took your second bullet to be the Palisades project priority is the ranking of this project with respect to all of those others - four - that were ranked two under the NEI process priority.

MR. MIKSA: Correct. So we have 20 - yeah.

MEMBER SCHULTZ: Just to clarify that.

MR. MIKSA: That's correct.

MEMBER SCHULTZ: So -

MR. MIKSA: That's correct.

MEMBER SCHULTZ: So this gave you an opportunity then to evaluate this project in relation to the other three in that category two - priority two?

MR. MIKSA: Correct.

CHAIRMAN STETKAR: But just to be clear, this project priority was number two out of the five. Jim - it just happened to be also number two out of the four other twos or the - right?

MR. MIKSA: Correct. Yeah, there's four projects that came up with the NEI process priority of two.

MEMBER SCHULTZ: Right.

MR. MIKSA: And based on the evaluation of those four this one landed as number two during the aggregation meeting.

MEMBER SCHULTZ: I understand. Yeah.

MR. MIKSA: It'll be clear when you see our list of ten of them or 20 of them.

MEMBER SCHULTZ: Yeah. Yeah. Sure.

CHAIRMAN STETKAR: Let's - are we done with incipient detection?

MR. MIKSA: Done.

CHAIRMAN STETKAR: Let's - only because I'm obviously under the weather here and we know I'll need a break, let's take a break now until 10:35.

(Whereupon, the above-entitled matter went off the record at 10:21 a.m. and resumed at 10:37

a.m.)

CHAIRMAN STETKAR: Let=s get restarted here and hear about the second issue.

MR. MIKSA: The second issue that Palisades was evaluated was open phase. This was driven by the Byron event. It installs an open phase monitoring and isolation system on our start-up transformer and our safeguards transformer. It=s detecting an open phase condition on the high sides of our transformer busings.

And at Palisades our insulators aren=t similar to Byron. So it=s not susceptible to that exact same failure. And we also use as an input a generic industry probability risk assessment for the open phase condition event. And that was very low. And by input we considered that information. We actually performed a risk assessment on this project.

One thing to know about Palisades is about several years, probably more than five years ago, we installed a separate underground feed from our switch yard from a separate bus back to our safety-related SME transformers. We actually have an overhead feed from a one bus in our switch yard and we have an underground feed from a second bus in our switch yard. And our switch yard has several different lines, several different station lines, going into it. So there=s a lot of robustness at our switch yard and from our risk perspective we improved our -- or to prevent a loss of offset power by adding two separate feeds to our safety buses from the switch yard. So that=s specific to Palisades. It=s kind of important as we go through some of this risk assessment information.

CHAIRMAN STETKAR: Jim, before you -- I=m going to keep probing on this qualitative risk/quantitative stuff. I=ve seen some numbers thrown around. I=m not sure that I would call it a probabilistic risk assessment. But I=m curious.

You said there=s a generic industry probabilistic risk assessment that determined there=s a very low probability of this type of event occurring. What is very low probability and what do you mean by this type of event?

Open phase events have occurred. I mean they=re countable numbers of events. So to say it=s very low is not like getting wacked by a meteorite for example.

MR. MIKSA: Yes, I think that bullet is not worded very well. I think that was the generic assessment at NEI of this issue. And it came out an importance of very low. So it=s not that. And there was some basis during that generic assessment team work for that very low. But that very low is meant to be the generic assessment that we did in May at NEI on this issue came out an importance of very low.

MR. DUBE: Can I? This is Don Dube. Can I just clarify that? The generic assessment expert team and I was a member actually came up with a range depending on the configuration. So it may have been very low for a configuration like Palisades. But like Byron would have -- It was somewhat higher.

CHAIRMAN STETKAR: I was going to say. This is very dependent on the actual bus configuration of the plant.

MR. DUBE: Yes, it was. And we can as an action item if necessary send you the generic assessment for open phase. But it spans a spectrum.

CHAIRMAN STETKAR: Actually, Don, if it=s available, we are actually having -- Dennis, I don=t remember the date -- another subcommittee meeting.

MEMBER BLEY: There=s a meeting in two days in which this issue comes up and then two weeks from now on Monday there=s one just on the open phase.

CHAIRMAN STETKAR: Right.

MR. ZOULIS: This is Antonios Zoulis. We issued a summary of the demonstrating pilot test

Friday. I gave it to Mike. In that summary there=s a reference to the MO numbers for the generic assessments. So they=re available on ADAMS for your access.

CHAIRMAN STETKAR: Thank you. We can just skip the point, not just so much for two days from now but for the two weeks meeting. We=ll get it. Thank you.

MR. MIKSA: So we go forward and we go to the first category of safety. Step one we=re looking for any impact. In here, we had a yes answer for question two because impacts, the availability of the system, structure and component. The application here is that if you have an open phase that=s undetected you could have equipment out there for an extended period of time that=s unavailable that you=re not aware of.

MEMBER BLEY: Can you damage equipment?

MR. MIKSA: There is a potential to damage equipment. In this case, looking for any impact, we said yes. There is a potential to impact equipment.

MEMBER BLEY: Okay.

MR. MIKSA: And then also other questions we looked at is there an ability to impact the availability of personnel and here we answered that subbullet as a yes also because if people are taking their time to troubleshoot this issue it takes resources away from other things that might be used going on in the plant at the time. So the ability to improve their troubleshooting and make it easier for them to determine the condition would improve their availability. So there=s an impact there.

And then reliability of personnel, it makes the troubleshooting, getting to the right answer, finding the exact issue, more reliable in that perspective. Those are the types of things we looked at from an impact on safety.

Going to step two then, we=re looking for more than minimal. In all three of those areas, it was determined that there was a discernable improvement in equipment availability, personnel availability and personnel reliability. And the focus here was on more so the detection at Palisades than the isolation. The ability to detect had more discernable value than the ability to isolate.

CHAIRMAN STETKAR: How did you -- Maybe you can help me. You just said that you emphasized the detection rather than the automatic isolation. Does that -- I mean that seems to me to presume that people will behave perfectly once they have the alarm.

MR. MIKSA: One of the conditions is to

have a standing open phase condition that goes undetected for a longer period of time. And so if that has a way of being detected and from the current perspective if I find something that=s been in that condition for 30 days, I take a bigger hit on availability than if I find it=s been that way for five minutes.

So that=s discernable difference in equipment availability. If it takes me a week for a troubleshooting team to determine I have an open phase condition on this component versus an hour that saves me personnel and resources. That=s the discernable piece and how it goes onto the next risk assessment portion.

MEMBER SKILLMAN: How is failure of the detection and isolation circuitry considered in this calculus?

MR. MIKSA: The actual failure of it?

MEMBER SKILLMAN: Yes. So you put in this system. Expectations are high. This is going to save us resources. This is going to save us maintenance rule down time on this equipment. And that=s good stuff.

But what happens if it doesn=t work? What happens if it doesn=t function exactly as you intended or worse it mysfunctions causing I guess it would be isolation of these circuits, these transformers, and maybe unavailability of equipment that is dependent upon those transformers for their basic operation?

MR. MIKSA: Obviously, if it doesn=t function at all, we=re not better off than we are today.

MEMBER SKILLMAN: Well, what if it mysfunctions?

MR. MIKSA: That=s the second piece. If it mysfunctions, then there a new probability of a risk significant event you just started based on that failure. What=s the consequence of that failure?

MEMBER SKILLMAN: And how is that considered here?

MR. MIKSA: That=s considered as a negative impact of this project. And it goes on to the reliability section of a misfunction.

MEMBER SKILLMAN: But is it part of this evaluation?

MR. MIKSA: Yes.

MEMBER SKILLMAN: It is.

MR. MIKSA: Yes, it was considered a part of this evaluation. When we go through the actual file importances are based on the positive aspects of the project. But we also note any type of potential distractions.

In other words, it=s not an accounting of this much positive and this much negative equals out. It=s this is the positive impact and then these are the other considerations for the IDP members to take account for when they go through aggregation and prioritization.

MEMBER SKILLMAN: Thank you.

MR. MIKSA: And that comes into play on our actions coming out this evaluation. It=s directly related to that where we get a lot more value out of the detection than isolation. And why isolation for us isn=t important and may actually have a negative impact to us.

MEMBER BLEY: Something wrong mentioned to me earlier. Assuming there=s not some direction from the NRC on one of these issues we=re looking at, does this process flag at any point if something is significant enough to report to the NRC?

MR. MIKSA: The process really isn=t meant for that.

MEMBER BLEY: It=s just a more prioritization.

MR. MIKSA: Certainly, that=s my every day at work as an employee. If I come across something that appears to be not within a regulation or in a license, I go through our processes to determine if it=s reportable or not. Certainly, a question could come up that could lead to that. But that=s not the intent of the process.

Going on to step 3B then, we did do a quantitative assessment. The quantitative assessment came out with a green (VL) mid level CDF. It improved our CDF by 2.5 E-7 value.

Some of the assumptions that went into the modeling of it was that the initiating event frequency for loss of offsite power was increased based on the frequency of open phase events occurring in the industry. So it took that into account.

And event representing consequential open phase condition occurring during plant response for all other initiating events was incorporated into the model. Possible common cause contributors from open phase conditions and multiple sources was considered. And minimal credit was given for operator actions to diagnose and mitigate the open phase conditions. Those are some of the assumptions that went into determining the overall importance of Palisades.

MEMBER BLEY: I guess so far operating history with these events would say that=s not a conservative assumption much unless we change how we=re trying to identify these things. We=ve only had a handful of these events. But when we=ve had them, they=ve been hard to spot in the past where we=ve had systems became detected.

MR. MIKSA: True. I think the consequence of that based on a robust system or system design at Palisades is less. We did increase the frequency of that event, the loss of offsite power, based on current industry experience. So current industry --

MEMBER BLEY: Yeah, but it=s a really different event than the loss of offsite power.

CHAIRMAN STETKAR: Yes. See, this is a little bit, Jim. Here is the first place that we=ve seen any numbers. And to me it=s a very stylized number. You=ve run a number through a risk model that on the surface sounds like it=s conservative. We assume we=ve lost offsite power.

But indeed that=s not the way these events manifest themselves. And yet in the fire area you said we really didn=t have a risk model for that. So we couldn=t model that. So we used qualitative things. And to me this is not necessarily a reasonable quantitative assessment.

MEMBER BLEY: Kind of a parallel to me would be if you look at loss of instrument error and it goes away all at once. Well, not much happens. I mean you=re designed to handle that. But in those odd cases where it=s gone away very, very smoothly really weird stuff has happened to plants. We=re designed to lose offsite power. But up until now we haven=t been designed to have an open phase condition which under the right or wrong set of conditions could actually damage equipment that we might want to work later. So they=re not the same thing.

MR. MIKSA: Right.

CHAIRMAN STETKAR: But modeling it is a clean loss of offsite power.

MR. MIKSA: Right.

CHAIRMAN STETKAR: It goes from suddenly pure white to pure black if you want to do that.

MEMBER BLEY: We=re built for that. Right.

CHAIRMAN STETKAR: That=s not surprising that that=s small.

MR. MIKSA: Right. There=s another probability on top of that.

CHAIRMAN STETKAR: Right.

MR. MIKSA: Of actually having an open

phase.

CHAIRMAN STETKAR: But my point is that this looks like it=s very quantitative because the PRA people did what they thought they could easily do. And they said that=s conservative which it may not be. And in the fire stuff, it=s not clear how you address that quantitatively.

MEMBER BLEY: It might be that that=s more quantitative.

CHAIRMAN STETKAR: It might be. That=s right. Because it=s a lot easier to figure out when I burn up a certain cabinet if you have that model.

MR. MIKSA: A perspective is when you=re looking for relative importance. So unless there is a significant error in how these assumptions were put in or the fact that we missed the point altogether, relatively speaking this process still should come out with a proper ranking.

CHAIRMAN STETKAR: One would hope. I mean I think that=s part of this pilot process. It=s to test that resilience of the process.

MR. MIKSA: Yeah. And as one PRA person would tell me, sometimes it=s not so much about the exact number you=re getting. It=s the insights you=re gaining and the discussions you=re gaining at the site based on the ability to impact risk and nuclear safety and these other categories. Sometimes we get caught up too much in the actual numbers and things. That number right, wrong, not.

CHAIRMAN STETKAR: Okay.

MEMBER SKILLMAN: It seems to me that a number of the comments around the table here are pointed to the value of having one or several contrarians as part of your assessment team, folks who just at least initially are not convinced that the brand new gizmo is going to do exactly what it=s supposed to do without unintended consequences.

At least in my career we=ve learned time after time that we=ve had the best of intentions and we=ve failed to find some slight detail. Or configuration control has not been as robust as it needs to be. Or we=ve made an assumption that was not a very good one and we let ourselves get steered in a direction that we shouldn=t have let ourselves get steered in. So having those kinds of contrarians or some challengers on the team is really important.

MR. MIKSA: I agree. We haven=t been in engineering projects before. Myself, my personal experience has the same exact experience. And we always used to have the same change is not always good in fact. So I think having experienced people have been there and seen that can play the contrarian viewpoint.

I guess I would agree with that comment. I thought our panel had that contrary person on there just because of our experience, just because we=ve lived through all the modifications that didn=t exactly go as what we thought how they would go and the impacts of that.

MEMBER REMPE: When you have these exercise evaluations, do you notify the regional office and do they send someone to observe? Or how do the regional office representatives interface with this process?

MR. MIKSA: Certainly, right now the way the process is written, they would only interface when it got to the point of doing some type of submittal to change something. However, as part of the pilot, we communicate to our residents at the site. We communicate to our region. And we did have region representatives both at the SME meetings and the aggregation meetings. So they were present at both.

MEMBER BALLINGER: Back to the contrarian part, is the process robust enough do you think that if you were to -- this is like a Gedanken experiment

-- If you were to have two different panels deciding the same thing but they don=t talk to one another, would they come up with the same answer?

MR. MIKSA: In some respects we have six different pilot plants do this.

MEMBER BALLINGER: Some of these are specific to the plants.

MR. MIKSA: True, true. But certainly you have two different people in two different areas looking at two different things there is a potential for them to come up with something different. Right. But if I think you look across the board at the pilots and issues that were similar, you=ll see similar answers where they were similar and answers where they weren=t. And where they weren=t, they=re explainable.

I think like John mentioned that=s the important part. If there are differences, is there a real reason for it? Or is it just that the panel looked at differently? I think we had good results. And I think John will talk about that.

MEMBER BALLINGER: Sometimes it=s the outliers that are actually the most important.

MR. MIKSA: But at least this process gives you a platform to discuss that. There is no process out there to discuss any of this right now.

CHAIRMAN STETKAR: Yeah, I was going to say. When we look at the similar issues among the three pilot plants.

MEMBER BALLINGER: Yeah, I was looking those. But I was curious about in a given plant.

MR. MIKSA: Even in our plant, we don=t have a process like this to discuss to these types of questions on risk and impact to projects.

MR. ZOULIS: Antonios Zoulis. I just wanted to give you a little perspective of what we saw throughout this demonstration pilot on this particular subject. One thing, the generic assessment evaluation team, one of its key functions is to bring out the key characteristics of an issue, identify what are the important drivers and present that in the evaluations. When the plant IDP conducts its evaluation, they could use that information to assure that they=re in the right ball park and kind of avoiding that they=re too far off.

The second point, we observed multiple -- and Jim I think participated in a couple and the NRC participated in many IDP evaluations and there was that contrarian view in some of the panels where they did ask what are the adverse impacts. And the process does lend itself well to that to make sure that the action that you=re proposing you are considering the adverse effects. You are looking at whether or not the issue is actually addressing the problem.

And if you look at the flow chart, if you=re doing something that=s small or minimal, that=s your key that the panel should say, AWhy are we doing that? Our fix should be more much effective. Or maybe we=re not doing the right thing to correct this issue.@ The process does have those kinds of aspects to it. Thank you.

MR. MIKSA: So taking the information and going into our table for our step 3B we come up with a green midlevel band with a high potential to resolve the issue, giving us a very low from a safety perspective category of importance.

The other categories, security, the system did not impact physical security barriers or cyber systems. Emergency planning, the system performs. Once again, this is more of a preventive function than a mitigative function. Radiation, all these areas identified are outside our radiation control areas. And reliability, it=s a new system. But under reliability this is where we have the negative potential impact of a fault isolation would cause an event at the plant.

Scheduling, this was the NEI process priority came out as a four. Our Palisades project priority came out as an 18. Currently, NEI would have scheduled this in 2018 for their guidance. Our schedule currently is for May of 2017. And one action that came out of this is to evaluate submitting an exemption for the isolation function and to maintain the monitoring function.

CHAIRMAN STETKAR: I was I think educated a bit on the last slide for the incipient fire detection and about the two and two there. Could you explain a little bit better the four and the 18 here? And how that relates to the schedule that was assigned, the site schedule?

MR. MIKSA: Absolutely.

CHAIRMAN STETKAR: Unless it=s easier to wait until we get to the integration part.

MR. MIKSA: I=ll do a short piece here and then we=ll discuss more in detail when we get to integration. The NEI process priorities for this is for the Palisades specific project.

So our evaluation, our specific evaluation, came out with in this case a very low in safety importance and none for the other four categories. If you take that outcome and you put into the guidance document it will give you a priority. And that=s what the four is. It=s a four priority.

Once Palisades has gone through all their 20 projects, we=ll end up with more than one that=s a priority four for NEI guidance. You=ll see an overlap. So what the aggregation panel does is it takes all of the priority four items and gives them a relative ranking in between. Once you do that and you add that with the other twos, threes that came out of our pilot out of 20 projects that we looked at Palisades, this was number 18 for relative importance.

CHAIRMAN STETKAR: And why since it=s so low is it May 2017 as opposed to November 2018?

MR. MIKSA: May of 2017 is for the project because currently in progress this goes back to how we applied and picked our projects at Palisades. So this is well along the design phase way. If this had been done earlier, it may be different.

MEMBER SCHULTZ: So that=s a point of information really where you stand with it.

CHAIRMAN STETKAR: A point of information. It=s already started, under way, might as well finish it.

MEMBER SCHULTZ: Okay.

MR. MIKSA: Exactly. The resources are

already spent. The design is essentially done.

MEMBER BLEY: I would assume your last bullet as at least envision the argument about the negative effect of isolation when you don=t need it.

MR. MIKSA: Correct. In Palisades specific design.

MEMBER BLEY: Despite what I said earlier, open phase can in fact damage equipment badly. But from the events we=ve had, I don=t think we=ve had any cases of that as other industries have.

MR. MIKSA: Project three, this is for our Bravo cooling towers. We have two cooling towers at Palisades. This project will be to rebuild the bravo cooling tool. It=s a wood structure. It=s been 37 years in service. The standard expectancy for Redwood towers is 20 years. We have been maintaining it and doing inspections.

There are certain parts of the tower though that aren=t easily accessible to inspect. So therefore that gives us an increased risk of failure in those areas because they=re highly loaded. And we cannot inspect those areas.

We already have replaced our alpha tower. The alpha tower was seeing some bowing. And so we proactively replaced that. And bravo tower is now exhibiting some of that also.

MEMBER BLEY: I=m just curious. When you=ve replaced the alpha, did you find some degradation in places you couldn=t inspect that was significant?

MR. MIKSA: Nothing more significant that we found on it otherwise.

MEMBER BLEY: That you had found otherwise.

MR. MIKSA: Yes. The other piece of this is we did use industry experience from Vermont Yankee, one of our sister plants, that did have a collapsed tower. So that fed into this.

We went to the safety, step one for safety. The outcome was very low. Step one we looked at impact on reducing the frequency of risk significant accident initiator. This case failure of the tower or a cell would lead us to an unplanned power reduction. That=s how that created any impact.

And then also we checked yes for improvement of defense in depth because the circulating water system also acts as a heat sink via the condenser.

CHAIRMAN STETKAR: But you didn=t quantify this one?

MR. MIKSA: Correct. This is

qualitative, not quantitative.

CHAIRMAN STETKAR: Okay.

PARTICIPANT: Before you leave that.

MR. MIKSA: And we=ll see this in the next --

CHAIRMAN STETKAR: Let me ask this.

MR. MIKSA: Go ahead.

CHAIRMAN STETKAR: Of the three so far, this one strikes me as the one that if you have any sort of reasonable internal event, power operating PRA model this is kind of no-brainer to quantify. Why didn=t you do that?

MR. MIKSA: It was a step two. We don=t get to step three in this case from a quantification perspective. This step leads to a very discernable impact.

CHAIRMAN STETKAR: Ah, so that the process really doesn=t even suggest that you do anything quantitative unless you get to step three.

MEMBER BLEY: This isn=t a quantify if you can. It=s a quantify if you need to.

CHAIRMAN STETKAR: Quantify if you need to, okay.

MR. DUBE: This is Don Dube of Erin Engineering. That=s correct. It=s a progressive screening to maximize efficiency.

CHAIRMAN STETKAR: Even if the quantitative information could affect your decision early on.

MR. MIKSA: And that=s where IDP panel members with PRA members would be important. If that individual representing PRA at that panel knew that there would be more of an impact than what this screening came up, that would be his opportunity to say we need to take this back and actually invoke it in our PRA.

And going back to Don=s question, our PRA resources at the sites are very important to us and very limited and very stretched as far as what the projects they have going on right now. So having a screening process helps us, too, so that everything doesn=t have to go through them if things don=t have an impact.

MEMBER BLEY: But they have a presence.

MR. MIKSA: Yes, they have a presence at the end in the final approval if there=s something the subject matter expert missed in his evaluation.

MEMBER SKILLMAN: Isn=t there an element that=s missing here? I would think your operators would have had real heartburn with the logic of the second bullet or what is the fourth bullet. I would think they would have preferred to use condenser dump valves as opposed to atmospheric dump valves or main steam safety valves. I would have thought they would have fought tooth and nail and say, AHey, no way. I want that cooling tower repaired because I=m dependent on using circ water for heat removal.@

MR. MIKSA: And now we come to the reliability section. When we get to the reliability category, they=ll have a lot of voice in this. And that=s why this ended up being ranked very high on our list of things to do.

MEMBER SCHULTZ: Alright. And continues to move through the rest of the process. Right.

MR. MIKSA: Yeah.

MEMBER BLEY: I=m a little confused because I thought you didn=t go further than this.

MR. MIKSA: There are five different categories. This is just the safety category.

MEMBER BLEY: Oh, that=s right. Yes.

(Simultaneous speaking)

MEMBER SKILLMAN: I would have thought the -- would have said, ABy golly, you might not think it=s safety. But I sure do.@

MR. MIKSA: From a core damage perspective/PRA perspective is what this looks at.

From a reliability perspective and challenging the operators, the reliability section gets into it. That=s the importance of the reliability section. A lot of things at the plant that if they were to fail, the operators would have a hard time responding to and are very passionate about those items. Not all those items are directly related to minimizing core damage frequency though.

MEMBER SKILLMAN: I understand the words, but I=m certainly uncomfortable with what that points to.

MR. MIKSA: Okay.

MEMBER SKILLMAN: I understand what you=re saying.

CHAIRMAN STETKAR: Let Jim get to the next slide.

MR. MIKSA: From a safety perspective, you go to step two and you see if there=s a discernable difference. And in step one from a transient perspective, we said that there was not more than minimal. Giving our operator training, the ability for operators to train and respond to a loss of condenser vacuum and the chances of -- And the probability of the tower more likely failing the one-cell failure versus an entire tower failure. So when you look at it from that perspective, you can not have a more than discernable impact on the ability to create a reactor trip type of significant, a transit that couldn=t be handled by the plant.

And then also if --

MEMBER SKILLMAN: You=re going to get a trip if you lose vacuum.

MR. MIKSA: If you lose vacuum. If the operators respond from a tower type section failure and we have a second tower, we have the ability to respond to that before vacuum is lost.

MEMBER SKILLMAN: You can run back quickly enough.

MR. MIKSA: We=ve had several examples over our history at the plant. We=ve lost a cooling tower pump. And our ability to run back to the unit and maintain condenser vacuum will not trip.

MEMBER SKILLMAN: Okay.

MR. MIKSA: And we train on that. It=s in our AOP procedures. There=s a lot of robustness to that.

MEMBER SKILLMAN: Thank you.

MR. MIKSA: And then question five from a defense in depth because of our other duplicate ways to remove heat via steam dump valves, main steam relief valves. Once through cooling, there is not more than a discernable difference from a heat sink perspective, loss of heat sink perspective.

So looking at the next importance evaluation that actually came out ranked in here was reliability. And that was ranked as a high. And step one here again is any impact. And what we looked at was the risk of the failure. And based on industry experience and plant specific experience with the alpha tower and age, we thought there is an impact on a potential for this to fail.

Replacement lead time impact, certainly unexpected failure would result in a long-term project, a minimum of three months to repair this tower at a minimum. Reliability impact on the plant would be required to run at a reduced power for a long period of time during that repair. And then preventive maintenance, right now from a maintenance impact because the age of our tower our annual costs of refueling quite a bit higher than if we were to maintain a new tower. We=re replacing a lot more members than we typically would. Doing a lot more inspections than we typically would with a new tower.

CHAIRMAN STETKAR: Jim, I set you up a little bit. This really doesn=t address Dick=s concerns which are real concerns.

MEMBER BLEY: The operation.

CHAIRMAN STETKAR: The operations part of this. All of this stuff looks at more maintenance plant reliability. It doesn=t really address that operations notion. The fact that the operators feel more comfortable using the main condenser as a heat sink than blowing the steam relief valves.

MEMBER BLEY: It would seem this is where it would show up if the operations representative made the argument. And one of the questions and I don=t know which question it would apply to.

MR. MIKSA: This is where the operator would have input if this were to come out as maybe a low reliability or it would come out as there=s not a concern for failure. Really the operator wants to know if his tire is going to be there or not be there. As long as the tire is there and it=s functioning, he=s happy with that or he can live with that. It=s going to fail as a potential for to fail that=s where he=s going to be concerned from the discussion we just had. Right.

MEMBER BLEY: So he would have come in. If this were rated low, he might come in and say, AWait a minute. It shouldn=t be low. You guys missed the boat.@

MR. MIKSA: And there were some examples in some of the pilots I observed at Robinson where operations would weigh on AThis is important equipment to us.@ And that=s the value of having them on the IDP panel.

MEMBER BLEY: So that comes in like a review step.

MR. MIKSA: Yes, when we get to the actual. Essentially right now we=re going through what the subject matter experts put together on their desktop. This information then goes in front of a panel.

MEMBER BLEY: Okay. So it would have come up in the panel.

MR. MIKSA: The discussion. That=s where it would be appropriate for that discussion to come up.

MEMBER BLEY: So I guess I missed the piece of it. Essentially, one guy does this evaluation or one guy does the reliability evaluation and one guy does the safety evaluation.

MR. MIKSA: No. One person does this entire evaluation.

MEMBER BLEY: The entire thing. So they have to try to cover all the areas of operations, engineering, maintenance, all of that.

MR. MIKSA: Right.

MEMBER BLEY: And you fix any problems in that when you get to the panel.

MR. MIKSA: Correct. They also go out before. Obviously, they want to be accurate in what they present to the panel. So they=ll go out and get input from PRA and from other sources before it makes it to the panel, especially if there=s a quantitative approach to this.

MEMBER BLEY: That might be the place where John and Dick are saying AI sure hope one of the people they go to is somebody in operations.@

MR. MIKSA: Yes, absolutely. And if that doesn=t happen during his evaluation, the stop gap is the panel to catch it.

So going to step two for reliability, you look at the time frame for action which in this case is short for a predicted or a potential increase to fail. And then you look at the consequence which is a potential image out of grid in 60 days. And you put that into a chart for reliability which is in the NEI guidance. And the chart would give us the importance value of high given that short time to take action and the time frame to resolve consequence.

The importance evaluation other

categories were none for security and emergency planning and radiation protection. Our towers are outside the protected area.

Prioritization and scheduling. This once again the NEI process priority was a two. Our project priority was a four. And in this case the NEI schedule lined up with our current project schedule.

Now moving on to aggregation and scheduling.

CHAIRMAN STETKAR: Where it all comes together.

MR. MIKSA: Okay.

MEMBER BLEY: I don=t think it matters, but I don=t quite get how NEI=s been a kind of generic look and give a schedule that means anything to any particular plant.

MR. MIKSA: Yes. The scheduling is recommended based on the importance. And the concept behind it is that things that are of higher importance you should put your resources towards first so that it comes sooner in the schedule.

MEMBER BLEY: And they have a standard list that they=re looking at or something.

MR. MIKSA: They have some guidance in the document. I have it in one of the slides up here. But it=s essentially put your resources on the highest importance projects first and as you don=t have resources --

MEMBER BLEY: Which is in fact plant specific.

MR. MIKSA: Yes, it=s plant specific. Exactly.

MEMBER BLEY: I just don=t quite get it. If somebody wants to tell me why that NEI thing is. John.

MR. BUTLER: This is John Butler. There is some guidance on scheduling. But generally you do priority one items first followed by priority two, three and four.

MEMBER BLEY: I get all that. It=s just coming up with a date. That seems kind of odd on a generic basis.

MR. BUTLER: That=s where it becomes plant specific. Something that has a relatively high priority you may end up doing that after something with a lower priority because of the availability of when you can do that.

If it=s an outage specific item that can only be accomplished in a specified outage, that=s where you=re going to do it. And there may be earlier opportunities to do something with a lower priority. So that=s all taken into account.

MEMBER BLEY: I=m going to ask you one thing and then I=m going to come back to you later. Is there anything in the NEI guidance because I didn=t read that part that puts an aging component on scheduling and priorities? You know, the longer you=re in queue do you start becoming more important? Otherwise, you may never get to it.

MR. BUTLER: This evaluation that we=re going through is not something that would be static where the result or given issue --

MEMBER BLEY: Right. But everything you do and this falls off the list. So this kind of assigns things to never get any done. What I was asking is are there any things that sort of get ramped up just because they=ve been there too long?

MR. MIKSA: And actually that=s one of the lessons learned we have at Palisades. One of the things we found in our aggregation was that we had a project that had spare parts currently in stock. But the minute you use some of those spare parts, the project priority importance changes because now you no longer have those spare parts. So we found a necessity to put a trigger in there that when that spare part gets used you reevaluate and put this back through the process.

The nice thing is you can pull this evaluation out and you know what you did originally. Then you can put it back through without having that spare part available. And the importance changes. So it gives you once again some structure to manage that as the importance changed based on aging for our failures.

MR. BUTLER: If you have a project that continually ranks as very low, it should prompt a discussion of why is that the case, is it likely to change, what would have to change to make it a higher priority.

MEMBER BLEY: There=s nothing in the guidance though.

MR. BUTLER: Nothing in the guidance because it becomes very plant specific.

MEMBER BLEY: I mean this comes to mind because in a lot of computer systems historically when you build them you build an aging component into things that don=t have high priority. Eventually, they get high enough priority that they get checked.

MR. CHAPMAN: I=m Jim Chapman, Curtis-Wright. I want to make sure we=re on the same page on this slide. The first bullet says NEI process priority. That=s the Palisades determined priority using the NEI process. Correct?

MR. MIKSA: Correct.

MR. CHAPMAN: So it=s not a generic priority.

MEMBER BLEY: Okay.

MR. CHAPMAN: The second bullet that says Palisades project priority again is Palisades specific. The third bullet that says --

MEMBER BLEY: Which must include things that aren=t in the NEI evaluation.

MR. CHAPMAN: But none of these results are the NEI evaluation. That=s the point.

MEMBER BLEY: I=m sorry. In the NEI guidance.

MR. CHAPMAN: And the third bullet that says NEI process schedule, that=s not a schedule that was authored by NEI. That was the schedule determined using the NEI process. And it just happened to coincide with the previously determined schedule that Palisades had developed. Correct?

MR. MIKSA: Correct.

MR. CHAPMAN: So this is all Palisades specific. That=s the key point.

CHAIRMAN STETKAR: Thanks, Jim.

MEMBER SCHULTZ: But the NEI process schedule would have identified things like you=ve got to get this done by the outage after next.

MR. MIKSA: Yeah, there=s guidance in there.

MEMBER SCHULTZ: Because of what you=ve determined from the elements of reliability.

MR. MIKSA: Where we=re at now is the subject matter experts have done all of their -- They=ve taken these 20 projects and done an evaluation on each of these 20 projects. They=ve gone before a panel board and the panel board approved the ratings, the rankings, of importance to the projects.

So now you get into prioritization and aggregation. The first thing that was done was we assigned the NEI priority from the guidance. So the guidance for the Palisades specific 20 projects, each one got an NEI priority based on the guidance document.

Next we did a pairwise comparison between NEI priorities. So we took the priorities that were twos compared them to the threes, compared them to the fours. The panel did just to see if anything stood out as odd or didn=t really look like it matched up priority wise.

We did find one exception where we had installation of a permanent reactor cavity fall protection. The NEI guidance would have prioritized that as a three. And in our aggregation discussions, that three was based on the fact that there was a cost benefit from a radiation perspective of dose savings of doing the modification.

However, the guidance didn=t give you how much cost benefit. It didn=t say if it was a small amount or a large amount. In this case, it was a very small cost benefit. Looking at the small cost benefit from a radiation protection perspective and looking at the other projects that were priority threes, we felt, the IDP panel felt, and gave this a priority four instead of a three. So we did change one priority out of the 20 based on the independent review by the panel.

CHAIRMAN STETKAR: And none were increased.

MR. MIKSA: Correct.

Next we went through a pairwise comparison within the NEI priorities. So we took all the priority twos and in this case we had four of them. And then we ranked them based on their importance of those four, looking at the individual evaluation input information. So we assigned them a one through four and that=s where we got the Palisades project priority.

So four items came up as priority threes or priority twos. Of those four, we ranked them one through four.

MEMBER BLEY: And that includes safety and reliability.

MR. MIKSA: Correct. It was based on all five categories.

MEMBER BLEY: All five categories.

MR. MIKSA: And so then we did that with the priority threes. There are three of those. So they would have gotten a five, six or seven. We ranked those a five, six or seven.

And then we went into the fours which was there was a larger number of fours. So we broke those up into which three we thought were the highest fours, which we thought were the lowest fours. Gave them the next sequential numbers for Palisades project priorities. And then the middle ones we went through and assigned priority based on what we thought were importance.

MEMBER BLEY: Was there a pretty good agreement how you did that?

CHAIRMAN STETKAR: Jim, how many fours did you have total? Were there ten?

MR. MIKSA: I would have to count. There was quite a bit. There was like eight or nine out. I don=t remember the exact number, but there was -- I think there=s nine because three, three and three.

CHAIRMAN STETKAR: For the benefit of the record and the subcommittee, I sat in on the integration process. I took notes, but not many. And my notes were on the pieces of paper that I couldn=t take with me. So I don=t remember a lot of the details. But the largest category was those fours.

MR. MIKSA: By far.

MEMBER BLEY: But back to what I asked you, when you did the twos and the threes were you kind of unanimous on the ranking of them, one, two, three and four? Was there a lot of debate?

MR. MIKSA: Actually, there was quite a bit discussion on some. But after the discussion, there was unanimous agreement. Everybody was -- There was a consensus as far as those make sense for Palisades to be in that ranking of importance.

And then that was the Palisades priority. And then finally we assigned scheduled completion dates based on that priority assignment. I=ll talk a little bit more about that later and how we came up with it. The schedule completion dates, we actually divided the projects into outage and online. And we=ll talk about that on the future slide.

So this is just to repeat. You=ve briefly seen this slide already today. This is taking each of the 20 projects, went through this and based on the outcome. Like priority two, if there was a medium in safety, it was a priority two.

So this is what we applied to each of the 20 projects at Palisades. We applied this guidance to come up with the NEI priority.

This is some examples. I didn=t list all 20. This is nine of the projects. These are examples. You can see the permanent fall protection moved down below replacing refueling machine control consoles due to aging. One driver for that was the reliability of the consoles and also there was some dose savings associated. Even though it may not be a large cost benefit, there was some dose savings with having more reliable refueling equipment. We saw two opportunities there and that=s why it fell above the permanent fall protection which we downgraded from a three to a four.

CHAIRMAN STETKAR: Jim, because it hasn=t come up earlier could you explain? In the category you have regulatory and plant improvement.

MR. MIKSA: Yes. As part of the pilot project, we picked 10 projects that regulatory had some nexus to regulation that was driving the implementation. And we picked 10 projects that were site reliability type projects for comparison perspective.

And then the importance categories, you can see a list of each of the five categories. The NEI priority based on the guidance and then how Palisades priority came out. And you can see they=re rated from the highest priority items at Palisades to just about the lowest priority.

CHAIRMAN STETKAR: But again that Palisades priority is just the rank order one through 20.

MR. MIKSA: Correct.

MEMBER SCHULTZ: In the earlier discussion, Jim, you assigned the open phase detection and isolation NEI priority as four. And it=s listed here as five. Is that a typo or?

MR. MIKSA: Must be.

MEMBER SCHULTZ: It=s down at the bottom, second from the bottom. Or has that changed for some reason?

MR. MIKSA: No, it=s very low. It should

be a four. That=s a typo.

MEMBER BLEY: I=ve got a couple of questions for you. The first is did this process lead to any really significant rearranging of what your original priorities had been. And how did you find this process? Is it something you really think is good for the plant continuing on?

MR. MIKSA: We have some future slides in which we talk about the values and the benefits. The short answer is yes, we did gain insights in rearranging in importance of projects. The incipient fire detection, I think that was a big one for the site to know the importance of that from a security risk perspective and moving that up. I think the open phase perspective on keeping the monitoring, the trip function, could have a negative impact. I think that was a big learning for the site.

So I wouldn=t say that we rearranged a lot of items. But there were certainly some items that we benefitted from as far as -- And if you look at the outcome, even though we=re far along in some of these projects, a lot of the ones we=re far along with are more towards the end versus up towards the top. So if we had this a couple of years ago, the project we=re working on today may be different.

MEMBER BLEY: Yes. I understand. And I guess I=m hoping everybody gives some thought to this idea of aging of low priority items. If there=s a project for something that continually ends up at the bottom of the list, either you might want to get rid of the project because it=s not something you want to do or you have some long term thing. We can put it low for now, but we definitely want to make sure it=s done within five years or ten years or something like that such that eventually it starts moving up the list so it gets finished.

MEMBER SKILLMAN: Jim, you made a comment in the contest between the fall protection and the refueling machine control consoles that the consoles advanced in importance because of avoided dose. I think avoided exposure.

MR. MIKSA: That was the consoles had a nexus to avoiding exposure also. But really that was ranked higher because of the reliability.

MEMBER SKILLMAN: Okay. Where I was going though is is exposure avoidance a consideration for the radiation protection evaluation.

MR. MIKSA: Yes. And that=s where the personal fall protection came in for radiation avoidance. It was rated a medium by the process because it was a cost benefit from a dose savings perspective. But if you look at the dose savings, it wasn=t a magnitude there. It was a very low cost benefit for such a very high.

Relatively speaking, it wasn=t a lot of dose savings, enough to gain it a medium. There wasn=t enough to have a cost benefit. But it wasn=t significant.

Wherein, the refueling machine console it didn=t have enough radiation dose savings to trip and have a cost benefit just for that. So that was rated as a none. But it did have a low in reliability. So there is a combination of you gaining reliability and your saving dose, wherein that one project you=re essentially just saving dose.

So it=s the ability to when you get into the aggregation to look what was rated in each category. But then there are other items to consider where you can spend more resources. And if you have all priority fours, that would be a reason to put one above another.

Where this, you=re gaining dose and reliability here. But here maybe you=re going a little bit of dose.

MEMBER SKILLMAN: Thank you.

MR. BUTLER: This is John Butler. I just

want to address the aging question that you raised.

MR. MIKSA: Yes.

MR. BUTLER: In the guidance it does state that if you defer something for three operating cycles, at that point after that third deferral you either implement it or you take action to change that commitment. If it=s a regulatory commitment, you start the process of exempting, getting an exemption, for that action.

MEMBER BLEY: Thanks John.

MR. BUTLER: It does not allow you to continue --

MEMBER BLEY: I=m glad that=s there. I didn=t see it when I skimmed through all that stuff. I appreciate it. Thanks.

CHAIRMAN STETKAR: Those, by the way, Dick, are really important nuances. It was really interesting to sit in on this aggregation panel. Because if you=re faced with this big bucket of fours, how do you distinguish them on degradations here that your refueling machine is number eight in the whole rank versus number 11 for the other one. They=re both fours.

MEMBER SCHULTZ: So they began to use a finer tooth comb.

CHAIRMAN STETKAR: Right.

MEMBER SCHULTZ: To go through the process.

CHAIRMAN STETKAR: Right.

MR. MIKSA: Which the evaluations give that information, where before without the evaluations you wouldn=t have that necessarily. It would just be somebody that=s passionate about their project.

CHAIRMAN STETKAR: Right.

MEMBER BLEY: This kind of implies that there may be a three and a six and a nine and 10 that come from somewhere else and didn=t get evaluated in this process, but are important.

MR. MIKSA: As far as Palisades priority.

MEMBER BLEY: Yeah.

MR. MIKSA: Yeah, I didn=t put all 20 on this slide just --

(Simultaneous speaking)

MEMBER BLEY: But all 20 --

MR. MIKSA: I just took examples.

MEMBER BLEY: Okay. So all of them went through the process.

CHAIRMAN STETKAR: There is someplace a big 20 anyway. Trust me. I saw it.

MR. MIKSA: Okay. This is just an excerpt of it.

MEMBER BLEY: Thanks.

MEMBER SCHULTZ: But, Jim, I don=t mean to be flippant, but I hope that passion still plays a role in the discussions there.

MR. MIKSA: Oh absolutely.

MEMBER SCHULTZ: What John just described the discussions it did.

MR. MIKSA: Absolutely.

CHAIRMAN STETKAR: Let me just say there were champions. And champions both in the positive and negative.

MEMBER SCHULTZ: I=m sure. Certainly.

MR. MIKSA: It focuses discussion. It doesn=t take the passion out of it.

MEMBER SKILLMAN: Jim, let me ask this question. I think of some of the really old plants in the country -- Oyster Creek is an example and a newer plant, one of the plants that was most recently licensed in the last decade, whatever it was, 15 years most recently licensed. Is there a recognition of how really old plant, an Oconee or an Oyster Creek, could have a true bucket list that=s 55 gallon drums worth of bucket items that are constantly being deferred like Dennis is talking about? A new plant would have 163 for instance because it=s newer and it=s more conforming to the more recent regulatory guides and codes and standards.

Is there recognition that a moldy-oldy plant may have a true challenge in trying to winnow this forest of items down to the 10 or 15 that are doable in the next couple of fuel cycles? Whereas, a newer plant might have an easier time doing that?

MR. MIKSA: I agree. It would be easier. We see this though as supplementing our plant health committees. So we=ve already -- All plants have taken an attempt at doing that already in some form or fashion. This would be an opportunity to take those items that they=ve already got this bucket per se that they don=t have resources assigned to. It=s just kind of sitting there. And then they=ve got their bucket list they=re working on.

This would be an opportunity to (1) look at that bucket that they=re working on and make sure they got the right importance and resources on those. But (2) it=s also an opportunity for somebody to pick something out of this bucket down here and say, AWait a minute. This meets some of this criteria. Let=s go run it through the process, take it to plant health committee and see now if it doesn=t come off the languishing list and actually ends up into the plant health committee.@

MEMBER SKILLMAN: How does that happen? What=s the trigger for these individuals to have the initiative to reach down and say AWe=ve delayed this for the last nine outages. It=s time to get busy with this one@?

MR. MIKSA: I can talk to Entergy and systems engineers and program engineers. They=re always looking at items that are impacting the systems or programs. And they=re constantly looking for what prize they=re getting done and which ones aren=t and presenting those to plant health. It=s part of their job and responsibility to understand what=s on their plate, what=s getting done and what=s not. And if something is not getting done, does it have the right party or not? So it=s really the processes would accomplish that.

MEMBER SKILLMAN: And it sounds as though the expert panel is convened at the site has on it a number of individuals that are probably part of the plant health committee.

MR. MIKSA: Absolutely.

MEMBER SKILLMAN: So they see this at a fairly thorough and integrated level.

MR. MIKSA: And that=s one of our values that we found in this is having those plant health committee members on this panel.

MEMBER SKILLMAN: Thank you, Jim.

MR. MIKSA: Yes. So once Palisades has assigned their project priority, then we went to a scheduling process. And we started out by looking at the guidance from NEI on how to schedule items. We=ve identified each project as outage or online because there are different schedules associated with those. We sorted each group then per the NEI/Palisades priority.

Then based on plant conditions -- an example is outage train windows -- we assigned completion target dates. So, for instance, there may be a high priority project that needs two outages to complete. Even though the process says we should complete it this next outage, it=s going to take two outages to do because of the way the outages are planned and designed. We do it by electrical transit at Palisades.

And then finally once that is looked at then you look at your available resources to do the final adjustment. So it=s an iterative process as you go through the scheduling. You take several different swipes at it until you finally come up with the correct schedule dates. It=s not a one process through.

We=ve already seen this slide. This is the guidance that was given in the NEI. And essentially the concept here is you put your available resources on the highest priority activities. That=s really the guidance here.

So we use that and we went through and here are some examples at Palisades of how items were scheduled. The comments here probably give you some of the things we considered such that we=ll go back to the one we discussed, the permanent fall protection installed at the cavity tilt pit.

After all the effort we went through to prioritize and put it in the right spot, we know we have resources available to complete it in the next outage. So why wait? So we=re going to go ahead and do it. Different resources like maintenance resources, the design is done. So the money is there. We=re just going to do it.

And then we have the comment on the open phase. The current schedule has us install it on one train. And then we install it on another train. And then we monitor it for 18 months before cutting to isolation. So here we have some time to look at maybe not doing that final step with cutting the isolation.

Questions on the scheduling? This is really an internal data save looking at resources.

CHAIRMAN STETKAR: I think from our perspective we appreciate the scheduling. But we=re more interested into the prioritization process.

MR. MIKSA: So aggregation actions. I think we=ve discussed some of these already. We=re looking at moving up incipient detection installation.

We=re going to request a procedure change -- this is at the fleet level -- to include PRA risk insights more into our plant health committees. That=s one gap we saw. Our plant health committee doesn=t have a PRA person on that committee or report there normally. So this is a big insight for us and also consider use of PRA insights for the exemption for open phase.

Lessons learned, values and benefits. A systematic approach much like the 50.59 process, another evaluation process. All the subject matter experts can go through this the same way. So we=ve come up with some type of consistent result.

The characterization evaluations were reviewed by site senior leadership. And that gives them risk insights for their decisions they make at plant health committee or day today.

The aggregation through pairwise comparison focusing on risk reduction and allocation of limited resources, that=s a process that we haven=t used before. There are pieces of it, but never together integrated like that to make sure we were working on the right things, the right resources, at the right time.

Our IDP meetings, they=re a great venue for our station senior leadership to have those discussions. And the discussions are based on risk significance.

And then the last bullet is since this is also familiar with the NRC staff, it gives us, the plants, a platform for discussion with the staff on the importance of topics as we asked for exemptions or delays in scheduling.

Some of the items we learned that could improve the process out of pilot, the complete importance evaluations, new evaluations, and emergent evaluations require re-aggregating on a periodic or emergent basis. This goes back to the discussion we had on as things change, parts get used. We even had one item where a technicians from the vendor were no longer available to support a certain item. Even though the item=s working, the component is working, at the plant, we have no longer any tech support. That puts an importance on its replaces -- lessons from a support perspective versus a function perspective.

Our project scope, our definition is critical. We had the discussion earlier. It=s how you define the project up front. And that translates into other plant health committee discussions and throughout. So there=s a lot of value into defining what the actual project is.

Training, the material assumed that the subject matter experts had a basic 50.59 and PRA understanding.

We really need to look at the training material and see if there=s some type of level before you go into the training. It=s hard to take a new engineer just new to the position and bring them through this process. Yes, if he=s 50.59 qualified, if he understands a little bit of risk assessment and how risk is used either in fire protection or other areas. It=s better. So it has to be considered for SME selection.

And then finally during the aggregation scheduling, the IDP panel discussions affecting prioritization and scheduling should be documented. A lot of those aggregation discussions had nuances that weren=t an evaluation. So we need to capture those and make sure they=re carried forward if this has to be reaggregated or revisited or put into an exemption. And that=s all I had for Palisades.

CHAIRMAN STETKAR: I certainly agree with you on that. There was a lot of discussion at least from my perspective on that aggregation process. If it=s not captured, the next time you convene even the same people they won=t remember it.

One thing I wanted to ask you, Jim, because you=ve now been through this whole process. Do you think -- I=ll put you on the spot -- it would benefit from having someone outside of the Palisades organization involved. You heard a few of the comments about either as a facilitator or a professional skeptic or however you want to characterize that person. Or do you feel that it=s so plant specific that it=s best done within the organization?

MR. MIKSA: It=s very important that you have the right people at the aggregation meetings. Now if that right person is an industry person, if it=s a corporate person, then there=s value. If it=s just a body to fill a position as somebody to just throw questions out, I don=t think that=s the value. I wouldn=t see value in that.

So individuals need -- Like if there was an individual that went through generic assessment at NEI, having them at one of these meetings, that would be valuable. They could give us -- We would show how we use their insight and they could show how they thought it would be applied to plants. That would be of value.

If it was somebody that was really familiar with the process and had done this several times and it=s the first time we=ve done it, having that person there would be valuable. He could say, AI=ve seen 10 of these. Certain people considered this.@

I think it=s really important on the individual that is going to partake. And there is value if they are familiar with the process or familiar with the topic. To have just a basic double advocate not familiar with the plant and not familiar with the process, I think it would be cumbersome and not a value.

MEMBER SCHULTZ: Jim, I would like to ask this of you and then perhaps John Butler would like to respond, too. Your last bullet on the lessons learned is that it provides the common platform for industry-NRC discussions related to individual issues and projects. How would you see that happening given our discussions earlier about how this is a good evaluation approach for risk prioritization? But that is plant specific. How would you see that translating into industry related discussions with the NRC on these certain projects that I would presume would be those that are imparted in the regulatory column?

MR. MIKSA: I envision that and this would be the basis for supplemental documents for scheduled delays or exemptions. And this process could be similar to like an artistic process, a temperative process, that the stations are familiar with and the staff is familiar with. So we=re not starting from ground zero on every topic. And it would be recognized.

And then we=d be more focused on talking about the specific aspects of each project, the importance from a safety, regulatory, from a safety perspective or a security perspective or an EP. We=d be talking more about the specific importance. That would be the discussion versus the project and give it a templated way to submit something like this.

MEMBER SCHULTZ: But as you described it, you would expect that Palisades could have a tipping point on a particular project that would be different than at least some other part of the industry, some other units and plants in the industry.

MR. MIKSA: Correct.

MEMBER SCHULTZ: John, is that a good answer from your perspective? Or were you looking for something additional?

MR. BUTLER: We can hopefully talk a little bit more about our hopes for the process and expanding its use within the NRC this afternoon. But generally the process provides you a valid platform for discussion of relative significance, relative priority of issues that could be applied in a number of ways on emerging issues or rulemaking issues or whatever to inform how they=re being addressed within the industry.

But as we saw with the generic assessment expert team process, that process is very valuable to identify what are the key attributes of an issue so that you can then use that information to identify the population of plants that have that key attribute and treat them appropriately versus treating everyone the same way.

MEMBER SCHULTZ: Thank you.

MEMBER POWERS: Jim said something that resonates with me, but I=d like to pursue it a little further. You said having your professional skeptic or whatnot from God know where would be I think your word was cumbersome which I really believe. Is that universally true or would you have an exception for say a particularly difficult issue?

MR. MIKSA: I guess I would answer that by saying if the individual had some knowledge of the item being discussed whether it was at an industry level or plant specific level there would be value. If it=s a person that=s just I would say of no knowledge of the process and no knowledge of the issue is there I=d think there would be not any value added. There would be more value on educating them on the process and on the topic than on potentially identifying something that we forgot or didn=t do. Does that answer your question?

MEMBER POWERS: Well, like I say, I think it resonates with when you say cumbersome because you spend all your time trying to educate somebody about your plant or your process or issue or things like that. And that just distracts people.

MR. MIKSA: It=s a distraction.

MEMBER POWERS: And you=re trying to get -- You presumably have a whole list of these things you=re trying to get through. And every one of them you have to slug through that.

But I was just wondering about I suppose you have to have a dozen of them where your panel finds itself spending a lot of time already on the issue for a variety of reasons, different perspectives, different views and things like that. And you have available with you somebody who meets your minimal requirements and knowledgability. Then I think what you=re saying is yeah there=s a point at which you=re spending so much time on this issue it=s worth your while to bring somebody in.

MR. MIKSA: Absolutely. And we also have the ability if we can=t come to consensus or we don=t feel we have enough information to make a decision. We can delay it. And in fact the one issue we did ask for on open phase was more quantitative information. It originally came in more qualitative and we asked it to go back and do a quantitative assessment prior to aggregation. So, yes, the answer to that is absolutely.

MEMBER POWERS: So you=re not closing this off, but you want to constrain and I think you outlined the constrain you want. Has to be knowledgable on the issue as it=s framed whether that=s knowledge in the plant, knowledge on the hardware, knowledge on your local processes. It depends on the issue.

MR. MIKSA: Correct.

CHAIRMAN STETKAR: Great. Anything

more? We planned that Jim was going to be the guinea pig and we knew there were going to be more questions because we got informed. So Jim has weathered the storm pretty doggone well I think.

To get us a little bit back on track on the schedule, I=ll ask if we can come back at 12:45 p.m. from lunch is that=s okay. Even if it isn=t okay, we=re going to reconvene at 12:45 p.m. Off the record.

(Whereupon, at 11:52 a.m., the above-entitled matter recessed to return at 12:47 p.m. the same day.)

CHAIRMAN STETKAR: Let=s reconvene here. We=ll hear from Plant Hatch. And again, same caution as this morning, if we delve into anything that=s true proprietary or security related or you feel uncomfortable with, just let us know and we=ll pick it up at the end of the session.

Greg, it=s all yours.

MR. JOHNSON: Alright. Good afternoon. Thank you for allowing me to come present before you this afternoon. I am Greg Johnson. I=m the Regulatory Affairs Manager at Hatch. I=ve been at Hatch my entire career of 28 years now. I think in the twilight they=ve got me in the regulatory affairs and I=ll probably stay there for the next couple of years.

CHAIRMAN STETKAR: Greg, just make sure that you either speak a little louder or pull the microphone a little closer to you.

MR. JOHNSON: Okay.

CHAIRMAN STETKAR: One or the other because it helps. All of this stuff is transcribed and it just helps our reporter.

MR. JOHNSON: Back in early 2014, My CNO, Danny Bost, is the chairman for the NEI Cumulative Impact Working Group. He came to me in early 2014 and said, AGreg, I want Hatch to be a part of the piloting process for this cumulative impact working group. And in his words, it was kind of an approach of fitting everything on our plate on the table and to do a risk assessment of that. So that was his words, Aeverything on the plate.@ And that phrase has kind of stuck with me as I=ve gone through this piloting process.

We like everyone else in the piloting process selected 20 projects as part of the pilot. We did that back very early in the year in the March time frame. And I=ll say even before we really understood the process very well again selecting the 20 projects. I want to talk about a couple of projects that really didn=t fit as I went through this process. And that=s because we just kind of broadly try to pick 10 projects that were regulatory driven and 10 projects that I=ll say were reliability or site projects upgrades.

We went through the same core team establishing of the IPD, conducting the NEI training that was given as part of the kickoff, did initial training assessment. And then as we got into the IDP, doing a check and adjust, made sure all the members of the IDP understood again what our mission was and what the process was about.

I selected my IDP at Hatch really as the same makeup as the Maintenance Rule expert panel. So some of the members on my IDP are Maintenance Rule expert panel members and they understood that process as well and have that background.

That makeup of that team is myself, the Regulatory Affairs Manager and I=m really the chair of the IDP. I had two Operations SROs as part of that team. Our Work Controls Planner, an Engineering Supervisor, a Maintenance Manager, a Licensing Supervisor, my PRA, Risked Informed Principal Engineer, and three Licensing Engineers.

Those three licensing engineers report to me and I=ll say they=re really the people who put together the product. Rather than train 20 different subject matter experts on how to go fill out this paperwork and produce a product, I have three or four core people who did that and worked hand-in-hand with the 20 subject matter experts. So they got together, created the product and then brought that product in front of the IDP for our review.

Most of the people on this team are many, many years of experience. My licensing supervisor has about 38 years of experience. Maintenance manager about 30 years of experience. The control room SROs, one guy had a 30 years of experience. The other about 12. The risk informed PRA engineer about 25 years of experience.

The most junior was one of the licensing engineers had only one year of experience. And I chose her as a developmental opportunity for her. And I mentored her through that process.

Alright. So we had of the 20 projects six projects that were related to NRC commitments, one project that was an NEI commitment and that was the open phase project and then 13 of the plant health projects. I could have chosen a few more of the Fukushima related initiatives, but those projects were well vetted in some of the other piloting plants. I chose not just to go do the same thing that somebody else had already done which also is really at a high importance level anyway. So I steered towards some of the more plant health projects at Hatch.

These are the 20 pilot projects that we chose at Hatch. And as you can see I highlighted the NRC commitment related in orange. And that=s NFPA-805, cyber security, the reliable spent fuel pool instrumentation, the license renewal commitments and degraded grid transformer which is a Hatch specific commitment and then a weld overlay that we=ve got to do in an upcoming outage which is also a Hatch specific commitment. The yellow is the open phase which you=re very well aware of that issue.

So let me talk about NFPA-805 and license renewal. When we actually got into building the product and got to the IDPs associated with NFPA-805. We determined that we were not far enough along in the process of the 805 project to be able to do a full assessment of the risk.

Right now, Hatch is in the phase of doing circuit analysis without a real product on the back end of that. So some of the other piloting plants have gone through further along the 805 process and have I want to say a design product that they can assess.

For Hatch, we=re not there yet. We=re still in circuit analysis part of the process. Next year or the year after that we will be able to come back and assess here=s the real design change, here=s the real change that we want to make at the plant and do a further assessment of that. As we got into it, it just kinda fell apart. And we realized we couldn=t do an assessment at 805 based on where it is today.

CHAIRMAN STETKAR: Greg, let me ask you about that. Did you take the approach that if you understand that decision that if you couldn=t quantify the risk you didn=t think you could address it or? I=m curious about why.

MR. JOHNSON: I don=t know what it looks like at this point. It=s high/low interfaces. But what else is it? I don=t have a scope to go be able to assess. So we just stopped there and decided we=d pick that up in a future year.

CHAIRMAN STETKAR: Okay.

MR. JOHNSON: Likewise with the license renewal commitment, we=re in beyond 40 and get into license renewal and already had the first phase of our license renewal commitments. I=ve got some other milestones that are coming up in the out years of license renewal commitments.

But as we got into that, license renewal was just too big. There were too many pieces of -- I=m going to say there was coatings and there=s buried pipe and there=s all kind of aging management systems that you have to have programs in place and also inspections in place.

And we just didn=t want to spend the energy of trying to get our hands around the totality of that big, huge project. So we just made a decision as we got into it that we=re going to go do license renewal. We=re going to go do it and just kind of accept that and not spend the time that it would take to break it down and to try to assess the parts and pieces of that and do any type of risk assessment associated with it.

CHAIRMAN STETKAR: Let me -- I=m trying to understand the thought process here a little bit. And I=m not trying to bigger picture thought process. So bear with me for a second.

But you did tackle cyber security. You thought you could get your hands around cyber security.

MR. JOHNSON: Cyber security was more like what I envisioned 805 to be in our future. Cyber security we=ve already got a lot of the first phase of it done. We=ve got some commitments coming up in the future of what we=ve got to go do as a second tier. I=ll say milestone eight comes due.

So we know what we=ve done and we know what we have remaining to do left. And we feel like we could assess -- We felt like we had a good picture of what that is and what the risk assessment was associated with that.

CHAIRMAN STETKAR: Okay.

MR. JOHNSON: A defined scope.

MEMBER SCHULTZ: Greg, if we could just back off a moment. On the license renewal commitment, that=s a program and you just determined that rather than segregate that into a number of different projects, whatever you want to call them, commitments, and evaluate those individually it was just determined that they=ve got their own life schedule and approach. And it=s going to happen because of the overall program.

So we=re not going to kind of take them off the list really. You=re not going to rank order them at all. Just move ahead and get them done.

MR. JOHNSON: I feel like it would have been to do license renewal would have been a level of effort that would have been equal to this entire body of work.

MEMBER SCHULTZ: Right.

MR. JOHNSON: There are 23 license renewal programs that were put in place.

MEMBER SCHULTZ: They have to have their

own schedule already.

MR. JOHNSON: And they have their own milestones and their own programs and their own inspections that have to be done. I could have spent the entire effort trying to assess something that big.

MEMBER SCHULTZ: Right. Once you=ve done the rank ordering of the other projects, might you take a look at what you=ve done in terms of your schedule or commitments on license renewal and kind of line those up to the committee and determine whether there=s any of them that ought to be receiving additional attention?

MR. JOHNSON: I guess we could. We could go back and take a look at that in round two and see if there=s anything.

MEMBER SCHULTZ: Okay. Thank you.

MEMBER SKILLMAN: Greg, I=m wondering if there isn=t maybe another message from the two items that you just identified. Of the 20 items, it appears that all but the two, NFPA-805 and license renewal commitments, are either direct hardware issues or very close to hardware issues, cyber security being close to hardware issues.

The two that you chose to not pursue are program issues.

MR. JOHNSON: Right.

MEMBER SKILLMAN: And that gets to a s comment I made a couple hours ago about will this process work for a program review. At least, my experience is owners and operators can get into issues that are solely because the program is corrupted. Spare parts, maintenance role, determine initiative, EQ, high energy line break.

And sometimes when you dig down into those, they are severely broken. But that brokenness doesn=t exhibit itself until there=s a finding that kind of leads the inspection team, whether it=s the NRC or the owner, to dig in and use a thick magnifying glass and identify what=s broken.

So is there a message there? Programs are too big to assess under this umbrella that we=re talking about here today.

MR. JOHNSON: I think by and large what you want to see the result being is it=s going to be fix the plant initiatives. It=s going to be equipment commitment. It=s going to be things that are on my five year plan, my business plan, to go see where are we going to put -- where are the resources going and is it ranked appropriately. I really don=t see a lot of application for just simply a program.

MEMBER SKILLMAN: Thank you.

MR. JOHNSON: I=ll say not in the guy who is in the real equipment put it in use kind of aspect. Now maybe at the generic level, the generic committee could take a few issues and run through the process and see if there=s some value. But at the site level, it=s usually going to be equipment base.

MEMBER BLEY: It seems to me -- I see your logic on this. I mean license renewal you need to get NRC approval by a certain date no matter what.

MR. JOHNSON: Right.

MEMBER BLEY: But you know you=re going ahead. And the only thing you might get out of doing this is you might put something earlier in that program because it=s an area you might run into trouble trying to complete. But other than that, you=re not really trying to order it. You=re just in the process trying to get it done.

MR. JOHNSON: Right.

MEMBER BLEY: The 805 is a different kind of thing I think, but you said you were going to do that eventually.

MR. JOHNSON: Right. And, too, in a license renewal in my working with the people who were involved with the license renewal milestones and the commitments, they=re not coming to me with major heartburns or troubles or problem areas saying, AI=m going to need some help here.@ So that=s another factor in going back to that. If somebody was coming to me and said, AWe=re really going to have a problem with this little niche in the license renewal program@ we may pick that up and look at it closer.

CHAIRMAN STETKAR: Greg, to follow up a little bit because I=m trying to think a little bit ahead, suppose there was a new if you want to call it programmatic initiative whether it=s industry initiated or whether it=s regulatory initiated. Then we=ll just call it X for now because I don=t know what it is.

My sense on a lot of this process though was that the process should be -- Well, let me ask you. Perhaps I=m too naive thinking that the process should be able to say AHow does X affect Plant Hatch and where does that X align with everything else that we=re doing in the world at Plant Hatch@ rather than saying AHow does NEI view X across the whole fleet@ or AHow does the NRC view X generically across the whole fleet?@

From I think what I=m hearing you say is that this process doesn=t work very well at that programmatic level because there=s not enough specificity or what?

MR. JOHNSON: I would say this. I would say if there=s a good application or a good place in the process to pick up and look at programmatic initiatives it would be at a generic level. So the IDP at the generic level looking at programmatic issues and looking at them across I=ll say the suite or the fleet at this out there like open phase and say, AOkay. When we have this new issue that comes up, the next open phase thing that comes up to get the generical task force to look at that and size that up from a industry standpoint and put some risks dialogue into the discussion based on the points there. I think there=s opportunity to have the generic task force take a look into new initiatives.

CHAIRMAN STETKAR: That is a little bit different from the plant specific focus because each plant, you know, Plant Hatch is different from Brown=s Ferry Unit 1 which is different from Browns Ferry Unit 3.

MR. JOHNSON: Right.

CHAIRMAN STETKAR: In terms of the relative risk effects of any generic issue.

MR. JOHNSON: But my experience coming out of this is I really have to have a work product.

CHAIRMAN STETKAR: Okay.

MR. JOHNSON: I really have to have something that=s a forced state and then after state that I know I=m going to have. I=m going to fix something for its best application for me at the site.

CHAIRMAN STETKAR: Okay.

MEMBER SKILLMAN: Greg, let me stick with this just for a second because with the age, with the time you=ve spent at the plant, you were there when your chief nuclear officer received a letter from the NRC saying AUnder oath and affidavit, tell me that you meet your design licensing basis under 50.54(f).@ I had to sign that letter. You might have had to have signed that letter when it was done. That was a program that affected all licensees. Everybody had to respond.

There isn=t a whole lot of CDF that is obvious when you dig into responding to a 50.54(f) letter. But the requirement was for the utilities, for the owners, to demonstrate that they met their design and licensing basis so they could meet the CDF and LERF that they were supposedly licensed to. That=s the kind of program I=m referring to.

In your opinion, how would that be affected by this initiative?

MR. JOHNSON: It=s going to be hard to

assess the programmatic stuff from what I see. I think it=s going to be hard to get your hands around. And when you do, when you make the attempt, it=s going to be very qualitative. It=s going to be something that will have a higher level of questioning behind it. How did you get that result and that answer?

MEMBER SKILLMAN: I think it also lends itself to the same logic that you used for your license renewal. You=re going to have to do it anyway. So why bother to determine what the incremental impact is?

MR. JOHNSON: That=s right.

MEMBER SKILLMAN: But what you=re convincing me of is this is good tool as long as it=s aimed at things that come out of your plant health committee or out of your maintenance rule activities.

MR. JOHNSON: That=s right. Very good. Alright. So I=m going to cover three projects, safety relief valve upgrades that are highlighted in green, the emergency diesel generator excitation panel which is an obsolescence issue and then the degraded grid transformer project which is a Hatch specific commitment that came out of the CDBI inspection years ago.

Alright. So SRVs. We are in the process of upgrading our safety relief valves from a two-stage pilot safety relief valve to a three-stage pilot safety relief valve. Longstanding for Hatch. We replaced the existing Unit 1 and Unit 2 two-stage with 3-stage.

One of the Unit 2 has already been replaced. We did this last outage to make sure it was going to work. And then in the last Unit 1 outage we replaced all 11 of the Unit 2 SRVs. And so far working reliably. And then at the upcoming Unit 2 outage we=ll replace the remaining 10 of the 11 safety relief valves. And that will happen this coming February/March in 2015.

We went through that process of evaluating that knowing full well that we=re going to do it. But as part of the piloting process we wanted to go through it.

Step one, is there any impact? And we had two yeses out of the step one process under safety that it would increase reliability of an SSC. And it would result in an impact in capability of the fission product barrier. And that means the SRV is part of the RPV boundary.

In the step two, we asked the question AIs it more than minimal?@ And again we got a yes answer out of that in question two. It would have improved reliability because it will eliminate the need for a mid-cycle shutdown. For the two-stage SRV, if it begins leaking, you can let it leak for about -- You can=t run a whole operating cycle with a leaking two-state SRV. That=s been our experience and been the industry experience.

So if you get a leak in SRV, from a two-stage SRV, you=re going to have to plan a mid-cycle shutdown and replace that SRV. It=s been our experience many, many times at Hatch of having to have a mid-cycle shutdown to replace an SRV.

Usually, the top works. I=m going to say the pilot part of the SRV that begins leaking that requires that shutdown. So when you shut down in the mid-cycle, you have a period of time where you take that pilot off of that SRV and you=ve got an opening in the RPV, from the RPV through that main steam line to that opening in the SRV pilot which puts us in a higher safety status for an outage. In the outage, we would declare ourselves to be in a yellow condition from an outage safety perspective. That equates to -- I=ll say if we can eliminate that we will have improved reliability and made ourselves safer.

Answering that yes makes us go to this qualitative risk assessment that I just described of having eliminated the need for the higher risk condition during the mid-cycle assessment. And out of that process with PRA assistance for the outage condition, qualitative came up with a safety importance of low.

CHAIRMAN STETKAR: Greg, does Plant Hatch have a shutdown risk assessment model?

MR. JOHNSON: No, do not. So that=s why I say it=s qualitative. So we said based on this elevated risk during the safety assessment that we felt like our current risk if we were in that condition would be a white condition, mid white condition. And then going to the three stage SRV, we feel like we=d be at least a medium, 50-90 percent success rate in reducing that risk of averting the mid-cycle shutdown to replace an SRV. And that came out to a safety significance of low. That=s how you apply that process.

Other categories that we went through there, there was nothing in the security, emergency planning, radiation protection that got a hit. And those other categories, reliability based on the design process and the readiness for the change out of the SRVs graded that as low on reliability.

When we went through the IDP process, this was one of the issues I=ll say. Under the NEI guidance, this graded that as a three. When we got into the aggregation review, the IDP panel members elevated this to a level two priority. And there was a lot of discussion about it. There was a lot of give and take. And I=ll say there=s been a lot of scars and a lot of pain associated with this at Hatch.

(Laughter)

So there was a lot of emotion.

CHAIRMAN STETKAR: You know there=s a good process when you hear that.

MR. JOHNSON: Going back to the input of the operators. So it was a lot of the direction of the input of the SROs saying AI want this to be a two.@ And the message was AI want this fixed. I don=t want there to be any mistake about nobody is going to take this off. Nobody is going to mess with this.@

Out of that, we said, AOkay, we=ll elevate it to a two and make sure everybody knows that this is extremely important in the eyes of the operators.

But again we expect that the Unit 2 will be complete this coming March with that initiative.

MEMBER POWERS: There=s been an interesting study on unionized work forces. And they=re content with their jobs. And they find that one of the highest contentments that things that make their job difficult is because of degradation and that things get fixed promptly. It=s one of the highest criteria by which they evaluate their contentment with their jobs.

MR. JOHNSON: It=s not surprising.

MEMBER POWERS: Just get it fixed rather than putting up with it. It=s just an interesting and unexpected finding. Just having things fixed promptly is so incredibly important.

MEMBER BALLINGER: Well, it=s taken 15 or 20 years setpoint drift and everything else. It=s taken a long time.

MEMBER POWERS: Yeah.

MR. JOHNSON: Alright. Second project, diesel generator excitation. So this is a obsolescence issue. And there are a lot of obsolescent issues that are on my 20 project list. It=s full of stuff.

Now is diesel generators? Is HPSI? RCIC? Battery chargers or I=ll say my primary DC battery sources? All of these are MSPI, very important to safety systems that are working fine today, but they=re full of obsolete parts. If we don=t do something about it over the next five years, I=ll wake up one day and I=ll have a failure and I won=t have a part to replace it with. And I=ll have a inop system and those are all tech spec related, shutdown LCO related systems. Okay.

So let=s walk through one of the examples. Diesel generator excitation panel, on the diesel generator skid there=s a panel there. It=s full of electrical components and it regulated the voltage excitation for the diesel generator. If the diesel is inop, I=ve got 14 days to get it fixed. It=s an MSPI system.

About 60 percent of the parts associated with that excitation panel are obsolete. My engineer has in his health report got a parts bridging strategy. But that=s only going to last -- You know, I=ve got parts, but I=m going to fly to get this thing fixed.

And so our present project plan is to replace one of those diesel excitation panels one per refueling, one panel on one diesel for the next five to six years. And really was on track to get that done. One of the industry stations that has already implemented this was having some problems with that. So we=re watching the industry OE related to this and making sure we=ve got the right solution.

But to go through the process, step one, any impact? Yes, under question two, improvement in reliability of the diesel to mitigate an accident.

Under question series number two, more than a minimal impact? For these reliability systems, we said no. And the reason is our approach is you=ve got to take a beginning snapshot and an ending snapshot.

And I=m going to say today I=ve got a reliable system. Tomorrow I=ll have a reliable system. After I do this design change, I expect to have a reliable system.

So reliability at present today and that=s when I=m doing the assessment today is not impacted at present. And spare parts are presently available with the parts bridging strategy and an implementation plan. And based on what I planned today, I don=t expect that there=s going to be any more than a minimal impact on my diesel generator reliability.

MEMBER BLEY: Given your current plan to replace.

MR. JOHNSON: Even my current plan. But that=s a very important plan. I can=t not act on that. That=s the point I=m making. With step two answered no, there is not the need to go to a three alpha or a three bravo PRA, risk-informed assessment.

And then I come down and I evaluate the importance based on the other categories. None for security. None for emergency planning. None for radiation protection. And a medium importance for reliability. And again that=s based on my design and the current status of the design process and the implementation plan.

And some of that design and implementation won=t happen until the year 2020. So I=ve got another six years until I have all of this fixed.

MEMBER BLEY: So this analysis though is really when you get here you=re priority three. It=s priority three given I meet the March 2020 date.

MR. JOHNSON: That=s right.

MEMBER BLEY: But if that slips, this thing changes.

MR. JOHNSON: Or if I start having failures.

MEMBER BLEY: Yeah, the end of life on this.

MR. JOHNSON: So it graded out a priority three and the IDP did not change that graded out as a priority three. And the project schedule goes through every year but finishes in March of 2020.

MEMBER BLEY: I guess what I was getting at this is a little different than some of the others we=ve seen in that a low priority doesn=t take action off of the list. It just means don=t change the plan back.

MR. JOHNSON: That=s right.

MEMBER BLEY: But keep at the plan.

MR. JOHNSON: That=s right.

MEMBER BLEY: Okay.

MR. JOHNSON: And the third pilot project, this is a Hatch specific project. I don=t know how well you know about this. There=s a lot of people who have gotten involved with the Hatch degraded grid project.

At Hatch, the emergency buses are 41.60 volt buses. And at Hatch, we have in our licensing basis and have had in our licensing basis, if you get a low voltage on the system you=ll pick up an alarm. And if that alarm exists for an hour, we are able to take manual operator action, credited in licensing space manual operator action, to I=ll say disconnect from the grid and to place the emergency power supplies on the diesel generators.

Out of a CDBI inspection some years ago, NRC took another look at that and after I=ll say a lot of discussion back and forth, came to a conclusion that Hatch needed to go fix that. And so now we have a commitment to go fix that degraded grid issue with a due date of March of 2020.

The whole issue there is if the grid goes away, if you lose voltage, everything is working like it=s supposed. But if the voltage is degraded, let=s say it goes down to -- I=m just going to use a big, round number and instead of 2460 volts it goes down to 3200 volts. There=s a concern that if you have that degraded grid condition where the operators hasn=t disconnected from the grid and you=ve got low voltage and on top of that you have a LOCA and the emergency system starts and do what they=re designed to do, the valves may not open within the time frame that they=re required to open. It doesn=t meet general design criteria 60. Hatch has committed to go in and solve that problem and fixing that problem.

MEMBER BLEY: So what you are doing now is you were starting up the diesel generators and run them if the grid voltage dropped.

MR. JOHNSON: That=s right.

MEMBER BLEY: I=m just remembering throwing this out. There was some 15 years or more ago a plant was worrying about a storm coming up the coast. They started up their diesels and had them going. And having them running bypassed some of the logic and the emergency systems such that if they got an actual demand the diesels wouldn=t have connected to the load.

Operating the way you are means you=ve

really got to understand how all that logic is working.

MR. JOHNSON: Right.

MEMBER BLEY: And I take you do.

MR. JOHNSON: Yeah. We understand.

MEMBER BLEY: It was a surprise in that.

CHAIRMAN STETKAR: Yes, there=s a lot of stuff that came out of that. Don=t do that.

MR. JOHNSON: So let=s step through the process on this one. Under step one, any impact? We got several yeses. In fact, to accident initiator which is a loss of offsite power. And an increased reliability of SSC that is I=ll say put in a third transformer increases our reliability. And also increases our defense in depth.

And step two is a more than minimal impact. Again, we got several yeses out of that step. The solution to our problem involves putting in a third startup transformer on each unit. That reduced the likelihood of an accident and improve reliability and produces an improved defense in depth.

With this issue, we go to the step three alpha qualitative/quantitative risk assessment with this. So the PRA guys do their thing and they basically -- It=s a degraded grid condition which is a low occurrence/low frequency event coupled with a LOCA which is low occurrence/low frequency event. It comes out with a 1.34 E-10. You know very low risk numbers associated with that.

Now we got into this discussion at the IDP also. The first time this issue came up in front of the IDP we had a good bit of discussion about this. So the solution is to put in a third transformer. You can see at the end of the day you need to do something about this degraded grid/operator action problem. And at the end of the day in March of 2020, you=ve solved the problem. And you=ve got an improved reliability with a third transformer. You get improved risk due to the third transformer installation.

But there=s a significant amount of risk that is associated with the implementation of this project. That is this is a huge project, putting in a third transformer. I=ve got two startup transformers for each unit.

Now I=m going to go put in the third startup transformer. So this is going to be high switch yard work. And the 24KVR and the 500 KVR a lot of work is going to go on non-outage. Switch yard related activity. Rerunning cable, ductwork, a difference of a 4160 volt load for the emergency buses. A tremendous amount of work that=s got to happen over the next six years for the two units. I=ve got about a 20 man project team to go make this happen.

During the implementation phase, we are at increased risk for being able to manage that. There will be some periods of time during the outages when I do all these tie-ins when I=ll be down to a single transformer in service and have to go through main transformer backfeed a couple of times to be able to get all of this work done.

That=s the piece of it that concerns myself and the IDP and the operators. How are we going to manage the implementation of this thing and make sure that we do it safely?

I=ll say due to the low frequency of the event the current risk is very low and the overall impact I=ve got an improvement in the end from a reliability standpoint and I=ve got some risks that I=ve got to manage as I do the implementation. And the overall effect of that is that we characterize that as a very small to minimal improvement, having those two factors that I have to offset.

Now to Don=s point, what if we=ve got that wrong? You=ll notice that the whole line from zero to greater than 90 percent everything there is very low. So if I got it wrong, the system here is a little forgiving in that it=s all going to be assessed as a very low safety significance here.

We go through the rest of the aggregation and the importance evaluation. And there=s no hits under security. No hits under emergency planning. None for radiation protection. And a low safety significance for reliability.

MEMBER SKILLMAN: So the switch yard is outside of the (Inaudible due to coughing)

MR. JOHNSON: So this is a level four priority based on NEI guidance and Hatch IDP left that as priority four item with a project schedule date of March 2020. I=ll say this is my spreadsheet of how I kind of kept up with everything.

The IDP goes through and they looked at each one of these projects and they did the NEI prioritization. And then you kind of I=ll say restack them. And I say three initiatives that wound up being a NEI priority two. And then you=ll see several of the level three priority initiatives where all of those systems that we felt like were the obsolescence pieces and also included the reliable spent fuel pool instrumentation.

And then the level four, some of the level four is some of the lower priority obsolescence issues and including the degraded grid and the open phase. Then we had one level five priority that should not have been there. I=ll say level five is something that you should have assess.

This is the aggregation that the IDP came up with and the final produce of the aggregation --

As I look at that, we stepped through the scheduling. This kind of shows you where the schedule is with respect to the aggregation as well.

I took this to the plant health committee and let the plant health committee kind of weigh in and see if there was anything that they wanted on the non-regulatory side to move up or move back. But to be honest with you, there was nothing that they felt like needed to be moved. Everything=s got its own budgetary cycle. It=s got design in progress. It=s got funding in the right years to hit the right mark.

There were maybe a couple of items, the seismic monitoring system was one item that we said we may go back and reschedule based on its low significance.

But out of that, so what=s the bottom line?

CHAIRMAN STETKAR: Greg.

MR. JOHNSON: Go ahead.

CHAIRMAN STETKAR: Could we go back to

that? I was kind of trying to do too much at the same time. Not on the schedule.

The rankings here these are one through N within each of the categories. So one, two, three in two. One, two, three, four, five, six in three. And one through eight in four. There was not attempt to rank order those across holistically?

For example, Palisades ranked them one through 20. For example, you might have had a four that ranked higher than a three because of other concerns.

MR. JOHNSON: It=s there I think.

CHAIRMAN STETKAR: Not on this one.

MR. JOHNSON: So under NEI party number two, we=ve got one, two and three, right?

CHAIRMAN STETKAR: Right, yes.

MR. JOHNSON: Okay. And so I guess by definition --

MEMBER SCHULTZ: It happened to be in order.

CHAIRMAN STETKAR: They happen to be in order. But my question was for example MSIV conversion is number two under category four.

MR. JOHNSON: That=s right.

CHAIRMAN STETKAR: And whatever diagonal cooler replacements are is number five under three.

MR. JOHNSON: That=s right.

CHAIRMAN STETKAR: Was there any attempt to say because of other considerations number two under four ought to be done before number five under three?

MR. JOHNSON: No, no.

CHAIRMAN STETKAR: Okay. Because I was hearing that from Palisades. I=m trying to understand.

MR. JOHNSON: I think the process -- I mean in the process what you do is you sit there and you say, AOkay, guys@ The IDP would say, AIs there any level four issue that you feel like needs to be raised to a level three?@ And that=s your opportunity to elevate.

CHAIRMAN STETKAR: Right.

MR. JOHNSON: That=s your opportunity to place a higher level of significance on it so that it gets risk ranked holistically against everything else.

CHAIRMAN STETKAR: Right. Okay.

MEMBER BLEY: That=s fine.

MR. JOHNSON: Alright. So what have we learned? Not every project can be assessed by this process. And the other thing is the aggregation process is an extremely valuable tool, particularly looking at it from the reliability standpoint. The reliability component is a very important thing to go look at.

Now when we go do our -- The plant health committee, when we go do our business plan right now in today=s process, if it=s an NRC commitment, it gets a level -- It=s a priority one for plant health. It gets 100 percent. NRC says, AGo do it.@ So it=s by definition number one. Here is the number one list.

And this process is like Danny said at the beginning. It puts everything on the table. It=s everything on your plate. So this is the first time we looked through the lens of just look at everything based on safety and reliability and not just because it had a commitment date associated with it.

MEMBER BLEY: Has there been any experience so far with them bouncing this off of the staff to see if -- I mean we=re going to hear from the staff later.

MR. JOHNSON: I=ve been at -- I went to Robinson and the staff came and observed Hatch. And I was at some of the early dialogue here in the Headquarters. And I think in general the same kind of positive value.

MEMBER BLEY: It seems like running into sand. Ours have three number ones.

MR. JOHNSON: Except I=ll say every one of those projects, particularly every one of those regulatory projects, has got some regulatory subject matter expert associated with it who=s got ownership for it as well. So there=s always this part of people who say, AWhat about my project? I live and breathe for this.@ Making sure that it all gets assessed in the aggregate is really the point I want to make.

MEMBER BLEY: How did you find working through the set of items and questions? Did you run across anything that looked like it could work better in another way? Or did it just work pretty nice going through the safety and then the questions that let you evaluate safety and reliability and its questions?

MR. JOHNSON: The thing that struck me the most I guess personally as I came through this thing, I would have thought there would have been a large volume of pieces of work that all of the pilot plants wanted to say AI want to change this and I want to move this.@

When you step back and look at this, the bottom line that I=m going to make here in a minute is we went through this and we got an assessment of risk. And there=s very little that I want to change. If you gave me the opportunity to say AWhat would you like to do,@ I would tell you what I would like to do and it=s based on common sense, good decision making based on safety, not based on some other just AI want to do it and we don=t have the resources.@

The aggregation is very beneficial. It provides that everything on the plant perspective that I really don=t see anything else presiding which is very important, very important. Let=s look at all of it rather than just a piece of it.

MEMBER BLEY: Start looking at number four.

MR. JOHNSON: Rigorous and repeatable process. There were a few things that were a little different. I don=t know that I completely got cyber security just right. I think some of my colleagues got cyber security more right than I did when I go to look at their product. But I=m not coming asking to do anything different with cyber security.

You know this was not easy. This was not something that we threw together in a week. There were a good bit of resources that went into doing this. You know a lot of people put in a lot. It=s more than just minor.

So the PRA insight driven and not a PRA science project. We just can=t afford to go do PRA analysis, exhaustive PRA analysis, on everything. And those guys are premium already. So I really like the ability to just give it your PRA insight versus having to go do a great level of science project on everything that you touch and consider.

Again, the reliability component is very much needed as an assessment tool. When I got into all of the obsolescent parts and pieces, that got elevated and brought to light through the reliability component of this process.

Alright. So out of all that, you kind of push back from the table and say, AOkay. What did you do?@ I come to the end of it and I would say, AI=ve got one project that=s the degraded grid project that I would like if we took the next step in this process of trying to reschedule something, that=s the one piece that I would reschedule.@

And you ask me why. I went to the projects manager associated with this and I asked him. I said, ATim, what would it mean to you if I picked that data up from March of 2020 and gave you two more years?@ And he was overjoyed at the thought of that.

CHAIRMAN STETKAR: Because of retirement date.

(Laughter)

MR. JOHNSON: But why? The reason why is

because for a project like this -- this is a six year project -- and he is wide open today trying to figure out how he=s going to make all these pieces come together and make that work. And he=s worried about being able to get it done and not have a negative impact during the implementation.

``And he=s saying, AGreg, if you can get me two more years, that will give me a little breathing room. That will give me a little cushion so that if worse comes to worse, I=m not feeling like I=m under the gun to go make something happen. And I got another cycle to go get this thing implemented.@

That=s safety.

CHAIRMAN STETKAR: Did you look at all -- I can resonate with that, the down sides of that. You put up a number. I don=t remember names. You put up a number 1.34 X 10-10.

MR. JOHNSON: Yeah.

CHAIRMAN STETKAR: Which is a pretty small number. Precise, but it=s pretty small. Did you look at also trying to quantify the down side, the stuff you were just talking about, to quantify the likelihood of total or partial losses of power during the implementation?

MR. JOHNSON: Yes, but it=s still a

drawing board in progress. Right.

CHAIRMAN STETKAR: Yeah, obviously.

MR. JOHNSON: Your intelligence is only as good as I don=t know exactly what that thing looks like three or four years down the road.

CHAIRMAN STETKAR: Right.

MR. JOHNSON: So what my PRA expert did is he went out there and he did a qualitative assessment of we=re going to be working in the switch yard. I=m going to assume for the better part of a year. And so let me up the initiator for loss of offsite power and came up with an assessment based on that.

CHAIRMAN STETKAR: So he did do that. Okay. Good. Thanks.

MEMBER SCHULTZ: Greg, a couple of questions. You had two that you said could reschedule. You had a priority level four.

MR. JOHNSON: Right.

MEMBER SCHULTZ: You had two you could reschedule. One I presume you decided not to pursue that because of the obsolescence and the timing.

MR. JOHNSON: No, the other one is the open phase issue which is not a hard NRC commitment so much as it is an NEI commitment at this point in time. And there=s a whole bunch of discussion about what=s the right solution and safety-related versus non-safety related and a whole bunch of discussion back and forth. Hatch along with the rest of the industry is still struggling with what is the solution and what=s the due date and what=s the commitment date.

So we=ll talk with our executives and our planners about what=s the right time frame for that implementation. As it stands today, the NEI commitment, the industry executives through NEI and SIAC committed to a 2017 date.

MEMBER SCHULTZ: The other question is on your list of benefits or lessons learned you had in one bullet that this is a repeatable process, a good feature of it. Did you intend by that to mean if this listing was reevaluated again that you=d likely get the same answer? Or did you mean that the team can go forward and use the process on a consistent basis to evaluate other projects?

MR. JOHNSON: Both. I think both is true. I think the process is sound enough to pick it up now and use it again next year in the same way. It=s repeatable in that measure. But I also think if you went out and took another group of people you would come to the same general conclusions, not an exact stamp. There would be some variation, but you would get the same results out of it.

CHAIRMAN STETKAR: You=d still need the same passionate operators to elevate the relief valve.

MR. JOHNSON: I=ll tell you the PRA -- Not only that, the PRA, the devil advocate, my PRA lead principal engineer, he was in everybody=s business.

MEMBER SCHULTZ: Do we make the PRA lead just by definition the devil=s advocate?

(Laughter)

Generally, that individual is likely to be that.

The question I=ve got about the NEI aggregation and priority approach, it=s guidance. Right. So I was wondering in that situation did the team feel comfortable about pushing back and elevating that project, I mean, the priority from three to two.

MR. JOHNSON: Yeah.

MEMBER SCHULTZ: Because in the guidance itself for NEI, they don=t cover all the bases. They=ve got this or this or this. They don=t have what you had in that case which left you in priority three. You had one component that was assessed as level three and then you had an and which is not in the table if you will.

MR. JOHNSON: Right.

MEMBER SCHULTZ: Either on two or three. And I mean you=ve got some latitude to push something in two to three or four to three.

MR. JOHNSON: Right.

MEMBER SCHULTZ: From three to two or four to three.

MR. JOHNSON: Right.

MEMBER SCHULTZ: Did you have discussions with NEI over that process?

MR. JOHNSON: I would say this. It was a good, healthy discussion. It was also operator driven. And it was I=ll say the sense of this is we=ve lived this pain.

MEMBER SCHULTZ: Right.

MR. JOHNSON: And the NRC observer also gave positive feedback. After the meeting, his comment was AI saw that as being a positive that people were willing to elevate without being constrained.@

MEMBER SCHULTZ: But again my comment is when I look at the NEI guidance I don=t see anything that would constrain you from bumping something up from four to three or three to two.

MR. JOHNSON: Right.

MEMBER SCHULTZ: And this case it certainly seemed like the right thing to do. And you had some evidence that could have been used if you coupled the condition and you had the reliability piece of it to move forward with bumping it up if you wanted to provide some evidence. On a case by case basis, you wouldn=t want to apply that in a general sense because you=d be throwing a number of things up that perhaps don=t warrant.

MR. JOHNSON: I=ll say that I saw the willingness to do it and the capability to do it. But I also saw that the IDP felt like the result that they got by and large was the right result.

MEMBER SCHULTZ: Right.

MR. JOHNSON: It was four. Is everybody okay with a four? Maybe a little discussion. But I think the takeaway from it was that in most cases it was right to start with out of the process.

MEMBER SCHULTZ: I also noticed that on the Fukushima initiative related to spent fuel pool instrumentation that in comparison to the Palisades evaluation you had a benefit provided in radiation protection.

MR. JOHNSON: That=s right.

MEMBER SCHULTZ: And so just curious as to why that appeared, why you feel that appeared on your list. I=m not going to ask Palisades why it didn=t appear on theirs. But one could expect some differences in terms of evaluation.

MR. JOHNSON: Yeah. You know I don=t know because we didn=t go back and do a cross functional pilot-to-pilot check and to say AHow did you get low and I got medium in this regard.@ I=ll say that my IDP felt like it was -- You certainly have the potential to affect effluent, radioactive effluent.

MEMBER SCHULTZ: Right. We talked about that.

MR. JOHNSON: Based on not having the instrumentation. Based on the Fukushima. So we graded that a level of importance higher than Palisades. But I didn=t go through the Palisades study or IDP process.

MEMBER SCHULTZ: Just in that regard, your priority ranking came out the same. But the evaluation was a little different.

MR. JOHNSON: Right.

MEMBER SCHULTZ: Thank you.

MR. JOHNSON: You=re welcome.

MEMBER SKILLMAN: Greg, let me ask this. Of the 20 projects that you=ve selected, are there some that you would have rather not have chosen because there were others that were deeper in the bucket that might have been more valuable?

MR. JOHNSON: No. There were some others that I felt like were of very little value. So when John Butler said AGo pick 20 projects@ I went to my full business plan which had 50 projects in it and said, AOkay. This is just my honest -- I=m not interested in talking a whole lot, you know, spending a whole lot of work on all the Fukushima stuff. Other people have already done that.

So what is important to me? This is important. This is important. This is important. We=ve got to do this. We=ve got to do this. This is really big. And I=ve got this commitment and this commitment and this commitment@ and came out with what I thought was the 20 most important things we need to be focused on.

MEMBER SCHULTZ: So it was a personal importance ranking that you used to select those.

MR. JOHNSON: Yes. I had some -- How do you know that you=re getting the right mix is the question of where you=re headed.

MEMBER SCHULTZ: I thought that=s how you selected them at first when you described it that you wanted to have a good sample to apply the process to.

MR. JOHNSON: Right.

MEMBER SCHULTZ: But you said there was a little bit of a personal prioritization that went into it as well.

MR. JOHNSON: Yeah.

MEMBER SCHULTZ: Then not selecting those things that you didn=t feel needed to be evaluated separately from where they=ve already been evaluated.

MR. JOHNSON: Right. I mean you don=t get an value if you come away with a bunch of level five priority stuff. And you=re not looking at the level two and three stuff. It wouldn=t have been doing the pilot process a good service if we had to pick the long projects.

MEMBER SCHULTZ: Thank you.

MR. JOHNSON: Anyone else?

CHAIRMAN STETKAR: Anything else for Greg? Greg, thanks a million. We really appreciate the time and effort in getting us educated.

What should we do here? Nobody ever complains about taking a break. So let=s take a break until 2:05 p.m.

(Whereupon, the above-entitled matter went off the record at 1:49 p.m. and resumed at 2:07 p.m.)

CHAIRMAN STETKAR: Let=s reconvene. And

we=ve had a little bit of change of plans to accommodate one of our participants who needs to leave by 3:00 p.m. or so. And I understand, John, you=ve got some insights you=d like to give us from your experience.

VII. NRC STAFF RESPONSE TO COMMISSION DIRECTION ON PROPOSED INITIATIVE TO IMPROVE NUCLEAR SAFETY AND REGULATORY EFFICIENCY

MR. GRUBB: Sure. I=m John Grubb from Xcel Energy. Thank you for this opportunity. I=m the General Manager of Fleet Operations and Fukushima response is my primary job for Monticello and Prairie Island. I=m leaving to go to a Fukushima meeting in New Orleans.

So Xcel Energy took part in both the tabletops back in February as well as the pilot that we held. The pilot we did in September was specifically for our Prairie Island plant.

Very similar to the rest of my colleagues. I found the process to be pretty robust. It=s not perfect. It doesn=t work for every project or every regulatory item.

An example we came across is there are certain environmental regulations where you could go through this process, but you may have local environmental regulations that you still need to address. So it doesn=t cover everything for every. And we talk about that in the guidance document and try to make that very clear.

Two critical ones that I want to talk about, one more so than the other. When we did our tabletop back in February, one of the things we tried to do is we tried to show that every utility has X amount of money, capital money, for a given year and you do as much as you can with that capital. Many of the things that fall below the line you put out in future years and you do that balancing act every year. It=s kind of a continuous process.

We picked one at Monticello that had fallen below the line three operating cycles in a row which was a circulating water pump motor. Monticello is about 43 years old. The original motors are still there. We=ve been taking very good care of them, but they=d never been shipped off and rewound or replaced.

The project was to buy a spare and then get into a rotation cycle. Three cycles in a row one fell below the line. Monticello is a single unit BWR and we have on the order of $38 million mandatory capital issues driven by Fukushima cyber security and other things. So about $38 million in regulatory driven projects.

So that project got pushed until the next operating cycle. That motor failed a month ago. Operational transient. Because of the time of year, the plant was able, the operators were able, to reduce power and keep the plant on line. But the plant=s been running at 32 percent power now for a month because we had made a bad decision a couple of times over.

So a process like this that will elevate those risk decisions and the regulatory side of this process would have driven us I believe to have taken action with that motor. We never would have allowed it to get to the point of failure. That was one example I just wanted to share.

MEMBER SKILLMAN: John, if you would explain how the regulatory decision making would have required a BOP motor.

MR. GRUBB: I=m sorry. Not the regulatory decision making. The reliability part of this process --

MEMBER SKILLMAN: Reliability.

MR. GRUBB: -- would have elevated that to the point that we would have maybe challenged some of the regulatory atmosphere. An example in our tabletop was cyber security. Cyber security is a great rule. Our plants are through I think the first seven steps.

And we believe most of the safety benefit for cyber security has been realized now. Step eight is primarily, not entirely but primarily, administrative process wise.

But I=ve got a couple of million dollars at each of my plants I have to spend to meet the deadlines imposed by that order. If I had a process like this that maybe allowed me to negotiate the timing of that last step maybe I could have gotten something like this addressed before it failed.

MS. MYERS: John, if I could help you on that.

MR. GRUBB: Yes.

MS. MYERS: On the circ water pump though, if you look at it you would have answer or you could have answered yes to question one because it was an initiating event. Then if you looked at -- I don=t know that we would have been smart enough to look at -- you were going to operate for a month at 32 percent power, these plants aren=t made to run at 32 percent power.

MR. GRUBB: Right.

MS. MYERS: Or 50 percent power. They=re made to run at 100 percent power. So the risk that=s out there for operating the plant and the different things, the different stresses you=re putting on the plant, may have taken this to being something that you would have gone into PRA.

MR. GRUBB: Our collective experience at Monticello -- I=ve worked there for 25 years -- was we=d never run with single circ water pump that any of us could remember other than start-ups and shutdowns. So you=re putting yourself into another operating regime where you don=t have the benefit of your 43 years of operating experience. That was the one. I just wanted to share those couple examples. And I appreciate that.

CHAIRMAN STETKAR: And they=re good. And thanks a lot. It also helps because it sort of reinforces this thought process that if you do apply the process holistically it may be able to help reorganize things.

MR. GRUBB: Yes. Thank you.

CHAIRMAN STETKAR: Really appreciate that. Thank you, John.

Sonja, thank you for being accommodating.

MS. MYERS: Oh yes. Not a problem.

Okay. So Robinson Plant we participated in both the tabletop and the pilot. I was selected basically because of the different experiences I had within engineering. I=ve been part of equipment reliability now for the past two years. I=ve spend roughly 30 years in design out of my 32 years of experience. Had about a year in licensing. So just call it rag com math when you=re looking at it. Then I did some project management as part of the design organization.

I=ve been at multiple stations. I=m at Robinson right now. Started my career at Palo Verde. I spent 21 years there. I spent about 18 months at Comanche Peak right before I went to Robinson and spent seven years at Prairie Island from 2003 to 2010 for those that know Prairie Island.

CHAIRMAN STETKAR: Other than the fact that it=s really cold at Prairie Island in the wintertime, it=s a good career path as far as environment is concerned.

MS. MYERS: I think the upper Midwest. But the thing at Prairie Island was we had a lot of significance determination processes going on during my stint there. We had energy line break. We had the reconstitution of the q-list. And then we had internal flooding concerns as well as we had some operational and ePlan findings going on as well. I=ve been in and supported the significance determination process quite a bit during my career.

Our Duke participation, we wanted to optimize the limited resources. Six plants, seven plants when you include Crystal River. We need to make sure that we=re doing the right projects at the right time.

There was an immediate need to prioritize regulatory actions versus plant-identified actions. When you look at, as you=re going through this process, when you have plant-identified actions, it=s really things that you=re thinking are important to the station and important for safe, reliable nuclear operation that isn=t driven by industry experience necessarily. If you would liken it to it is your forward-looking issues before they become large enough to be industry issues. And then we wanted to make sure that we had the better prioritization leading us to better plant safety.

So why Robinson? We=re a single unit plant. We=re an old plant. And so the cost of each regulatory issue for the single unit plants is greater than if you have two or three plants to optimize across.

Pre-GDC plants propose unique opportunities and challenges. We heard from Hatch. They had some operator actions that were approved in the original design basis that led to some things that made them have a regulatory commitment. Pre-GDC plants lead to -- You need to make sure your staff understands what the design basis was for the plant, what the licensing basis was for the plant and why those things are there. And as you=re changing the plant that you preserve the robustness that was designed into the plants. You know, especially when you=re talking these old plants. They were designed on slide rules. And there was some more margin added to those plants that isn=t necessarily even evident to people of my age. We got to use calculator and computers when we were going through engineering school, where people five years ahead of me did not. They were doing slide rules and hand calcs.

CHAIRMAN STETKAR: Engineers were engineers damn it.

(Simultaneous speaking)

MS. MYERS: And you know what the difference was between the log 10 and the log E, right?

MEMBER SKILLMAN: We did.

MS. MYERS: So it is a different world and it happened very rapidly. The difference between three years ahead of me in school and my class was remarkable. My class in high school was the first ones that did not learn how to use a slide rule. It=s a big difference.

MEMBER POWERS: You young whippersnapper you.

MS. MYERS: And then Robinson also had an opportunity for the Duke fleet based on our operating cycle. That is we didn=t have an outage in 2014.

Our panel, we selected diverse people. When I said we have outside Duke experience, we didn=t have somebody outside of Duke today. But they had experience like myself at other plants. We had senior management. We had operations. We had engineering. We had PRA, licensing, maintenance, training. For selected topics we had ePlan manager as part of the team. For selected topics, we had our rad protection manager as part of the team.

We had our site director who is now our site vice president. He=s got 40 years of Duke experience including operations, engineering and senior station management at three Duke sites as well as at the corporate offices.

We had an operation person who has 30 years nuclear experience. He=s held RO and SRO licenses at Catawba. He=s functioned in the corporate office and then currently he=s the assistant ops manager for Robinson.

We had a person that=s had 30 years at Duke. He is currently at major projects. He=s held various leadership roles in engineering and maintenance. And primarily the experience has been at Robinson. He=s also had some experience at Brunswick.

We had our probabilistic risk analysis manager, Bruce Morgen, who is here with me today. Thirty-five years nuclear experience and has had the PRA for Brunswick, Harris and Robinson. He=s also had some safety analysis and fuel background.

We had our licensing manager. Thirty-three years of experience at Robinson including being the fire protection engineer as well as the manager of the programs area. Essentially, he had my job before I had my job as far as equipment reliability and components manager.

We had a couple of gentlemen from ops training. Robert Shane had 30 years nuclear experience. He was an SRO at Robinson and was licensed for 18 years. He has since left the company, but he was the supervisor of operations initial training.

And then we had Gary Swider who has 38 years of nuclear experience with extensive experience in engineering management most recently at St. Lucie and then at Millstone. And currently he is the engineering recovery manager for Robinson.

How did we select our projects? We wanted to do a balance. So we selected 11 regulatory issues that were someplace in the scoping design and implementation.

And then we selected reliability issues that were near the funding line. We were asked to get the list together. We were at the point of putting together the 2015 budget for projects. And we wanted to make sure that we took a hard look at those that were near the funding line and put them through the process.

MEMBER SKILLMAN: Sonja, what do you mean by Anear the funding line@?

MS. MYERS: So you have the line you draw for how much money you=re going to invest in the company or into the plant. And we selected those that were just slightly above the cutoff point and slightly below the cutoff point.

MEMBER SKILLMAN: Thank you.

MS. MYERS: And that way it would give us a better understanding of where we should prioritize those projects.

MEMBER SKILLMAN: Thank you.

MS. MYERS: And then we had other issues as recommended by station management.

So our 11 regulatory based projects, we did all the Fukushima mods. So that was three Fukushima mods. I=m sorry. 805 mods. That was three 805 mods. It was incipient detection and then we also did the Fukushima mods, the electrical and mechanical, cyber security. TSTF 523, that would be putting your generic letter 0801 testing into the tech specs or your void for ECCS, the testing to find those within the tech specs.

We looked at the insulation replacement for GSI-191, the open phase for the Byron event, a material change out for the whole downstream for MRP-227 alpha. And then lake level indication which would be for our ultimate heat sink.

One thing I want to say about this because I=m not sure it fits in any place else is when you have a long term issue like GSI-191 and you have done 90 percent of the benefit, trying to evaluate that last bit to be finished up doesn=t work well for this process. If we were talking back before we had done anything with sump screens, before we had done anything with monitoring, you know, if you were at the start of GSI-191, it would be whole different conclusion than it is at the very tail end of that.

MEMBER SCHULTZ: Should you apply it at

the end.

MS. MYERS: I don=t think we probably should have. But again we were piloting process. So we were trying this out.

CHAIRMAN STETKAR: Should you apply it if you=re way back on day zero of GSI-191?

MS. MYERS: Well, I think if you talk about going way back to day zero on GSI-191, you=re talking about things getting in on day zero. So far enough along to know that it is critical.

CHAIRMAN STETKAR: It is an issue.

MS. MYERS: Yes, there=s an issue. It=s credible for things to get past your sump screen to get into the in-vessel fuel, to have impacts to your motors and your pumps, actually your pumps than your motors, for your safety related ECCS pumps. I think you would come out that that would likely end up being a priority two or a project level two with impacts to PRA because you=re talking about these things could cause core damage.

CHAIRMAN STETKAR: But what I=m hearing from you is you think that this process could work for that type of issue.

MS. MYERS: I think it could.

CHAIRMAN STETKAR: Even though it=s not

defined as finely as change out of a particular motor.

MS. MYERS: Right. I think it can be applied. You have to be far enough along to know what the risk is to your plant. So you have to be able to answer your step one questions.

CHAIRMAN STETKAR: Okay.

MS. MYERS: What initiating events am I talking about? What mitigating events am I talking about or mitigating pieces of equipment? How can this impact those? So going back to if you=re trying to do 805 before you really have all your scope done it would be difficult.

CHAIRMAN STETKAR: Difficult to do.

MS. MYERS: Right.

CHAIRMAN STETKAR: Because that=s too broad reached.

MS. MYERS: It=s too broad.

CHAIRMAN STETKAR: Okay.

MS. MYERS: It=s just too broad. So also we found for your long term material issues. So for the MRP-227 issue it is just a long degradation process. And then if you let it go too far, it=s gone. It does not work well for that. But that=s where you have your industry panels help you with that to say, ALook, this is really important. If we let it tip, we=re not going to be able to recover the material degradation that=s happened from the neutron embrittlement.

And then you have to have truth in advertising. When we got to the lake level indication project, it was actually an alternate lake level indication, not the one that we had specified for knowing what our ultimate heat sink level was.

Reliability based projects, you see loss of RCP cooling on the top there. We talked about it. There=s a portion of it that=s for 805. But there=s a portion of it that is for other events. So that=s why we characterized that as reliability based. If we weren=t going to do 805, we were still going to do the seals.

We have a valve on the secondary side that when we changed from fail open to fail close. That was based off of a PRA model recommendation that would reduce the risk.

We had a local operator action to reset breaker for instrument air compressor. When we put this through the process, we had some very angry operators. They thought we were doing this to kill the project. The actual results that this one came out as one of the higher ones for reliability because instrument is so important to us.

MEMBER SKILLMAN: What were the operators concerned about, Sonja?

MS. MYERS: They thought as many people did that this was a way to kill projects.

MEMBER BLEY: Not do a hardware fix.

MS. MYERS: Not do a hardware fix. To cancel the projects.

CHAIRMAN STETKAR: Most of the time those guys are doing it okay. The heck with them.

MS. MYERS: Exactly, exactly. And just the opposite came up on this one. It did go through to step three for us.

The next one, operator burden for inhibiting fire suppression, during our diesel runs, our monthly diesel runs, we inhibit the fire suppression in our safety-related electrical room. And now you think about it and Dana was talking to me a little bit about Robinson=s fire. This is where Robinson=s -- This is the room that Robinson=s fire happened in. Fire is our biggest PRA risk contribution. So this again, the operators should not have had any concern with us screening this one through the process to see where it would end up.

We had some vacuum switches on the condenser vacuum system. It was an obsolescence piece. We=re doing a lot of PMs on those just to see where that would land as well. We have an obsolete CO2 system in our cable vault room.

We had a communication repeater in containment. Robinson has fire detection in the containment as do most plants. And the fire detection containment, every once and a while will give a false reading of an indication and give an alarm. Well, Robinson has declared unusual events because we can=t get into containment and verify that that is a valid fire and get the communication back out to the control room within the 15 minutes that we have to classify that.

Diaphragm valve replacements in our CVCS system, again just obsolete parts. Long term focus reduction type thing.

Loose parts monitoring upgrade. Our loose parts monitor was professed to be obsolete. Again, truth in advertising. When we looked at it, it isn=t obsolete. It just isn=t the preference of the system engineer at this point.

(Laughter)

Going back to Dennis= point.

MEMBER POWERS: Not the question is whether the systems engineer is obsolete.

MS. MYERS: Right. But going back to Dennis= question, when is it going to go obsolete? We don=t anticipate that it will be more than a year or two before it is obsolete.

We had an isolation valve in the RWST supply to our charging pumps. And that was actually a maintenance burden. We have to do a freeze seal if we are going to do any maintenance on that or during the RWST.

And then the last one which we=ll go into deeper detail was we were going to replace our bravo station battery with a larger capacity battery. And we had a lot of emotion around that one. But that really hit the I believe button for many people at the station because we were able to get even the people who were advocates for that larger battery to concur with the conclusion of that. And we=ll go into that a little bit more.

So we have three examples. The first two ended up being priority five items for us or very low safety significance. And we=ll go through how we came to those conclusions. And then the last one was our highest risk impact project which was a medium risk.

So just a bit of history on the ECCS voiding issue, many plants and Robinson was one of them committed to implementing TSTF-523 which proposed modifying the existing surveillance requirements for gas accumulation and adding some surveillance requirements into the tech specs for RHR shutdown cooling containment spray. So Robinson like many plants committed to this before the TSTF was very well developed and as part of that was put lower in priority on NRC inspection of the gas voiding generic letter.

We had conditions of operations for ECCS, RHR, shutdown cooling and containment spray. And the idea here was that you would add some statements within the tech specs to acknowledge that you had to manage gas voids. Robinson like many other plants said the system had to be operable, but did not acknowledge that gas voids could impact the operability of the system. Again, due to the age of our plant, we have done improved tech specs at Robinson.

So we took some actions as did all the other plants to the response where we would do void inspections on a periodic basis. And if those void inspections came back having identified voids we would take actions to vent those voids.

If you look at our history, in the early days we found some voids. We found some large voids. We took some actions. We vented them. We did some modifications, put vents in. We did some changes to procedures so that maintenance as a finished up maintaining pumps would do some voidings. The conclusion was that we really didn=t feel that implementing the changes into tech specs where we would go from a quarterly test to a monthly test would benefit nuclear safety.

We=ll go through the questions. We went through step one, any impact. Question two we would have improved performance of the emergency core cooling systems. If voids were found, we would know them quicker and we would be able to take actions quicker if we were doing monthly tests.

For question three which has to do with really dose, we would improve the performance of containment spray functions including the long-term containment cooling. And that=s why we would say that was yes. Same sort of thing. If we were looking for voids more frequently and found voids and mitigated those voids, we would have more reliable containment spray function.

And then last, improves the defense in depth for ECCS functions and specifically we=re looking at if you have voids you=re going to impact your RCS pressure, your heat removal and inventory control if you don=t take action. So we saw that as being positively impacted.

Going on to step two, was it more than minimal? We=ve taken actions from the generic letter. We=ve been doing quarterly tests. They have been effective in detecting and preventing the voids at Robinson. So going from being quarterly to being monthly was not a discernable change by changing the commitment from the generic letter response to including it into tech specs.

Looking back at our past two years, the times we have found voids is as we=re coming out of the outage which is where you would expect them. We=ve vent them and then we don=t see them again. Going back years before that, we were learning just like the rest of the industry. So about 2011 is when Robinson had the change where we weren=t seeing very many voids other than coming out of the outages. When we did see them, they were smaller in size.

Again, the change would have a positive impact on the dose received during the accident scenarios where we needed long term containment integrity. But again based on the existing monitoring we judged this to be minimal. Again, if we don=t have voids and we=ll find them more looking monthly, it wouldn=t help us more than minimal.

And then again question five is not more than minimal since the testing is already being performed. It=s not adding a defense in depth function. It would be just performing the testing that we do already. And since we=re not finding them on a quarterly basis, we felt like this really didn=t go on to help us.

Going on to the other areas, this is where Robinson looked at a little bit differently. This change would actually negatively impact equipment reliability. And the reason it would negatively impact equipment reliability is there are personnel that will be unable to perform maintenance or operation activities because they=re out performing these void inspections. And given the limited resources that you have for operations and maintenance, we felt that taking away from other activities that they would be doing would negatively impact the reliability of the equipment overall.

CHAIRMAN STETKAR: When you ask about -- But can=t you say that for everything? If I have ten things to do, if I don=t have to do number ten, I can do the other nine. If I have nine things to do if I don=t have to do number nine, I can do the other eight.

MS. MYERS: Right. So I have ten things to do or I have the personnel to do ten things which are the most important ten things to do.

CHAIRMAN STETKAR: Well, that=s true.

MS. MYERS: And that=s the way that we were looking at it was something likely on the secondary side would be dropped from doing rounds or preventive maintenance such that we could do this void inspection on a monthly basis versus a quarterly basis.

MEMBER BLEY: Is this more than just opening an event seeing that they are --

MS. MYERS: It is. It takes specialized people to look with NDE type of equipment to see if the pipe is full.

CHAIRMAN STETKAR: Back when I was checking --

(Simultaneous speaking)

A little water came down. You closed it and it was fine.

MEMBER SKILLMAN: I think this is a real important issue. And I think it=s very subtle. And I=m glad you characterized it, Sonja, the way you have. So you say we=re going to take a hit on ER.

MS. MYERS: Yes.

MEMBER SKILLMAN: My thought would be

there needs to be another category in importance characterization that has to do I say staffing, but not from a station staffing perspective. I=m not suggesting more people.

MS. MYERS: Right.

MEMBER SKILLMAN: A recognition of who has to do what under certain conditions in the plant. I=ll give you another example. Most of the plants have within the on-station team a fire brigade.

MS. MYERS: That=s correct.

MEMBER SKILLMAN: On shift right now at all the nukes is a subpopulation of the people on shift that are EMTs.

MS. MYERS: That=s correct.

MEMBER SKILLMAN: So under the right circumstances perhaps the most knowledgeable man and woman in the control room turns out to be the EMT that is called out because an individual fell down the stairwell. It seems like maybe among these five categories there=s one more that would be a critical talent set or critical people.

You make a good point to do the gas identification in the pipes you need people who have either your T capability but they=re really ISI kind of people.

MS. MYERS: That=s right.

MEMBER SKILLMAN: And they=re unique.

MS. MYERS: That=s right.

MEMBER SKILLMAN: And a station may only have three or two.

MS. MYERS: Correct. Or a corporation might only have five.

MEMBER SKILLMAN: Five or three for a couple different units. So I=m wondering if like John said and Dennis said you could make that same argument for almost any one of these issues. Could it be that there=s another critical category that is unique skill set requirement that could be a tipping point.

MS. MYERS: Right.

MEMBER SKILLMAN: And that gets to maybe several of the other items that have been raised so far in this meeting relative to changing from the two-stage to the three-stage SRVs, the fixing the cooling tower at Palisades. Because I mean if the cooling tower at Palisades I=m sure the operators would say, AWe=re the only ones licensed to touch the controls.@

MS. MYERS: Right.

MEMBER SKILLMAN: And by golly if you lose that tower we=re in trouble. Ditto for the operators who would touch --

MS. MYERS: The instruments.

MEMBER SKILLMAN: -- the controls for the condition where the SRVs would be required.

MS. MYERS: Right.

MEMBER SKILLMAN: So I=m wondering if there isn=t another evaluation category that would be a beneficial addition and prioritization of these items where the most limited resource on site is normally your key people. The most limiting resource is your key people.

MS. MYERS: Right.

MR. DUBE: Can I answer that? Don Dube. At one time early on in the process we were thinking of having a sixth category on personnel. For a number of reasons, it was not included. As a result of the pilot there were a number of pilots that identified these personnel reduction issues such as reducing burden of fire watches, operations, maintenance.

So what we ended up doing is at the very end of the process saying that there=s other considerations such as personnel burden reductions that can be either a tie breaker or with justification of cause to change the relative priority up or down. But we have not gone so far as to create a sixth category if you will.

MEMBER SKILLMAN: Thank you, Don. Thank you, Sonja.

MS. MYERS: Right. And really in the security charts we have that as a consideration. When we look at the comp measures going through security, if the comp measures are cost beneficial to the station For example, if it costs me less to keep the security guard performing that comp measure for the rest of the life of plant than it costs me to do the mod, then I would say that=s a low priority for security versus this is kind of the reason where I=m saying for this it is not beneficial for is to keep those personnel and have them do this task versus other tasks that they may do.

MEMBER SKILLMAN: Thank you.

MS. MYERS: And then for radiation protection if you=re going in to take data every month versus every quarter that means you=re getting three times the dose that you would get to do that same task on a quarterly basis. Overall, it didn=t show us any significant safety impact. And it was a negative impact on the dose and equipment reliability.

The dose for taking our gas voids is not extremely high. But every millirem counts. And we felt that it was important to go ahead and highlight this that it would actually be a negative impact for a radiation protection and keeping our doses low as reasonably achievable.

Any questions on that one?

(No verbal response)

Alright. So Robinson had on the books and actually was to be installed in our upcoming outage in May of 2015 a replacement of our bravo station battery with a larger battery. The battery had minimum margin. It did not currently meet the margin recommendations of IEEE 485. And the larger battery would have to be selected to do that.

Considerations of that, the space in the battery room was limited. And in order to expand it we had to move the battery charger. In order to expand it significantly, we would have to build a new battery room.

To give some history on this, originally our batteries were sized and they were considered to have an eight hour duty cycle. When IEEE 485 came out and Robinson looked at that, the duty cycle was reclassified to be a one hour duty cycle based off of the sizing methodology in IEEE 485.

We did add some safety benefit in 2011 where the battery chargers were manually restarted. And we made that an automatic restart following a LOOP or a LOCA. But we did not change the duty cycle of batteries. So we added the battery chargers back onto the batteries and with the automatic restart capability.

We talk about what this modification was going to going to do. It was giving us minutes of extra margin versus anything significant for coming up to where you would want it to be for either Fukushima or for even Station Blackout considerations.

CHAIRMAN STETKAR: So let me understand that. This larger battery was not increasing the capacity to four hours or eight hours. It was like 63 minutes versus 60 minutes.

MS. MYERS: That=s correct. So when we went through it, any impact. The answer to question two was yes. It improved the capability because we were adding more capability to the safety related batteries in response to LOCA/LOOP with the failure of the alpha diesel generator. And it improved the defense in depth for a vital electrical power again with a single failure of a diesel generator.

When it came to the more than minimal, we determined that the battery is capable of meeting its current design function. The change would not result in a significantly larger battery duty cycle. And it was an increase of minutes. So we determined that the change was not more than minimal And the same for the defense in depth. It ended up being a very low safety significance.

The important thing is we ran this through. We had people that were involved in helping create this screening. We had people on the panel who thought this was going to be our top priority of items that we looked through.

And when we were able to do this, it was really a tool of engaged thinking. When you look at really the impact of batteries on core damage frequency especially when you=re only talking about increasing it by minutes, it just wasn=t there for what they had thought would be.

CHAIRMAN STETKAR: You said five minutes.

MS. MYERS: It was a minute, three to four minutes basically. At the end of this, at the end of the day, what we did was we terminated the project to replace it with a larger capacity battery and reallocated the funds to be a replacement battery. The battery still was at the end of life. And we were going to be able to make our next 18 years of operations with just this one more battery replacement.

CHAIRMAN STETKAR: You replaced it with a one hour battery.

MS. MYERS: We did.

CHAIRMAN STETKAR: Okay. Here=s an example where this process is sort of stupid. I=m on record for that. I realize I=m on record for that. Why didn=t you exam replacing that battery with a four hour battery or an eight hour battery?

MS. MYERS: We did that.

CHAIRMAN STETKAR: Okay.

MS. MYERS: And the cost of the project soared because we were going to have a build a new room for it. You needed HVAC.

CHAIRMAN STETKAR: Did you look at the risk impacts of a four hour or eight hour battery versus a one hour battery?

MS. MYERS: We didn=t as far as process goes.

CHAIRMAN STETKAR: Tremendous.

MR. MORGEN: Not formally, right.

CHAIRMAN STETKAR: Please come to the microphone and identify yourself.

MR. MORGEN: Yes, I=m Bruce Morgen. I=m the fleet PRA manager for Robinson, Harrison, Brunswick. So the PRA model assumes the one hour battery life when we determine our success criteria and how we respond to accidents. So clearly having more battery life would be a large benefit to us if it=s sufficiently large.

CHAIRMAN STETKAR: Thank you.

MR. MORGEN: In the case of the one hour to one hour and minutes, it did not make a difference.

CHAIRMAN STETKAR: Oh, one hour versus one hour plus a small number of minutes clearly doesn=t.

MR. MORGEN: But the evaluation we performed for this project was not for a four or eight hour change.

CHAIRMAN STETKAR: Okay.

MS. MYERS: That moves us to our last project which was the installation of the Westinghouse shutdown seals. This project was to replace all our reactor coolant pump seals with a Westinghouse SHIELD thermal shutdown seals.

The new seals will reduce the inventory losses from the current estimated 25 gpm to a 1 gpm during a loss of RCP seal cooling event. Obviously, the RCP cooling event is not just fires. It=s there for fire. It=s there during Station Blackout. And there are other scenarios in the probabilistic risk assessment where we could lose seal cooling, but not necessarily a design basis type of event.

So the proposed change would replace the dependency on a time critical manual action with a mechanical design feature to keep the RCS intact. Safety significance of this was medium. Any impact for question two for the mitigation would be increasing the capability of the RCP seals to maintain RCS pressure boundary during a loss of all seal cooling events. And we=d be increasing the availability of our operators by reducing one of the manual actions to respond to a loss of all seal cooling to the RCP event.

CHAIRMAN STETKAR: Do Robinson=s pumps trip automatically on loss of cooling?

MS. MYERS: Could you help me with that, Bruce?

MR. MORGEN: Bruce Morgen. I do not believe they trip automatically.

CHAIRMAN STETKAR: These are probably standstill seals. So the operators still have to trip the pump manually so that these seals will work. Is that correct?

(Off microphone comments)

MS. MYERS: As a positive impact by reducing the dependency on the actions, if I recall the way that our subject matter expert talked about it, it extended the time that the operators had to trip the

RCP seals or RCPs following a loss. Specifically, they talked . About there was less operational challenge to maintain the pressurizer level on scale during the postulated event. And the time to start a make-up pump was also increased.

Moving on to -- I=m sorry. We didn=t cover question three. There was positive impact for dose because we reduced the RCS inventory losses and we reduced the need for the time critical operator action, again extending during a Station Blackout or a fire.

From question four, we=re talking about pressure boundary here. Obviously, if we=re talking about 25 gpm from an RCP seal to 1 gpm we=ve had a positive impact on the capability of the RCS pressure boundary.

And then a positive impact because the new shutdown shields will provide a second barrier in the case of loss of all seal cooling event.

We did determine it was more than minimal. There=s less operator challenge to maintain the pressurizer level on scale. We have more allotted time to start up a make-up pump. And we reduced or eliminated the dependency on the manual operator actions to ensure RCS integrity.

For question three, same logic. It had a positive impact.

Question four, it was a better design to increase the capability of the seal during a loss of all seal cooling event.

And question five it was a second barrier or defense in depth for a loss of all seal.

We look at the estimated contributions. We end up with a 3.35E-05 which puts us into a medium yellow. And we anticipate that the seals will be greater than 90 percent effective in reducing the risk of the issue of loss of RCS pressure boundary during a loss of all seal cooling event. Now that is premised on the assumption that the testing from the Westinghouse seal design is positive. Obviously, if you get different information you have to go back and revisit this.

CHAIRMAN STETKAR: But on the other hand as was mentioned earlier, unless -- That=s interesting. How does this work? If they=re very good, if you go back to your matrix.

MS. MYERS: Yes.

CHAIRMAN STETKAR: If these are very good, you get medium --

MS. MYERS: Reduction in risk.

CHAIRMAN STETKAR: You=re in the medium

block there.

MS. MYERS: Right.

CHAIRMAN STETKAR: If they=re completely ineffective, this is a very -- Well, I guess the modification is a very low priority because they don=t work. That=s right.

MS. MYERS: Right, yes.

CHAIRMAN STETKAR: Sorry.

MS. MYERS: And I mean you bring up a good point. A very low or zero effectiveness is not the same as a very low or something were at a green risk for what is 100 percent effective.

CHAIRMAN STETKAR: Right.

MS. MYERS: And that=s where the panel and the aggregation comes in.

CHAIRMAN STETKAR: That=s right.

MS. MYERS: Like everyone else, we did all the -- within the group, we had five priority twos. I apologize. I didn=t put my list together like the other folks did. The five priority twos were our three -- We had six priority twos. We had our RCP seals, our three 805 mods and the two Fukushima mods.

CHAIRMAN STETKAR: And they all came out priority two.

MS. MYERS: They all came out priority

two. Now the Fukushima mods could be considered adequate protection which would make them a priority one. But looking at them without being the additional pressure or the additional priority on them for being adequate protection, they still came out in a medium risk at item. And again when you look at it, if you lose all your service water and if you lose all your electricity, you=re going to have some core damage frequency and some large early release impacts.

Then we did some comparisons within the groups. We did move some priority fours to the top that were equipment reliability based over some regulatory required. And then we gained overall panel consensus.

Out of that, the panel made the recommendation that our Generic Letter 0801 commitment be reevaluated. And Robinson has already acted upon that and submitted a commitment letter to the NRC asking for that removal of the commitment. We did reference the information that we had within the screening. And we provided some background information because people reviewing that commitment may not have been part of the process here. And they may not have heard of it.

That was sent out on October 14. We did the cancellation of the battery upgrade. We acted to change the replacement a like for like and redeploy those dollars to other modifications going on.

And then we had a cancellation of two additional projects, the free seal and the replacement of diaphragm valves with an upgraded design again for the life of the plant. For the impact, it just made more sense to just go forward with just like for like and not look at trying to eliminate that. As with others, we found this process is repeatable. And we know that by comparison to other plants that have demonstrated this.

What we believe and this was from the panel as well as from the folks helping prepare the screening was the structure around this removes the emotion. The battery replace showed little risk improvement. And at the end of the day, those that were involved in the room for the screening understood why this project would be asked to be cancelled and we=re supportive of that. The operator actions did show risk improvement and actually will likely move from RO31 to RO30.

And then for our open phase the subject matter expert from corporate really thought about what is the risk reduction and am I creating a different risk area by where I place these relays that would eventually trip the plant away from offsite power and the proposed solution change based off of that as well as our timing on that.

The other things that we found is reliability issues can have impact on risk. When you think about the circ water pump that John talked about, that certainly had impact on risk. Our operator actions that are on important non-safety pieces of equipment for PRA have a impact on risk. And we need to be able to communicate that essentially making this like an engaged thinking when we=re talking to folks comparing regulatory mandated items to reliability recommended items. We need to be able to put them on an even playing field and not just use the words because the NRC is requiring it listing it at the top of the list.

And then last like everyone else the collaborative review provided insights to the scoring. Having the experienced plant personnel with Robinson ensured that we included those unique design features as we were talking about risk. And then the interdisciplinary reviews identified factors that we wouldn=t have considered like in plant health committee.

CHAIRMAN STETKAR: Sonja, because you didn=t provide the list of all 20 and their final rankings, you did mention though that the final aggregation process moved some around, higher-lower.

MS. MYERS: Yes.

CHAIRMAN STETKAR: Do you have -- How many?

MS. MYERS: When I presented the list to the expert panel, we took and did the priority twos and then we put the plant health score next to them.

CHAIRMAN STETKAR: Okay.

MS. MYERS: So the priority twos, actually the RCP seals were at the bottom of that and moved that up to the top. The other 805s were right with it, again, since fire is the highest risk for Robinson.

CHAIRMAN STETKAR: And that=s shuffling within the priority twos though.

MS. MYERS: Right.

CHAIRMAN STETKAR: Okay.

MS. MYERS: We did not move anything from --

CHAIRMAN STETKAR: You didn=t move any threes to twos or threes to fours or anything.

MS. MYERS: No.

CHAIRMAN STETKAR: Oh okay.

MS. MYERS: There was some desire within the priority fours for the regulatory required ones to move them to the top because they were regulatory required. We talked about that and said we really need to look at the --

CHAIRMAN STETKAR: Resisted that.

MS. MYERS: Yes, we did with coaching.

CHAIRMAN STETKAR: Okay, so your ranking as was Plant Hatch=s stayed within each priority group.

MS. MYERS: Right.

CHAIRMAN STETKAR: And your final ranking also was one through five and priority two one through X and priority three one through Z.

MS. MYERS: Yes.

CHAIRMAN STETKAR: And priority four.

MS. MYERS: Yes, and we did have priority fives.

CHAIRMAN STETKAR: And you did have priority fives.

MS. MYERS: And two of the priority fives were regulatory required or regulatory, I guess, required. One was the commitment for the TSTF and the other was the insulation for the GSI-191. I don=t think it was a -- I don=t think the GSI-191 was a good candidate for this again because we were so far down the line that we were talking about the very last couple of things that needed to be done. They were really involving replacement of insulation in the highest impact zones.

CHAIRMAN STETKAR: Good.

MS. MYERS: So from a process value add we looked at it. The regulatory, again even the playing field put it into a structure. The commitment change on the ECCS voids is actually going to be positive for us because we=ll have a reduction in future dose. And we found that the actions with the shared clutter response were effective by doing a quarterly with -- You would go into the increased frequency if we found voids.

We=re changing the solution on Byron open phase based on the screening. And the electrical engineers involved with that said two things about that. One, the original design at least for the Duke plants appeared to have considered open phase as a credible fault. They said that we required more robust motors because of that. And that was the solution the original folks had come up with.

Now when you look at it, Robinson and the Duke fleet is looking at installing relays that are going to be a graded approach where we would get an alarm and you have an indication that you might have an open phase. And there would be like a level two that you need to take action in a pretty short amount of time.

The engineer was indicating like a seven day type thing.

Then you would have a third level of detection that would say you need to find what you need to deal with right now. And they would incorporate that into the trip, but they=re not far enough along on the design really to evaluate what that would be.

MEMBER BLEY: You=re developing your own design.

MS. MYERS: That=s correct. And then when you look at the reliability mods, there were mods that were people=s pet projects that were close to being funded. And those were recommended for cancellation. And non-mod alternatives to those were equally as effective as the mods that were being proposed.

And I can=t stress enough the structure that is around this that makes you think about the PRA. And whether we=re talking regulatory drive, whether you=re talking station driven, you=re looking what=s the best for the plant and put the plant moving closer to nuclear safety.

MEMBER SKILLMAN: Sonja, for those, for the three that were recommended for cancellation and I would presume an acceptance of non-project alternatives as being effective, did that outcome come to people=s realization simply by the data? Or did people have to be bludgeoned into accepting that?

MS. MYERS: It really for us came by putting it through the structure of the process. And fortunately this is not a precise science on telling people when to come in for time. So people were able to see other projects going through and hear what the risk reductions were for those and then present their own and really come to the conclusion AI think we should cancel this.@

MEMBER SCHULTZ: Who proposed the non-mod alternative case?

MS. MYERS: Well, the system engineers had already a bridging strategy. So they were either doing preventive maintenance or they had a model work order to deal with the issue.

MEMBER SCHULTZ: Why don=t we keep doing what we=re doing rather than modify?

MS. MYERS: Right. One of the system engineers for the one that had the freezed seal for repair said in the history of the plant we=ve had to do the freezed seal twice. We have 17 years left. How many more times do I think I=m going to have to do that if I=ve done it twice in four years? It=s likely I=m not going to have to do it at all in the next 17 years.

MEMBER SCHULTZ: Thank you.

MS. MYERS: And that=s it.

CHAIRMAN STETKAR: Thank you. Anything more for Sonja? If not, we have next scheduled a panel. We wanted to get a panel together and see if there=s collective wisdom or lessons learned or insights from looking across all six of the pilot exercises.

MEMBER POWERS: It seems to me radiates an issue in this discussion on all considered and not considered. I would like to hear what the panel thinks about that.

CHAIRMAN STETKAR: That=s what I was going to ask about that because it=s clear that this exercise focused strictly on here is the plate of things I have brought to you. Now evaluate these within the isolation of that plate which I understand at one level.

MEMBER POWERS: The question really is without destroying all that=s good about this process is there a modification that can be made that would allow the plate to be expanded.

CHAIRMAN STETKAR: They say this doesn=t seem to make sense for the following reasons. But, gee, if we looked at it a little differently mod one of it does.

MEMBER POWERS: You can=t legislate people be creative.

CHAIRMAN STETKAR: Right.

MEMBER POWERS: I mean you fail miserably in demanding that people be creative because -- Sometimes I know it. I know that. And I assume other people suffer that failing occasionally, maybe not as often but occasionally. But is there a structural modification that can be made that at least allows the possibility of being creative?

CHAIRMAN STETKAR: Let=s see if we can explore some of that. But we=ll let them get started and then throw them off course.

(Laughter)

Who=s got the lead? John?

MR. BUTLER: I=ll start it off. What I wanted to have an opportunity to do with this panel discussion is an opportunity to answer any questions that may have come up. And in doing so I wanted to have all of the pilot leads here available to answer any questions.

But I also wanted to have an opportunity before we leave this room to at least give you our impression of what our overarching lessons learned were from the process. I will try to do that with hopefully some poignant examples from the pilots where these lessons learned really came through. And you=ve already heard some of that in the discussion thus far. But it never hurts to repeat ourselves on some key points.

Before I get started, I want to at least introduce those up here that you haven=t had an opportunity to meet yet. You met Sonja. Next to Sonja is Phil Lashley. Phil led the pilot activity for First Energy at the Davis-Besse plant.

And next to Phil is Jerry Loignon. Jerry led the activity at the Summer station. Summer was involved both as a tabletop and as a pilot. So he=s been involved throughout the year.

You=ve met Jim and you=ve met Greg. So who you missed earlier who had an opportunity to come up here briefly was John Grubb who led the pilot activity at the Prairie Island facility and was also involved in the tabletops for both Prairie Island and Monticello.

With that introduction, kind of step into this. The title of this maybe is not the best title, but it states the obvious. All issues are not created equal. So treating them as equal and giving them the same equal importance and not taking into account the plant specific differences, we=re trying to correct that with this process.

The results did show that in the small selection issues that we picked there were issues that had a relatively low safety importance that did not warrant the schedule priority that they had been given and visa versa. And this applied both to plant initiated activities as well as regulatory activities. There weren=t a lot of telling examples, but there were enough examples to say that this process will help straighten out some inequities in the priority process.

Some examples of where we saw this was spent fuel pool instrumentation. This has been given a fairly high priority at plants, but universally across the pilots that it did not rank very high in the process.

MEMBER POWERS: Forcefully at Joy when you say that.

(Laughter)

MEMBER REMPE: I would like to question that conclusion because Sonja did not include an example. How many of the pilots did include it?

MS. MYERS: We did not review it at all.

MEMBER REMPE: At all.

MR. BUTLER: Four.

MEMBER REMPE: So four of the six did.

MR. BUTLER: Yes.

MEMBER REMPE: And all four of them it fell to the bottom of the pile I assume.

MR. BUTLER: Fairly low. I=ll show a slide that has that.

MEMBER REMPE: Okay.

MR. BUTLER: Palisades incipient detection is another example. I think in general the NFP 805 mods showed high importance, ranked pretty high in the listing of issues. And I was actually surprised at that.

Some of that in my own personal opinion may be as a bias with the five PRA there=s a little bit of a conservative bias in that.

MS. MYERS: Having worked at plants that could implement classic fire protection and plants that could not, your older plants which have chosen to go to 805 are the ones that you didn=t have the separation. You didn=t really have the real layouts that you needed. You may have even had some very close train cables together. Right. The Robinson fire showed that Robinson had some very unique vulnerabilities for fire.

So 805 certainly is going to go towards the top because our design did not give us the features that would make sure we had a train separation.

CHAIRMAN STETKAR: In a sense if you

applied 805 as something or other to a new plant design that is tremendous separation you come up with a different conclusion I suspect. But I think you=re right because a lot of the older plants that have gone the 805 route because they have the unique problems it=s almost a catch-22. Of course, it will raise to the surface because it was an issue.

MS. MYERS: Yes, right.

MEMBER POWERS: The more telling schedule that we ran that struck me is when you have a guy doing high priority regulatory monitoring and you come back and say, AHey, I can give you by going through this process some more time to allows him to do a better job.@ I thought that was a poignant example of benefit both for safety and for the plant. I mean that was a win-win that I thought was just very telling.

MR. BUTLER: Before I move on, I don=t want to continue hogging the conversation. Feel free to add in before I move on.

CHAIRMAN STETKAR: Let me ask this because you might go through it later on. But something I heard it says all issues are not created equal. And they certainly are not -- Even equal issues are not equal when you look at them at two different plants. So nothing is equal.

In your experience, I heard different kind of feedback on how well this process would work for -- and I don=t know how to characterize them -- programmatic issues. I heard folks say we can=t really apply this process to something that=s a concept. We need something more concrete. Or am I misinterpreting that?

MR. BUTLER: I think the real answer is we probably didn=t pick issues that fully tested that aspect of the process. The closest I can think of of the issues we looked at was one of the Fukushima actions to combine EOPs and SAMGs. I believe someone looked at that. That would involve essentially changing some processes.

CHAIRMAN STETKAR: I know it was on at least one list.

MR. BUTLER: And I=d have to go back and look at how that ranked out. But that=s the closest of all the issues. That=s the closest I can think of a process type issue.

MS. MYERS: It=s all about the time, the work hours.

MR. BUTLER: Yeah. There may have been a couple that had some work hour fatigue rule considerations.

MR. LOIGNON: But in my estimation or my experience here, it=s not so much whether it=s equipment or program. It=s how well can you really define the issue and what you=re going to do to address it. Once you=ve got those two things defined, you can do that process. If you can=t define either one or one of them is very gray, the more gray it is the more difficult it is to apply the process.

So if you=re talking about what=s 805, well, 805 is a great big thing. But I probably can=t do that even though they=re in the game. But once I do enough work that I say AHere=s 10 things I need to do@ I can go evaluate each of those 10 things and figure whether any of them are worth doing or not or what order they ought to be done in.

A lot of times some of those things can actually -- the order could be dependent upon what their risk is. So if I do alternate seal injection before I do reactor coolant pump seals all of a sudden my reactor coolant pump seal mod becomes less important than it was before and visa versa.

And both of those are 805 mods for me, not because they=re fire related so much as my fire PRA number is so high. I have to do other things to get my risk down and 1.174 space. So these things I=ve committed to in 805, not because I=ve got a poor design but because I=ve got a big number.

So I=ve got this big number and I=m doing these. The sequence that I do them in changes the downstream later importance. When I put them together, I say this is the one I=m going to do first. I=ll go revise the importance of that one and recategorize it.

And next year if I come along and say, AWell, that one went in a ditch for whatever reason, I=m going to move this one up. I have to rearrange it.@

MR. LASHLEY: Back to Jerry=s earlier point, the process actually acknowledges that you need to have this information. It actually has a due loop that you don=t have that information it sends you back to get it before you can actually take it through the process.

MEMBER SCHULTZ: You raised an important issue. That is if you=ve got a program that is consisting of many different features, projects and so forth --

MR. LOIGNON: You have to break it up.

MEMBER SCHULTZ: Well, you break it up. But you have to decide -- and I=m not sure of the process that identifies this as well -- how you=re going to move forward with the evaluation. If you take the example you gave where you=re doing one modification, if you went in and did each of them singly, you not only affect the outcome in terms of risk, but you affect the implementation costs as well.

You want to look at that whole combination of the project orientation and maybe in some cases cross projects. If we=re going to go in and do this, Then we ought to do that. Outage planning and so forth.

MR. LOIGNON: Yes.

MEMBER SCHULTZ: Where you can greatly reduce the cost of implementation if you put your mind to it.

MR. LOIGNON: Right.

MEMBER SCHULTZ: And at the same time improve plant reliability or plant safety or both.

MS. MYERS: Right.

MR. LOIGNON: There are synergies both in the implementation as well as in the risk relationships.

MEMBER SCHULTZ: I think the event -- I don=t mean to say that because the process doesn=t capture all of that it=s not important. I=d rather say the reverse. But the process allows you to be thinking in this way.

MR. LOIGNON: Exactly.

MEMBER SCHULTZ: And therefore has a lot of value.

MR. LOIGNON: And a lot of times when you do the aggregation, that=s where those things kind of strike you that say, AHey, I said this was high and this was high. But they=re really addressing exactly the same thing. So there must be some interrelationship here.@ Or AThis mod and this mod are being done in close proximity on the same system. Should they be done together for implementation reasons?@

MEMBER SCHULTZ: That=s right.

MR. LOIGNON: But you can find that when you=re doing that aggregation.

MEMBER SCHULTZ: Right. And there=s a time component there, too. In other words, as we=ve talked about before, some of these things are being done because aging is important.

MR. LOIGNON: Exactly.

MEMBER SCHULTZ: And sometimes we tend to look at what=s going to age out in the next two or three or four years. And perhaps if we started thinking this holistically we would be replacing things that are going to age out in 10 years if it=s appropriate to do so.

MR. BUTLER: This is kind of an expansion on the previous slides. But each plant is different. Therefore the importance of a particular issue can vary greatly with the particular plant design. We saw this with the open phase issue in that the action that was taken by all plants was actually an NSIAC initiative vote for all plants to take action to address the vulnerability with open phase.

And the schedule for that in effect was established based upon perceived importance of the issue based upon the event at Byron. The importance of Byron as we=re coming to understand is very different than the importance of a lot of other plants. Because of design differences, it really has an impact on the importance of the issue.

And it ranked relatively low among the pilots who looked at open phase. And this importance didn=t match up with the schedule that each of the pilots had committed to under the initiative.

I think you heard this from a number of pilots that the reliability attribute of the process really provides some insights on the importance of the issue that aren=t captured in looking strictly at the present day safety of the issue. It=s a forward-looking nexus to safety if you will.

And I=m making a point on this in that adding this attribute was kind of questioned a number of times by different people. Why are you looking at reliability? Because there=s an impression that if you=re looking at reliability this is strictly a performance issue. You=re trying to ensure that you can continue to operate the plant and produce power. And there=s not that true nexus to safety that you=re touting it to be. I think we have to show in the process that there is a nexus to safety in looking at this reliability attribute that you don=t capture in looking strictly as the present safety of an issue.

I really appreciate John=s ability to participate or at least witness the activities that --

CHAIRMAN STETKAR: Please don=t say participate.

MR. BUTLER: To witness the activities that occurred at Palisades. I wish that each of you would have had an opportunity to sit through an IDP meeting. Until you sit through and see the interactions of this multi-disciplinary group, I don=t think you get a full appreciation of the value of the process.

It really adds a lot and a lot of value is obtained in hearing that discussion. And hopefully this can be amplified by the comments of the pilots here. But it really showed me the value of the process in sitting through those IDP meetings.

CHAIRMAN STETKAR: And I saw one. It was only me. So none of the other members have had that opportunity. I think it could be better. I think it could be better if it -- the way you said it=s a structured process. It was structured to some extent. I didn=t quite honestly see the type of questioning back and forth and challenging that I=d hoped to see.

And that=s one area where I was curious what each of your experiences were in that aggregation process at the end which is why I was asking how many of you -- The only one I saw they said the operators at Plant Hatch drove something up to number two and at Palisades for whatever reasons something was I think reduced from three to four if I recall it correctly. I might have had that wrong.

But in that process how structured? I don=t mean structured in terms of following a script. I mean structured in terms of a process where people honestly challenge one another on those initial determinations. I would ask you for your experience because as I said I only sat in on that one.

MR. LASHLEY: At Davis-Besse, we gave each

IDP member homework before they came up to the aggregation meeting. They had to come up with their own rankings. And then the chairman would work down the row and have each person -- And they would break it into the priority ones, priority twos, priority threes and give their initial rankings such that each person had their initial thought process out. And then that created more discussion.

I thought it worked pretty well. It created more discussion among the members to -- AOkay, you had this one at number five. I had at number eight. Why are we seeing this differently?@

CHAIRMAN STETKAR: Okay. Anybody else have any thoughts on that process?

MR. LOIGNON: My site VP is a ex-PRA guy. So at Summer station, risk insights are everywhere. And he challenges people at the PIM meeting or whatever, AWhy is that important when it=s out of service today?@ And he expects other people to be able to answer that question.

It=s not uncommon for us to think about risk insights. And our process comes through the PHC like most of them do to a plant prioritization committee and we=ve just kind of manipulated that process a little bit for this pilot.

And those guys have all seen the stuff before. But we went through those questions one by one by one. And everybody challenged each other. And really the thing that you got most of was get back to what=s the real problem. Make sure we=re all really talking about the same issue.

We have one instance where the problem was not as well defined as it should have been. So when we got there there was a lot of this wandering around until we finally stepped back and said, AOkay. Here is the definition of a problem.@ And then you=re able to answer the questions a lot easier with common discussion and not as much head-banging. But there is some challenge.

CHAIRMAN STETKAR: And that=s why, Jim, I brought it up while I was at the meeting there about would the process of the aggregation at least benefit from not in uninformed outsider because that=s obviously an impediment, but a reasonably informed outsider to hence prompt some of these discussions or perhaps get people thinking about things that are out on the fringes that maybe you hadn=t thought about. When it comes down to it, you still are all part of that same organization, try as you might to try to challenge one another.

MR. LOIGNON: Right. And I suspect most organizations have one or two people who are better at that as a regular course of events than others. The best person in my plant was not on my IDP.

CHAIRMAN STETKAR: Yes.

MR. LOIGNON: But if he had been there, I=m sure there would have been more challenges.

CHAIRMAN STETKAR: Okay.

MR. LOIGNON: Typically, we have meetings that are say operational decision making. I want to look at this problem from what should I do today. We do have somebody that=s designated as the challenger for us. We did not do that for this process, but it=s not something we=re not unfamiliar with. And people are very open to challenging each other and questioning.

MR. JOHNSON: For me, I would say I=m out at Hatch after the maintenance rule expert panel. And if I had to do it ever again, I would model less to the maintenance rule expert panel because it=s not the same function. It=s a little different perspective.

CHAIRMAN STETKAR: It is a different perspective, yes.

MR. JOHNSON: So in round two I would modify that a little bit and exclude a couple of members that were on the panel and go out and grab a few others that should be on the panel that were not there. But I think the issue that you=re talking about -- it was brought up before -- really could better be addressed in the training aspect of getting ready for the IDP and talking about decision making and what that means and what you have to bring to the table as part of that training that you go through for IDP.

CHAIRMAN STETKAR: Yes.

MR. JOHNSON: You really have to set the stage for letting your members know here=s what is expected as you get into this process to have an opinion. Your job is to have an opinion and vocalize that.

MEMBER SKILLMAN: I wanted to ask a question. In the pilots that you=ve conducted, I guess my observation is that there is a desire to have very highly experienced people involved. And very often the very highly experienced people who get involved are at a very high management level.

So my question to the whole panel is to what extent can the product be influenced by the presence of a fairly strong personality executive vice president who is an ex-plant manager and carried a license for 30 years and sits on this panel and is basically able to stare down every other person on the panel. To what extent can the panel=s product, the output of the IDP, be disproportionally influenced because there is some fear on the IDP?

MR. MIKSA: I look at Palisades. I structured it or we structured it such that the actual evaluations are reviewed at one meeting and then the actual aggregation done at a second meeting. That=s how the process works.

So the initial meeting before that meeting takes place to review the importance evaluation, the first piece of it, you have subject matter experts that have all different types of experience based on essentially who is the expert at the time.

So we had people that were from one to two years all the way up to 30 years experience doing the initial evaluations. Those evaluations are done and then they go and present those to an IDP panel who has -- We had not only the senior managers. We also had a PRA engineer on the panel. And we also had our equipment liability coordinator both of which aren=t management type or senior management type positions.

We had what I feel was a good mix of individual contributors that did the evaluations that are being questioned by some experienced people, some in management and then some experts in PRA and equipment reliability on the side that were not management types. I feel like at that first meeting we went through line by line every question and I mean every question. It=s wasn=t the ones that are answered yes. Every single question on the evaluation form for each category, we went through line by line and was there an agreement with what that conclusion was.

By doing that, you=re not looking being an advancer. You=re looking at each category to start with, each question. You agree to that and then the process falls out after that. So at the initial point to me that=s the major value of the process. It=s the evaluation piece.

Once you start getting into the aggregation and prioritization section, that=s more process driven about NEI=s laid out the guidance other than the tiebreakers. The tiebreakers start getting into additional insights in those types of items.

In my mind, there was a good balance in the initial evaluation in that very first meeting where the subject matter experts presented to a panel just like this of individuals of varying experience on how they came up with their actual characterization and importance.

MS. MYERS: Just to add from Robinson=s experience, by breaking it down and naming AI have an initiating event. That initiating event is loss of offsite power. And the impact of this problem is I=ve now increased loss of offsite power by...@ and then stating it. You really take away the power of an influential person on the panel and put it back more to factual base.

I have a mitigating piece of equipment that is going to have higher capability and I name that capability by its going to have more flow. It=s going to have a higher capacity for a battery or it=s going to have something that I can actually name for either capacity or availability or capability all in that line. Or I=m going to impact the operator to be a better operator and I=ve got to name how that is.

I can=t just have my OPs director or manager saying AWell, I want this because I want to remove those manual operator action from a fire response or from a LOCA response.@

CHAIRMAN STETKAR: I kind of regret I didn=t have a chance to -- I wish I could have observe that part of the process because I agree. That=s I think the real heart of it. For Dick=s benefit at least, when I was at Palisades I saw absolutely no --

It would have been very difficult for any individual at least in the aggregation process to assert the type of pressure that you=re talking about. There are obviously opinions and the group worked together really well for that. It=s a snapshot of what I saw.

MR. LASHLEY: Once we were done, of course, we took the feedback from our members that had gone through the process. That was actually part of the positive feedback that we had received. Whereas, in the past, the things that had been decided to be the top 10 priority list for the station, that had been influenced by argument, character, things like that. And this process was structured sufficiently that it had removed those aspects of it and they felt gave a pure ranking. And they actually appreciated and thought more highly of the process because of that.

CHAIRMAN STETKAR: How well -- just out of curiosity -- are those issue evaluations documented other than yes/no, yes/no answering the questions? I mean like Sonja said. Yes, this is the particular initiating event. This is a particular piece of equipment. And this is why we evaluated it this way.

MS. MYERS: Yes. At Robinson, it was really driven from the tabletop. And the initial dry run of the tabletop was conducted with our general manager of engineering as the chairman versus our site director. And he was very much ATell me. Is it affecting the capability, the availability, the reliability of the components. Tell me each one. Answer each one of those pieces.@

MEMBER SCHULTZ: Was there a stenographer there? I think that=s what John is asking. Is that well documented?

MS. MYERS: It is for Robinson.

MEMBER SCHULTZ: Either later on for that particular example or for other applications is it well recognized that these are the types of ways in which those questions are responded to.

MS. MYERS: For Robinson, the type of document is equal to what we would have in a 50.59(e) evaluation of I=m very specifically naming what it is, the piece of equipment or the event initiator or on down the line. And they=re captured in the final screens that were brought to the aggregation process.

MR. JOHNSON: That=s about a 20 page document. Each one of the projects have 20 pages for each one of the projects.

MEMBER SCHULTZ: That=s a common expectation and deliverable.

MR. LOIGNON: The shortcoming from my

point of view was I=ve got this 20 page document but I spent 30 minutes talking about it. And although those specific comments may or may not have been well recorded in the discussion, you=ve got a pretty good document to base this on what decision is made. If it was changed, you=ve got notes about that.

MEMBER SCHULTZ: Right.

MR. LOIGNON: Yeah, AI understand that because@ and that because wasn=t in there. Whether they got captured and put back in was a little bit hit and miss.

CHAIRMAN STETKAR: The only reason I bring that up is this is a great process. You get everybody together. They get involved in it. You run through this process. You come up with a rank ordered list. And then you say, AWell, I don=t know if there=s any periodicity to this, but next year we need to do it here or two years from now we need to do it again.@ The faces are all different.

Even if the faces are the same, if you=re like me, you don=t remember what you did yesterday. AWhy did I say that was important? I don=t understand now.@ In terms of moving forward in a process like this or quite honestly communicating it to outsiders it=s pretty important to document AI today thought this was important for the following reasons...@ Otherwise you lose a lot of that depth.

MR. MIKSA: At Palisades we did assigned log numbers and the intent would be to put these into our records. That log number then could be referenced in our project databases to reference against each project. Then it could be retrieved as IDP importance evaluations also. That was the intent of our pilot.

CHAIRMAN STETKAR: Plus posterity.

MR. BUTLER: We also intend to collect a number of these and include them as part of a resource manual in effect going forward that can be used as a training tool or a reference tool for how a similar issue could be addressed or should be addressed. It would not be a formal part of the guidance, but kind of a support document for the guidance.

MR. LOIGNON: You get some idea of the level of documentation that is an expectation.

MEMBER SCHULTZ: Has there been an outcome with regard to a return period or how this would be integrated into plant process?

MR. LOIGNON: We have talked about it and probably it=s going to be slightly different for each plant that implements it. My scheduling and planning process is typically on an annual basis. So I would expect I=m going to revisit this on an annual kind of basis when I do next year=s plant update.

Now am I going to go through the whole process for every one? I=m probably going to have somebody=s going to look through it and say, AThat hasn=t changed. And then I=ll redo the aggregation without having gone through that whole project with an IDP. The new ones will go through an IDP and the old ones, one or two people will just validate that what was done at the last one is still current.

MEMBER SCHULTZ: Right. But you=ve got to look at the other ones when you go through it.

MR. LOIGNON: When you go to aggregation you have to look at it again. That=s right. But you don=t have to --

MEMBER SCHULTZ: Document it.

MR. LOIGNON: -- include the IDP process first. You just have to go back through and look at the ones that you=re going to reaggregate.

MS. MYERS: Right. The intent at least for Robinson because we found so much value in it was to put things through as they=re coming in in plant health. Then you would get the results. You=d be looking at -- On a quarterly basis, we look at the ranking within the projects and see if they are appropriate. And this would be folded into that.

MEMBER SKILLMAN: I=d like to ask another one. The votes that are in so far are very, very positive. But I=ve got to think some of you are saying there=s a real -- There are a couple of things in here that are really rotten. I don=t want to do them again. And we haven=t heard about those. At least, I haven=t heard about those.

With all candor, are there some things that you would say AThis could be improved. This isn=t so good@? What I did hear you say is that some of the regulatory required programs or fixes don=t have a whole lot of value. I got that. But in the process itself, would you have any comment of what needs to be made better or changed so that you=re not flying around in circles?

MR. LASHLEY: All my comments were very well documented, provided back. They were incorporated. They were addressed. So anything that I thought was rotten they fixed.

MEMBER SKILLMAN: Okay. Fair enough. Others?

MR. LOIGNON: We typically were the same way. We=ve been involved with this for a fair number of months now.

MEMBER SKILLMAN: So we=re seeing a shined up product here.

MR. LOIGNON: Yes.

CHAIRMAN STETKAR: We had originally tried to get this type of discussion at the point where they had gone through the tabletops. So you=re seeing now probably the third or fourth guidance.

MR. LOIGNON: I was going to say at least third generation.

MR. BUTLER: But you haven=t seen the revised guidance.

CHAIRMAN STETKAR: Yeah. You haven=t even seen the revised, revised guidance.

MS. MYERS: I think if there are areas I would like to see prevention going into the ePlan as some sort of adder for ePlan. And we=ve talked the ePlan folks about that. And they=re having a hard time understanding or picturing how to do it. I=m not sure I help them. But our containment repeater of not calling an unusual event when we don=t really have a fire in containment we have to call it because we can=t get back out in 15 minutes.

That would be a real positive thing to get completed and to have adders for that. Having some sort of way to incorporate ALARA even if it is regulatory or equipment reliability high, I=m going to pick up a lot of dose doing this to balance out the real impacts.

And again it=s hard to picture how that would work within the process. It=s more like we need more run time, more input, on how this is actually going to help us.

CHAIRMAN STETKAR: Let me ask you something that -- I=m obviously a card carrying PRA guy. So take that from where it=s coming from. And because I didn=t have an opportunity to sit in on any of the actual IDP sessions, the evaluation sessions, to what extent did each of you use quantitative information from the risk assessments versus qualitative insights about risk? And I=m not looking for specificity. Do you wind quantifying quite a bit through your risk assessment? Or did you rely more on the expertise of the PRA group to say AWell, in our experience this is higher or this is lower@?

MR. LASHLEY: What we used a lot of times is that we actually had the number within our PRA model that we could use. But lots of times that number was very low like 7E-7.

CHAIRMAN STETKAR: Yes.

MR. LASHLEY: Even if you assumed that the entire thing went away, it would still be very low within the aspects of this. So we actually used quantitative more than I would have expected going into it. But we didn=t use it 100 percent. But fairly often.

MR. LOIGNON: I would say almost everybody has got the capability within their PRA to tell you where you are on that left-hand column, what color you are. But how much is going to change for it, you have to go figure out how I=m going to tweak my model and crank the number.

CHAIRMAN STETKAR: That=s a little bit of what I was asking.

MR. LOIGNON: We probably don=t do that very much because when you look at the right-hand side it=s pretty flat across there. So it=s not a necessity.

CHAIRMAN STETKAR: Okay.

MR. LOIGNON: If I=m 50 percent, there=s really not much difference whether it=s 25 or 100. I=ve got the same answer. The biggest part is really where am I on the right-hand column. And the PRA number can get you that pretty quick generally. It doesn=t take the group very long to figure that part out.

MS. MYERS: And for Robinson the PRA

person reviewed every single one of our risk screenings because we wanted to make sure that we didn=t get question one or question two wrong. Our PRA person had operations experience and he was at every one of our panel meetings. And then we also had his boss, Bruce, on the panel. So we had the insights from the individual contributor. And we had the insights from the manager as well.

MEMBER SCHULTZ: So, Jerry, there=s not much change across the horizontal line.

MR. LOIGNON: Not typically.

MEMBER SCHULTZ: But at the same time --

MR. LOIGNON: Some of them have one step.

MEMBER SCHULTZ: Right. And at the same time those are broad categories.

MR. LOIGNON: Exactly.

MEMBER SCHULTZ: And so one ought to be able to choose within a box or two where you sit.

MR. LOIGNON: Right. Exactly.

MEMBER SCHULTZ: And therefore make a case.

MR. LOIGNON: Right. And if you needed to because you were trying to decide between medium and high --

MEMBER SCHULTZ: Right.

MR. LOIGNON: -- on where I am in the rank, then you could go do something.

MEMBER SCHULTZ: It=s a perspective.

MR. LOIGNON: It might be worth going to chase. But typically you can get close enough. You know I=m in the middle of the range here and I can be off by a lot and not really change my answer.

MEMBER SCHULTZ: But at the same time it makes you think about it.

MR. LOIGNON: Exactly.

MS. MYERS: Right. The real value I saw here if you think back to where the industry was in say >86->87 time frame with 50.59s and safety analysis. And in that time frame, the safety analysis people were sitting someplace. They were the gray beards that you went and asked AOkay. I=m making this change. Am I impacting anything that I should ask the NRC for permission beforehand?@

This will take us to the same place that 50.59 took us where the individual engineer, procedure writer, OPs or maintenance person that=s 50.59 qualified can go into the SAR and have a good idea of am I having an impact, am I having more than minimal impact. This will take the same thing and put it down to the engineer, the operators, the maintenance people that will be involved in suggesting projects. We would understand the PRA to that same extent five-ten years down the road.

CHAIRMAN STETKAR: How did you grapple? You say the PRA. Do any of you have full power shutdown, internal fires, seismic, a full scope level 1 PRA?

MR. LOIGNON: I don=t. I=ve got an internal event. I=ve got internal flooding at power. I don=t have a fire PRA that reflects my current plan because I=m in the transition.

So I=ve got a fire PRA that looks at my plant two years from now when I finish doing mods and change my fire response. But I=ve got a lot of insights from that PRA even though it=s not really reflecting my plant today. So I can mine stuff out of that.

It=s difficult for me to go do the research and say AIt=s a delta this.@ But I can get you in a ball park.

CHAIRMAN STETKAR: Did any of you run into anything -- I=ve seen this in the past, but obviously it=s issue specific -- that might not pop up in your level one PRA for full power, but might be more important during shutdown? RHR pumps are a good example. Depending on the plant design and what safe stable state for your full power PRA RHR may or may not show up as very important at all. But they=re certainly important when you=re in shutdown.

MR. LOIGNON: None of the projects that I=ve piloted would fall under that situation.

CHAIRMAN STETKAR: Okay.

MR. LOIGNON: However, I happen to know of one. One of our -- Some of our flex mods I could take that pump, get it established outside the aux building, run temporary hoses. And if I=m in low regulatory condition, I=ve got a pump ready to put water in the vessel on a moment=s notice. That pump=s not available to me right now today. But it will be two years.

Why don=t I have it in my procedures? Put that pump over there, fill it and vent it and have it ready to go. Well, we=re already starting to talk to the outage management folks. You need to do that.

They=re saying, AYeah, but this hose is in my way. It blocks the access to this.@

AIt=s important. Go do it because you=re going to go from a yellow condition to a green condition in your outage.@ They=re starting to hear that.

Yes, it=s there. But it wasn=t anything that I piloted for this process.

CHAIRMAN STETKAR: Did any of the others

struggle with this issue of we can really quantify it explicitly or you can use the expertise of somebody who says, AWell, based on what we understand now of our risk assessment, we can sort of rank it horizontally@? But struggle with issues that it might be higher or lower importance if you thought for example for shutdown or if you thought for containment protection rather than just core protection?

MR. LOIGNON: Containment protection is in the process.

CHAIRMAN STETKAR: Yes. You=ve got LERF.

MR. LOIGNON: It=s in the process.

MR. LASHLEY: We did have some various aspects on that. I don=t recall any particular struggles with it. I didn=t get any negative feedback from our PRA folks and I know that there was an auxiliary feedwater system that we had worked on. And I didn=t get any kind of a struggle from them regarding that.

MR. MIKSA: At Palisades, we didn=t have any difficulty with that, differentiating between that power or shutdown. But we also didn=t necessarily differentiate as we went through each evaluation. It was what was the risk whether it was shutdown or operational risk.

CHAIRMAN STETKAR: Alright. Thanks.

You still have more things to talk about I know.

MR. BUTLER: We=ve made this point. A number of the pilots have made this point. Clearly, one of the things we=re looking for is to able to have a process that is robust and repeatable.

I think one of the hallmarks of that attribute is the matrix that we=ve been discussing where it=s not necessary to know something to the third decimal place and to run detailed PRA models to get an answer because we=re very accommodating for being able to address what=s the impact of a decade change in the answer. What impact does it have. And in many cases it doesn=t have any impact on the final result.

MR. LOIGNON: Before we leave that one, one of the questions you asked earlier today was how do we know it=s repeatable. And if two groups did the same one, would you get the same answer? When we were training, we actually did do that. We had three groups go out and look at the same thing as a generic gap kind of training. And all three of the groups came back with exactly the same answer to the problem.

CHAIRMAN STETKAR: That=s good.

MR. LOIGNON: We have at least one datapoint.

MS. MYERS: And then the same issue was

brought to the second training.

MR. LOIGNON: Right.

MS. MYERS: And they came back with the same answers.

MR. LOIGNON: That=s right. And they came back to the same answers, too.

CHAIRMAN STETKAR: Okay.

MR. LOIGNON: It is repeatable.

MR. BUTLER: There were a number of NFP-805 changes that were looked at. And there were quite a variety of changes included in that category. Some of them were incipient detection. Some were electrical modifications. Some were hardware modifications.

But what I thought was interesting is that here are the results of all those modifications and how they ranked up in the process.

CHAIRMAN STETKAR: Although I think as Sonja said earlier, this might be a self-fulfilling situation because of the plants that are adopting NFP-805.

MR. LOIGNON: Maybe.

MR. BUTLER: One of the things that we were very cautious or attuned to looking for in looking at the results where there were similarities to understand why they=re the same even though these are very different processes and at the same time where there are differences, do we understand why those differences are there for purportedly similar issues. So we=re still evaluating some of the data from the process. But generally we have not seen anything that really causes any concern with differences that we can=t explain.

This is the same result for spent fuel pool instrumentation. There is some variability with Hatch taking a little bit of a different turn on the RP evaluation. But otherwise the evaluations give very similar results.

MEMBER BLEY: None of the operators pushed for this one.

MR. JOHNSON: This was the opposite really.

MEMBER BLEY: I can=t hear you.

MR. JOHNSON: I said the opposite really in that case. I heard operators say AOkay, so I=ve got a level instrumentation. Just having instrumentation, just having an indicator did me a lot of good in the control room when you don=t have the capability to do anything about it.@

MS. MYERS: Right. That=s exactly what.

This was run through the training and we had an operations person with us in the training in February. And his thing was ACouple it up with something I can do about it. Give me some mitigating strategies and now this goes higher. Just knowing that I don=t have any level in my spent fuel pool doesn=t help me a whole lot other than now I know it=s gone.@

(Simultaneous speaking)

MEMBER POWERS: I thought it was gone.

CHAIRMAN STETKAR: It was there last time I looked. Where did it go?

(Laughter)

MR. BUTLER: I=m coming to the end here. Results overall, we do see value in this process looking at varied projects through a common risk-informed lens. And that was really one of the takeaways from the IDP panel where we took a very experienced group of people and allowed them to look at an issue through the same lens if you will. And you get a lot of valuable input.

We do want to have a process that would allow us to support, to use those process as support, for a change in commitments or even in exemption request to a schedule commitment. We are looking at some point to have that regulatory acceptance of the process.

We are going to be testing a little bit of that. Hatch has made a submittal to address their commitment to the void tech spec.

MS. MYERS: That=s Robinson.

MR. BUTLER: Oh Robinson. Pardon me. I=m looking at you and I=m saying Hatch. But I mean Robinson. And we hope to get a couple of other examples where we can test that aspect of the process.

And in the end, I=d love to see this process applied not only on a plant specific basis, but aspects of the process to prioritization looking at things through a risk informed lens. I=d like to see that applied early on in the regulatory process as an emerging issue or as an evaluation period of a group of regulatory issues, be they rulemakings or other generic type issues. I think through that process we can get a much better handle on how to move forward on an issue, to identify what the key attributes are, what its relevant importance is to all the other issues that are on the plate that we=re trying to deal. I really think it can provide some insights that we currently have a process to address.

CHAIRMAN STETKAR: John, before you wrap up to the last slide here, one of the things that I=d asked going into this and you kind of did it was looking across the six pilots and were there areas of general agreement regardless of how you got there. And you showed that level of consistency in 805. You showed on the spent fuel pool level instrumentation Hatch and I think Greg explained how they thought about that from personal dose issues anyway.

Did everybody look at the open phase issue?

MR. BUTLER: Not everybody.

CHAIRMAN STETKAR: Not everybody, okay.

MR. BUTLER: But it showed very similar results also.

CHAIRMAN STETKAR: Okay. Because most of these issues were plant initiatives, obviously you=re not going to get the same plant initiatives in all six pilots. So we=re kind of limited in terms of seeing that there=s not a lot of opportunity for people to have made different assessments of the same issue.

MR. BUTLER: If you=re asking were there similar issues where the results were markedly different.

CHAIRMAN STETKAR: Yeah.

MR. BUTLER: There were a number of pilots that looked at changes to their RCP seals.

CHAIRMAN STETKAR: That=s one.

MR. BUTLER: And there was some variability in the importance of that. That in the end was attributed to a change they were making in their design. I think it was very important for Robinson, but less important for Palisades.

MR. MIKSA: I can speak to Palisades. We had a different issue than Robinson. We were going from an N9000 seal that=s already installed. It was an aging obsolescence issue to replace it with the same type of seal versus a different design seal. Where Robinson was going to a different design number of stages. So that was the difference there. It was the issue we evaluated.

MR. LOIGNON: And Summer is probably in the middle of these two extremes. I=m going from the Westinghouse seal to the N9000.

CHAIRMAN STETKAR: Okay.

MR. LOIGNON: But I already have alternate seal injection installed.

CHAIRMAN STETKAR: So in some sense these things are because it=s a snapshot in time based on where you are in mods that are basically in progress already. Okay.

MR. LOIGNON: Right.

MEMBER REMPE: This would happen with Robinson and the spent fuel implementation is too far along is why you decided not to look at it or why did you not look at it? Because if you want to have a stronger case that everybody found that it was not a wise thing to implement it would be good to know why you didn=t.

MS. MYERS: Well, Robinson, (1) we were further along in the implementation. But (2) we selected our topics ahead of other folks. So we didn=t necessarily know what other people were selecting.

MEMBER REMPE: What was the case with the other plant that didn=t? You said that two didn=t, right? And there are only four on this slide.

MR. BUTLER: I=m sorry. Two didn=t?

MEMBER REMPE: There were two of the pilots that didn=t. What was the other plant=s reason for not considering this instrumentation?

MR. BUTLER: We didn=t put a requirement on which issues they looked at.

MEMBER REMPE: Right.

MR. BUTLER: I think you heard from Greg. I mean he decided not to pick some of the flex issues because everyone else had picked them. So we were looking -- We had some competing requirements or expectations on the selection of issues. We were looking for variety. We were looking for a combination of plant initiated and regulatory issues.

MEMBER REMPE: This didn=t hit the list. Is that what you=re telling me?

MR. BUTLER: Yeah.

MEMBER REMPE: Okay.

MEMBER BLEY: I=d like to follow up. Jerry, you mentioned -- I don=t think you have any guidance on this point. But should you be evaluating two things that are aimed at the same problem like seals and alternate seal injection, you really wouldn=t want to evaluate them independently and then maybe do them all. There could be multiple things here. You really ought to look at them either in sequence and maybe look at alternative sequences of them, but not just look at them independently. Have you talked about that at all more broadly?

MR. LOIGNON: It=s actually come about because there were two different problems.

MEMBER BLEY: Okay.

MR. LOIGNON: So alternate seal injection was done because I had low margin in an MSPI indicator and it helped me there.

MEMBER BLEY: Okay. Yeah.

MEMBER BLEY: The seal swap is because it=s also high in my CDF count. But we have ongoing operational issues with the Westinghouse seal.

They=re really sensitive. If they don=t go in exactly right, you may be chasing temperature on your VCP for a cycle. And we=ve done that a couple of cycles and management says, AThat=s an operator distraction I don=t want in my control room. So we=re going to swap them out.@

So it=s really a different reason, but they do interrelate. Here=s a reason to do this. Here=s a reason to do that. But they are related. I think you do have to evaluate them independently and then when you=re doing your aggregation you have to recognize that these two relate to each other. Then you figure out how do I adjust for that.

MEMBER BLEY: You may want to do both. But you might not.

MR. LOIGNON: And we=re going to.

MEMBER BLEY: You=re doing both because you have a really good reason for it.

MR. LOIGNON: Right.

MEMBER BLEY: You don=t have anything in general talking about this dependence issue.

MR. BUTLER: No. And what I was thinking about when Jerry was talking is this process is not intended to totally replace all the project processes that plants already have to do an evaluation.

MEMBER BLEY: Good sense.

MR. BUTLER: I would see this process supplementing a lot of the current activities. So some of those decisions should have been made earlier on in the project germinations.

MEMBER BLEY: I=m just thinking. When you send this out to the broader group of plants who will want to apply it, some discussion about the impact of dependency might be worth adding --

MR. BUTLER: That might be one.

MEMBER BLEY: -- to just at least raise a flag for them to be thinking about it.

MEMBER SCHULTZ: I=d like to jump on that a little bit more. What you=re describing here and what you=ve demonstrated in the pilot is a good process to do the prioritization. There are some side effects that I think we=re talking about now that could have in some circumstances additional great benefit. Because by having a process in place that pushes the organization to do this type of prioritization also gets the juices flowing in considering modifications in general.

What is the purpose? Well, the purpose has to do with risk safety and risk and reducing risk. But it also has a high degree of importance associated with reliability. And so all of those features that you=ve got identified in the process will get the juices flowing in terms of thinking about modification I think in general in a different way. I think that ought to be emphasized.

The other thing that we talked around a little bit but I think is extremely important and just using open phase as an example, we started off talking about how the open phase issue has been demonstrated through this process as being a plant specific element. You know, the risk and its safety impact is going to be influenced by the plant design and its overall operational characteristics.

But this process so far has demonstrated that there=s a couple that have determined that it=s not very important. I=d hate to see that that would influence industry to go forward and think we=ve got a real opportunity here. It may be very, very important for some plants that addresses this differently.

I presume the NEI project associated with open phase is pushing that that evaluation be done on a plant specific basis and that this process is not going to influence that in a way so that some feel this is not important. We need to get a schedule extension right away.

Don, you had something.

MR. DUBE: Yeah, this is Don Dube. I was just going to add that there were three topics that we did in the generic assessment expert team and open phase was one. And again Mike Snodderly said he=s forwarded the evaluation. It=s like a 15-20 page evaluation. But the open phase did -- the importance did span from very low importance to a plant with a configuration like Byron would end up being relatively high in importance.

MEMBER SCHULTZ: Right.

MR. DUBE: And the basis for why a plant may fall in one category or not is explained in the GAET. That=s the whole purpose of that process.

MEMBER SCHULTZ: So that=s a value adder in of itself.

MR. DUBE: Yes.

MEMBER SCHULTZ: That=s good. The question I had of the panel while you=re here is as you do these pilots I presume that there=s been a lot of interest across the plant staff or the organization in how the process has worked. Any side comments related to how you think this is going to be embraced by the organization going forward?

MR. LOIGNON: Let me jump in first I guess.

Like I said, we have a plant health committee and a plant project prioritization group that are separate. But they feed into each other. And we=re looking at how do I want to revise that process to efficiently incorporate the insights and methodology here. So we probably will do something whether this process goes anywhere else in regulatory space.

What we would hope to see -- now I=ll jump out on another bandwagon wagon and to something you haven=t asked yet -- it go or envision of it possibly going in regulatory space is I have a schedule developed by the process that the regulator recognizes and approves. And for low risk stuff I just move the date.

On an 18 month schedule like I do the FSAR update, I tell you about it. And if it=s a high risk, I come ask for permission before I do it, just like 50.59. So I use risk as the discriminator of do I need permission first or can I just do it and let you know about it.

On the other side from your side, from the regulatory side, when he comes out with a new order, rather than telling me here=s the date, tell me plug it in your process and tell me when you=re going to get it done. And then come back and oversee that I=m really implementing the process the way we agreed that it should be implemented.

I=d like to see that down the road. But we=ll see if we ever get there.

MEMBER SCHULTZ: My other comment is and Greg, you=ve mentioned this in your presentation because the focus here is not just all of PRA numbers and values and quantification but uses the insights from the PRA in a semi-quantitative way or however you want to express it, it provides a real good opportunity for presenting information about the plant and its operation and regulatory issues and plant initiatives that would be very important for training. And you mentioned that you had an individual on the program staff that was just starting out.

MR. JOHNSON: Right.

MEMBER SCHULTZ: And you were using it as a mentoring opportunity to move that individual=s experience forward. I would think that this would be a great project and program to integrate and to train and not just talking about plant training of course, but organizational training.

MR. JOHNSON: There are a lot of value added tentacles to this process. I guess my fear is that what=s left for us is to figure out how do we really implement this and what does that look like from the scheduling end of this. So we=ve done the prioritization and the scheduling part of it. We=re saying AWell, if we had the right vehicle, Hatch would attempt to move the schedule.@ So we=ve got to figure that piece of it out because people aren=t wanting to just go do this just in and of itself.

MEMBER SCHULTZ: Right.

MR. JOHNSON: There=s got to be a nugget at the end, a way to change the schedule to facilitate what it is that I want to do for the sake of the safety aspect.

Right now, the plant people who know about the project their main question is how do you see this plant out which I can=t really answer.

MEMBER SCHULTZ: Right.

MR. JOHNSON: I interpret that to mean is it going to be worth it. In the end, is the effort going to be worth it is really the question that I=m hearing..

MEMBER SCHULTZ: Right. In my experience, that meant systems engineers that I would say knowing that this process is now available and knowing that they have put their project up against the plant health committee several times and have been turned down that they would say AOh, now I=ll have something because I see these elements that I=ve always thought about that my project I think will achieve. And I=d like to have the opportunity to run my project through this mill.@ That=s good.

That=s one of the reasons I was trying to add those tentacles to the description of how this pilot project has worked to make sure we captured everything. I think I=d be very disappointed if the outcome is that organizations are now going to use this to run through a prioritization and say, AThat=s good. We=re done with that. And I=ll visit it again in two years.@ I think there=s much more value to it.

MR. BUTLER: Shall I finish up?

CHAIRMAN STETKAR: You shall.

MR. BUTLER: Alright. This last slide touches on some of our next steps, what we see in the near term as far as this process goes. And that very next step of course is meeting with staff tomorrow to talk a little bit more about the results from the pilot. We=re also going to step through the changes we made to the guidance document. We=re hoping to finalize that guidance document and issue it as a Rev 0 very soon.

We also are continuing our discussions with staff of how we=re going to apply this process going forward. And ideally we=d like to see aspects of this process applied to NRC processes, be that generic communication process or the rulemaking process. But we do see some value with the prioritization process or the aspects of this process applied to emerging issues.

I know the staff is working on a SECY paper. I believe they are scheduled to talk with this subcommittee sometime in February. And possibly this will be presented to the full ACRS.

CHAIRMAN STETKAR: Yes.

MR. BUTLER: So if you need us to support that meeting, we=re willing to do that.

MEMBER BLEY: John.

MR. BUTLER: Yes.

MEMBER BLEY: When you issue the new Rev 0 guidance, will that include an appendix or something with many of these examples from the trial?

MR. BUTLER: No, we haven=t -- We=ve made it -- Our current direction is to include those examples as part of a separate resource document that we=re preparing.

MEMBER BLEY: Okay. So it will be a separate document.

MR. BUTLER: Yes. Our intent would be that we=d be able to have a little more flexibility to update that resource guidance document be it online or in some other form, update it more readily.

MEMBER BLEY: But there will be an evaluation of the trials that people can look at and see these things.

MR. BUTLER: We=re going to be put together a report that talks about the pilots, yes.

MEMBER BLEY: Okay.

CHAIRMAN STETKAR: Great. Anything else for the panel?

(No verbal response)

I do appreciate those of you, Phil and Jerry in particular and John who is gone already, for coming up and doing this. I think having the opportunity to sort of hear a few differences or a few agreements in many cases was really useful.

The staff, we have an hour allocated to the staff. Are you guys planning to spend an hour?

MR. GLITTER: We may not take an hour. I think we=ll be fairly brief. But it=s up to you.

CHAIRMAN STETKAR: Well, what I=m doing is long term planning here in terms of if you=re going to be at least a half an hour we=ll take a break.

MR. GLITTER: Take a break.

CHAIRMAN STETKAR: We=ll take a break. We=ll reconvene at 4:40 p.m.

(Whereupon, the above-entitled matter went off the record at 4:26 p.m. and resumed at 4:40 p.m.)

CHAIRMAN STETKAR: Let=s reconvene and give the staff our attention.

MR. GLITTER: Okay. I was going to start with some opening remarks. First, the staff appreciates the opportunity to briefly talk about our activities and observations relative to the cumulative effects of regulations and risk prioritization initiative.

As you=ve heard today, there=s been a significant amount of effort on the part of industry to support the pilot demonstrations. Likewise, the NRC staff has also invested considerable resources in observing and participating in the pilots= tabletops and generic assessments in support of the risk prioritization initiative.

The staff is now working on writing a SECY paper that will provide options for the Commission consideration. We plan to come back to the Subcommittee to discuss those options when we=re further along. I think we talked about February as a relative time frame.

Just on a personal observation, I was a

participant or an observer at the Xcel tabletop back in February. And one of the two major reflections from that participation was the discussion of the circ water pump motor and just based on safety alone it was considered a higher priority than some of their regulatory initiatives just based on the fact that failure of that pump would initiate a trip and increase risk.

The other major observation was that the train that takes you from downtown Minneapolis to the airport doesn=t always work. And hitchhiking in 10 degree weather isn=t desirable.

(Laughter)

With that, I=ll turn it over to Jason.

MR. CARNEAL: Good afternoon. My name is Jason Carneal. I=m a project manager in the Rulemaking branch in Division of Policy and Rulemaking in NRR here at NRC. I=ll be taking you through the first half of staff=s presentation on Cumulative Effects of Regulation and the Risk Prioritization Initiative.

Initially, these were two separate efforts. But as I=ll discuss in a few minutes, they=ve been merged into the same deliverable which will culminate in the March 2015 SECY paper.

Just a brief outline of what we are

planning to cover today. First, a short background on where we are today and how we got there. The staff=s definition of CER, actions NRC staff have taken to date, the relationships of CER to RPI, key messages, staff perspectives. I=ll be turning it over to my colleague, Antonio Zoulis, to cover the RPI section of the presentation. And then we=ll cover next steps.

A little bit of background. The consideration of CER began late 2009 with Commission SRM which directed the staff to consider if a schedule for implementing new regulations should be influenced by the aggregate impact of new regulations and others that may already be scheduled for implementation.

Subsequent to that, the staff developed a SECY paper 11-0032 AConsideration of the Cumulative Effects of Regulation in the Rulemaking Process.@ Our initial efforts focused primarily on the rulemaking process. In that SECY, several process modifications to rulemaking were introduced. And the SRM from the Commission approved those changes and provided the staff with further direction which led to SECY-12-0137, AImplementation of the Cumulative Effects of Regulation Process Changes.@ That provided an update on the implementation of the consideration of CER in our processes.

The current focus from the staff is responding to outstanding action items from that SECY paper. In addition, there was another COMSECY-14-0014 which went through the current update on recent activities on CER and RPI. In that paper is where the two efforts were merged together. In the March 2015 paper, we=ll be including response to the outstanding items on 12-0137 and COMSECY-14-0014.

Just to take a step back, what is CER? The language on this slide is taken directly from one with the SECY papers we provided to the Commission. Cumulative effects or regulations describes the challenges that licensees or other impacted entities such as State partners face while implementing new regulatory positions, programs or requirements. It=s particular a challenge that results from an impacted entity implementing these new requirements within a limited implementation period and with available resources.

Of course, one of the concerns is that this can potentially distract licensee or entity staff from executing other primary duties that ensure safety or security. So all in all, CER is kind of an umbrella that=s a general description of the challenges that are facing licensees or other entities when we have these new requirements. RPI is a subset of that. I=ll get into that on the next slide actually.

To date, the actions of the staff have taken to address CER, we=ve made several process modifications to rulemaking. We=re interacting with external stakeholders early in the rulemaking process that will be in the regulatory basis stage.

In the proposed and final rule stages, we=re going to also publish a draft and final guidance concurrently with those documents to try and avoid issues that we get into when new requirements come out and hit the street and you don=t have the staff guidance to tell you what that means. What we get is a lot of different interpretations. That can lead to issues, scope creep, all kinds of things, unintended consequences we want to avoid.

We=re also engaging extra stakeholders on CER impacts of proposed rules. So we=ve developed a set of questions that are included in proposed rule packages that go out to the public to solicit comment on the cumulative effects of regulation. And we=ve also implemented additional public interaction during the final rule implementation.

And currently in response to the SRMs we received on the SECY paper as I mentioned, the NRC staff is considering expansion to other regulatory areas.

So a little bit about the relationship of CER to RPI. When we look at CER again, that=s considering all generic actions. RPI is an initiative to explore the idea of enhancing safety by applying PRA to determine the risk significance of current and emerging reactor issues in an integrated manner on a plant-specific basis. A lot of the process enhancements that we=ve made to date are on rulemaking which overarches all licensees, all the effected entities. RPI is kind of a conduit or a process that we could use to consider plant specific information.

Again, the deliverables are merged in COMSECY-14-0014. And if approved by the Commission, RPI could address the CER concerns for power reactor licensees.

A few key messages from the staff regarding the cumulative effects of regulation, a resolution of adequate protection issues takes priority over CER concerns. We=ve already implemented several rulemaking procedures as described that improved consideration of CER. And the staff=s efforts to expand consideration of CER are being undertaken in conjunction with actions directed by the Commission including a response to the SECY papers. And the consideration of expansion to other regulatory areas will be included in the March 2015 paper.

MEMBER BLEY: I have a question. The first bullet, of course, you have to deal with that equipment separately. But it seems to me there might be cases where it could be argued that something that=s being done for adequate protection is somehow already covered in the larger set of existing regulations. I don=t know if anything like that has ever come up.

But it seems to me it takes priority is probably right. But it could be that if you take a broad look at the existing regulations it might have already reached the adequate protection. And I don=t know if that=s something you argued about, thought about or.

MR. CARNEAL: This would specifically be targeted at the issues where questions arise over adequate protection. For those types of issues, we would not be considering CER as a driver for implementing those new. For example, an event like Fukushima happens and we gain some new knowledge. That=s what we=re trying to get at in this bullet.

MEMBER BLEY: Go ahead.

MR. CARNEAL: Tara, I don=t know if you have any additional remarks.

MS. INVERSO: Yes, thank you. This is

Tara Inverso from the Rulemaking branch. And just a couple of surrounding details about that first bullet, that was our guiding rule when we first developed CER. And it=s something that we still take into account.

When we first developed CER, the idea was to look at all of the activities that are on your plate and then to implement that regulation that you were about to implement in a way that didn=t take away from resources. So in that case when something was being issued for adequate protection, you wouldn=t consider those other elements.

I=d say as an example of when an issue was adequate protection, we could yet consider CER as the 50.46(c) performance based fuel cladding rule where those requirements and those changes are needed for adequate protection to maintain that level of adequate protection. But since the staff and the industry had prepared the plant-specific safety justification, we would take into account CER. We could look into ways to implement the rule in such a way that resources were balanced. It is a little bit case by case though I=ll say.

MR. CARNEAL: And you heard the industry=s perspective at the end of their presentation. Apparently, those last three bullets that they had at the end of their last presentation, the staff is currently considering those as part of the working group. So our responses to that will be included in the March 2015 SECY paper.

And that=s all I had as far as the overarching broader cumulative effects of regulation presentation. I=ll turn over the specifics -- Oh actually. Okay.

Staff perspectives. Some benefits of considering CER in our processes increases interaction with external stakeholders. It can improve the quality of regulatory analyses by seeking cost information early in the process. It can inform implementation schedule and limit unintended consequences. One of the big ones there is also providing stability by issuing the guidance along with the requirements. You don=t get this situation where you have multiple interpretations on the new requirement causing issues down the line.

The information gathered can be used to evaluate regulatory actions necessary to address safety or security issues. And with that, I=ll turn it over.

CHAIRMAN STETKAR: No, you won=t.

(Laughter)

MEMBER SKILLMAN: Let me ask you a

question, Jason. How does the NRC ensure that these potential benefits you=ve identified aren=t misinterpreted as a further example of the NRC being in bed with industry. I could see those who are not privy to a meeting such as this interpreting from these bullets is just further indication that industry and the NRC are in collusion with each other.

MR. CARNEAL: Particularly for these actions that we=ve identified, those are targeted at the general public as well as industry. It=s all our external stakeholders. I see the benefit of increased interactions on the front end. It gets us a better idea if we can get this type of input from various parties that will have a better idea of what those new requirements and what effect they=ll have not only on licensees but on the public.

For example, we=re currently considering -- We have another SECY paper going up on a decommissioning transition rule. And we would expect significant public interaction on that rule particularly with our state partners and with anyone who is involved with emergency planning. So we=ll be looking for that type of input not just from licensees or industry but we really need to hear from the public on how these types of requirements will affect them.

Some of these actions are meant to solicit that type of input early and up front.

MEMBER SKILLMAN: Thank you.

MR. KOKAJKO: May I add something please.

CHAIRMAN STETKAR: Yes.

MR. KOKAJKO: Lawrence Kokajko. I=m the Director of the Division of Policy and Rulemaking. One of the comments that you have is something of concern to us as well. And I=d like to point out that even those who are intervenor type groups such as Union of Concerned Scientists may also have the concerns about the cumulative impacts of regulation as well because they believe that if you focus on the wrong safety significant items you could be detracting from something much more significant.

In fact at the recent regulatory information conference last March, David Lochbaum of the Union of Concerned Scientists and Joe Glitter and I were on a panel. And we discussed just that topic. And they said that -- David Lochbaum agreed that if you focus forcing low safety significant activities you would detract from those that could be more important to overall safety. And he thought it was a good initiative.

Now that=s one datapoint. But we do

believe that to be true. And I think the Commission we=ve got to be true which is why we=re on this pathway now.

MEMBER SKILLMAN: Thank you. Thanks.

CHAIRMAN STETKAR: Jason, the second subbullet under there includes quality of regulatory analyses by seeking cost information early in the process. We=ve collectively, ACRS and ACRS subcommittees, over the last six months or so have had presentations on improvements or enhancements to the regulatory analysis process.

How does this particular initiative, if I can call it initiative or cumulative effects of regulation, RPI, fit into that process. I mean you raised it under this second subbullet here.

MR. CARNEAL: Yes.

CHAIRMAN STETKAR: I=m curious about that.

MR. CARNEAL: Particularly in their regulatory basis development stage we=ve added steps where we=re soliciting input on the cumulative effects of regulation into that process and development of that, of the regulatory basis for a rule will inform the regulatory analysis. And what we=ve seen in the past is we think we need better information up front on how a proposed rule language would affect, be implemented in the field and how maybe more operational experience.

For example, we did some case studies with the industry that are included in the COMSECY-14-0014 where it was shown that our cost estimates for implementation of certain rules range between five and 19 times lower than actual implementation costs. In that regard, we would be looking for input from the affected parties on how that would be, these in the requirements, would affect their day to day operations and solicit input on if there are any unintended consequences.

Simply, one example would be Part 26 QC to QV rule that we=re looking at right now. In that, there=s a provision for redefining unit outage. But just a simple word change we found can have very drastic consequences and implementation. That=s the type of feedback we=d be looking for.

MS. INVERSO: This is Tara Inverso again. If I could just add one more element that not only did the CER case studies give the general magnitude difference but the NRC and the industry calculated the implementation. The industry also provided a handout at a public meeting with some suggestions on overall how to improve regulatory analyses.

This team, the CER team, and the regulatory analysis updates Alysia Bone and Fred Schofer that you=ve heard from quite a few times. They do communicate and work together. So those suggestions will be spoken to in the SECY paper and eventually ruled into the cost benefit plan in SECY-14-0002.

CHAIRMAN STETKAR: Is there any notion at all -- and you can tell me that=s irrelevant -- of using the risk prioritization part of this as input to the regulatory analysis?

MS. INVERSO: We have discussed that. And I can say we=re still discussing it. And it will be addressed in the SECY paper. What I can say is that we do think that there is a value in what we=ve seen both from the generic assessment evaluation team and the integrated decision making panel even if it=s just to better understand the affected groups in the regulatory analysis. But you can break it down. You can break out the different implementation schedules. So exactly the details is still a little bit to be determined.

CHAIRMAN STETKAR: But you did say that you do plan to address that explicitly.

MS. INVERSO: Yes.

CHAIRMAN STETKAR: To some greater or lesser degree in the paper.

MS. INVERSO: Yes, in the paper.

CHAIRMAN STETKAR: Good. Thank you.

MR. CARNEAL: And some of that will be discussed specifically in the RPI section when we discuss our options for moving forward on RPI.

MEMBER BLEY: Jason, several times in your slides you=ve said in dealing with this cumulative effects of regulation that you=re seeking input to determine whether -- It kind of sounds like you=re saying AIt=s up to you guys out there to squeal and say we=ve got a problem here.@ Is there anything in this plan that=s pushing the staff to look to see if the new things there thinking of implementing are in fact affecting this cumulative effects of regulation?

MR. CARNEAL: A lot of the changes that have already been made such as rulemaking process and approved by the Commission those are focused at soliciting frequent and up front interaction with the public and external stakeholders. The working group is currently talking about the possibility of implementing other new processes with the staff to try and address some of the concerns with cumulative X --

MEMBER BLEY: And function.

MR. CARNEAL: Yes, internally.

MEMBER BLEY: Okay.

MR. CARNEAL: Internal NRC process.

We=re currently coming to consensus on what that would look like and how we would implement it. So that will be covered in the March 25 paper.

MEMBER BLEY: Oh, it will be in there. Okay.

MR. CARNEAL: It=s a hot topic of discussion.

MEMBER BLEY: Thank you.

MR. CARNEAL: Do you have any other questions before we move onto the specifics on RPI?

MR. ZOULIS: You=re doing such a great job.

MEMBER BLEY: I was going to say try as I might I can=t think of any more.

MR. ZOULIS: I=m going to go through your slides.

MEMBER BLEY: I=m going to jump the gun, Antonios. Before you put up your slides, as we went through this whole day today we saw the process of screening with a 30 minute look or whatever and then a more deep look. And if you get past these qualitative screens without the benefit of additional modeling you don=t look any further. In some areas, staff has argued that we should quantify where we can. And when you can=t, then rely on these other paths.

Are you in agreement or have you decided yet whether you=re in agreement with these qualitative screening steps in cases where quantification is readily at hand?

MR. ZOULIS: That=s a great question. And thanks for that. This is Antonios Zoulis. From our observations what we=ve noticed is where risk information was available it facilitated the discussion of the IDP.

MEMBER BLEY: I haven=t had the benefit of sitting in.

MR. ZOULIS: And we think --

MEMBER BLEY: They do go for it where they have it.

MR. ZOULIS: Well, when they did it was beneficial.

MEMBER BLEY: Okay.

MR. ZOULIS: It wasn=t done in our observation the majority of the time. It was actually in the minority of the time. So we think -- Again, the opinion of the staff is if the information is readily available it should be used. But again, Bruce from Robinson left. Bu we understand though there is a cumulative back. So we wanted it to be balanced where the resources weren=t overburdened now by a new process and being over utilized to try and address this through additional PRA resource to address the concern of cumulative impact.

But again when it was used it facilitated the discussion. We think it was more, the results were more, objective. It removed a lot of subjectivity out of the decision making. And I think Fernando who is also co-leading this effort with me had discussed that it shouldn=t be quantified as needed. Quantified as available is our opinion kind of on our take. I don=t know if Fernando wants to elaborate on that.

MR. FERRANTE: This is Fernando Ferrante. I=m also co-lead on the RPI effort and have been in several of the licensees on pilots and tabletops. We did provide a comment explicit to NEI and we haven=t had the benefit of looking at the response they just sent to us. But we did indicate that maybe there needs to be something where a question is asked ADo you have readily available PRA modeling and to what level of confidence is the model@ so that you can have a direct discussion first on what the insights are.

If you=re going to do qualitative screening and then ask that question, then you might bypass the information that you have. We think that=s one way to incentivize at least what you already have existing in terms of PRA capabilities to be used further.

We did see on a lot of these demonstration pilots that PRA language seems to seep in more where it wasn=t there before. At this point in time it isn=t clear to us at least that it will incentivize further modeling. So there=s a question on the table in terms of the guidance that we receive on the COMSECY that started RPI whether it=s going to incentivize to the level that maybe was understood on that COMSECY or whether it will be sufficient for the effort that we=re now trying to do conjoined with CER.

But those are some of the questions that we explicitly put to NEI and we will have to discuss on the March 2015 paper and see how do we move on and what kind of response we get there.

MEMBER BLEY: Okay. Thanks. I mean there were cases we saw and that the staff brought to us where it goes a little further and they=ve said AOh my. If you want to quantify this, it will be really difficult. And we need to take the qualitative look.@ And on some of those, at least those of us who have done the PRA thing thought actually very quick modeling could get you the kind of answer you=re looking for without doing immense amounts of effort. I hope you=re thinking about that as you go forward.

MR. ZOULIS: I think that was illustrated at one of the pilots where we had kind of brought that up and in subsequent meetings they were able to provide that evaluation to us. So this illustrates that with a little effort you can get I think a substantial benefit from using risk insights and quantitative information.

MEMBER BLEY: Sorry for the interruption. Go ahead.

MR. ZOULIS: Are you sure you=re done with your questions?

MEMBER SCHULTZ: I=ve got one more, but maybe go ahead with your presentation. I=ll come back to my comment.

MR. ZOULIS: I=m Antonios Zoulis. Again, I=m with the Division of Risk Assessment. I thank you for the opportunity to present to you today.

This initiative as Chairman Stetkar has mentioned earlier was as a result of Commissioners Magwood and Apostolakis issuing a Commission memorandum back in 2012 and asked the Commission to evaluate a process where we could utilize risk information to prioritize issues on an integrated manner on a plant-specific basis.

Part of that also asked that if you developed a full scope Level 1 and Level 2 PRA you could propose alternatives and perhaps defer issues that was not as safety significant on your site. The Commission issued then the SRM in February 2013 asking the staff to again develop a notation rule paper to explore how such a process could incentivize as Fernando mentioned earlier PRA Levels 1 and 2.

It also asked us to consider rulemaking and whether or not we could develop maybe a modification 5012 or some other rule to institutionalize this process and have a way where plants who do develop a PRA could just come in with an alternative order or a schedule change.

I think also Joe alluded to it earlier without having to come to us. But that would obviate the need of an exempt. But we think that would require rulemaking in order to accomplish that aspect.

It asked us to address how -- I think Dennis mentioned earlier -- if you have a lot of issues that are low or very low how would you ensure that they don=t get continuously deferred. The SRM talked about backstop ensuring that perhaps at a certain time regardless of the significance you would have to implement or do something with that issue.

The following SRM to COMSECY-2014-0014 asks us to evaluate how inspection and compliance issues should be treated. We=ll get into that later. From our observations, it=s demonstration pilots. We have some currently strong feelings about those issues.

And, of course, the process needs to be risk-informed principles. We understand that risk-informed is how we do business at the NRC. We=re not risk-based. You need to look at all those aspects of not only the risks but deterministic attributes and qualitative attributes.

We feel that the nuclear safety is advanced when licensees and staff focus their time, attention and resources on issues of greater safety significance at each plant by addressing the most safety significant issues first. And again, as our tag line says, it=s not only for the industry but it=s also staff. We=re also faced with these impacts. And we need to make sure the staff is focusing their efforts on the most important issues, not only the industry.

Since the SRM was issued back in 2013, there had been a lot of activity between the staff and other interested parties. We=ve had seven public meetings. We had a RIC sessions that was highly attended as Lawrence mentioned earlier. We supported tabletops, both generic and plant-specific. And we merged recognizing that RPI is very closely related to CER these two into one deliverable due in March of 2015 and of course our interactions and participation in the demonstration pilots.

And I want to mention that the DPR and DRA staff have been working very closely all along on this issue together. Both have participated in the CER working groups and their participation in the RPI working groups. We understand that these efforts are very closely linked and that=s the way we=ve been approaching this problem or this issue.

I=m going to go into a little bit now about demonstration pilots. And this is one of our favorite slides here.

CHAIRMAN STETKAR: It=s really pretty.

MR. ZOULIS: It is. Beautiful colors. This kind of illustrates on a pictorial how the issues that were prioritized at the demonstration pilots impact almost every division in NRR, the regions and other offices in the agency. So we=re talking about a process that has tentacles throughout the agency.

I don=t know if Sam=s here. And Sam Lee, our deputy director, he was very instrumental in making sure that we had participation from all the divisions in NRR if they could to come to the demonstration pilots making more that some of our efforts were doing outreach to the other offices, meeting with management and NSIR and other divisions to make sure they understood what we=re trying to do with this process. They wanted to maintain that this is focused on what=s most safety significant. Let=s focus our efforts on those items. I think we did a tremendous job in doing that for participation in the demonstration pilots.

Getting on to some specific observations that we had, back in July of 2014 we developed, the staff developed, a plan to participate in the demonstration pilots. I reference the ML number on the back of these slides. And we came up with eight high level objectives, what we were looking for through this process to be able to evaluate if this process is viable, if it was repeatable, transparent, how it incentivized the PRA, how it handled those low issues and deferral of those issues, and how it addressed findings, violations and degraded or nonconforming conditions.

We feel that through observations there was good discussion during the GAP and the IDP panel meetings. And the strength was they were concerning both the positive and adverse effects of an issue. I mean that I think was a very positive impact. Because as you mentioned earlier, Dick, there are issues that you may do that cause unintended consequences. And you need to be able to flush out those. I think the IDP did a good job trying to look at that kind of information.

A lot of this stuff was mentioned throughout the day. So if I=m repeating myself I apologize or repeating what others mentioned earlier. There was exposure to the staff and other management to PRA which we thought that was a plus where they may have not been exposed to that kind of risk insights. Now they were. So we thought that was a positive aspect and a way that perhaps could incentivize PRA and the use of PRA.

As I mentioned earlier, when PRA information was used it helped inform and facilitate the discussion of the IDP and I believe, my personal opinion, reduced the subjectivity of the decision making.

The process did not exercise how you would defer issues or how you may eliminate issues or what would occur if you came back and reshuffled the deck. That was not well exercised.

However, as Sonja illustrated earlier, there was direct benefit from participating in the pilots for issues that they felt were of low safety significance such as the modification, such as the commitment to monitoring gas, which they had a very robust process in place already. And they were already doing performance based evaluations. There wasn=t a real benefit to them to go to this monthly interval for the gas inspection. So they saw a benefit to doing this.

For inspection findings and corrective actions, this is an area where we feel, the staff feels, strongly that this is already risk-informed. We have the ROP which is already a risk-informed process. And we=re really talking about issues that are very low safety significant. If they are of high of safety significance, those issues are usually handled immediately. They=re not going to be allowed to linger or to not be corrected.

So we=re looking at a very small subset of issues which are of very low safety significance. And the premise of the ROP and how we deal with those very low issues is that the corrective action program of the facility is going to address those issues. It=s going to be put into the corrective action plan. You=re supposed to correct them at the best available interval.

We didn=t really understand how not having an additional prioritization process on top of that would benefit or add any value to an already well-established risk-informed process. We felt it may actually introduce some regulatory stability now where inspectors would go out and try to evaluate corrective actions and not know whether or not the corrective actions were completed or why they were deferred.

I don=t want to say that you can use it ever for inspection findings right now. But we=re struggling with the benefit of that process of why you would want to risk inform an already risk-informed process which is like I said well established and it=s been going on for at least 14 years already. We=re very confident in the way --

MEMBER BLEY: Did any of the pilots look at inspection items?

MR. ZOULIS: There was one issue that was inspection.

MEMBER BLEY: Oh, there was. Okay.

MR. ZOULIS: One issue. So again we need a little more further discussion and a little more exploration on that. The Commission asked us directly to consider that. We=re going to have to address that.

There was discussion about the aggregation process. And as was alluded to earlier, the IDPs did look at issues within the priority and against the cross priority. And while that was done I think in a positive way, the structure -- I think you mentioned this, John, Chairman -- there really wasn=t a structured way of doing that. And guidance in my opinion on how you would change the priority of an issue from one priority to another I think introduces again subjectivity into the process. You=ve already conducted this objective thorough process. You=ve come to the priority. Now because your SRO or your champion says, AI want it to be priority two@ you=ve changed the priority now and kind of discredited all what was done prior to that.

I can understand when the licensees evaluate issues for scheduling. For resources perhaps, you may end up doing something that=s priority four before something that=s priority three. I think that=s acceptable personally. However, any of the priority without very clear guidance on why you did that may kind of introduce some subjectivity to the process.

The reliability category. That was tossed around today many times. Overall we think if there=s a nexus to safety, a clear nexus as a circ water pumps as John Grubb mentioned earlier had a clear nexus to safety that they should be prioritized. The plant should be focusing on those issues that are safety significant and also have a reliability attribute.

However, when we didn=t see that connection or that connection wasn=t clearly identified, we=re struggling with whether or not those issues should be included or part of the process.

MEMBER BLEY: The guidance is -- The NEI guidance has sort of rules on how to put those priorities in and safety trumped everything in those rules as I remember them. So it seems they=ve covered that unless you=re talking about how the licensee might rearrange the priorities.

MR. ZOULIS: Let me give you an example one of our team members observed. If you had an issue that had to do with obsolescence -- Let=s say you had a obsolescence issue -- and there was a long lead time to repair that issue, that could come out as a higher or medium priority in reliability.

MEMBER BLEY: Right.

MR. ZOULIS: And that may or may not have a direct impact to safety. It just happens to be that the issue is an obsolescence issue and it has a long lead time to repair the item. So we were clear how an issue like that can trump a safety issue.

MEMBER BLEY: But if you follow the rules, it doesn=t. The rule is if it=s a -- I=m sorry. If it=s a high safety --

MR. ZOULIS: It will be a priority two. If it=s a high --

MEMBER BLEY: If it=s a high, it=s a priority one. If it=s a medium, it=s a priority two.

MR. ZOULIS: Never going to get a priority one item. Never. But most likely you will never get any priority one items.

MEMBER BLEY: But you could get from the rules a low safety being trumped I think by two high reliability ones. Thank you.

MR. ZOULIS: Based on observations, there was a little bit of issue with the reliability category. I understand why it=s there. I think it=s an important characteristic. But again, it=s going to play out on how in the March paper what we identify as options, how we think we will be able to integrate some sort of process like this into our regulatory structure.

MEMBER BLEY: I think put numbers on it. But the very lows and lows I suspect if you put numbers on it wouldn=t jump up in any analysis you guys would probably do either. But I=m not sure I understand where you=re headed. Go ahead.

MR. ZOULIS: There was a lot of discussion that through the demonstration pilots that I believe incorporated updating the guidance. And tomorrow we=re going to have a public meeting to discuss those updates and the insights gained from the demonstration pilots.

The other issue, the third bullet, assessing issues of RP, security and EP, those flow charts have gone through some modification. But the staff is still struggling with whether or not they=re characterizing those issues.

MEMBER BLEY: And you=re looking at the most current versions of this.

MR. ZOULIS: We haven=t seen the new.

MEMBER BLEY: The one you showed us this morning you just got.

MR. ZOULIS: We just got it last week.

MEMBER BLEY: Okay.

MR. ZOULIS: So security has been working with NEI and trying to make sure that those issues are being characterized appropriately. So those are still things we=re trying to work through in those areas of EP and Security.

MEMBER BLEY: Were there any of the pilots that actually had actions that were security issues to begin with?

MR. ZOULIS: Davis-Besse had a few issues. There were a couple of cyber security.

MEMBER BLEY: Oh, that=s right. There were.

MR. ZOULIS: We had a separate public meeting September 8th to go through tabletops just for EP, RP and Security.

MEMBER BLEY: Okay.

MR. ZOULIS: So we=ve been working with NEI to make sure that those flow charts do get updated. We would have again interactions with our staff to participate from NSIR and also from DRA and RP to work through those flow charts.

Again, it=s kind we=re going back to that issue where you can have a gold-plated, full scope Level 1-Level 2 PRA. But that still may not address issues that may not lend themselves well to quantitative analysis. So just as the ROP struggled with those cornerstones and how to evaluate them, we=re kind of getting to those roadblocks as well to make sure that we=re characterizing the issues appropriately.

CHAIRMAN STETKAR: That=s why I brought it up in the broadest sense of the regulatory analysis because we had the discussion about these qualitative considerations and that. When you=re looking at a lot of the issues across the agency that are dealt, there isn=t a clear nexus with safety. And yet the agency has to make decisions about obligating rulemaking or anything on those issues. That=s even outside the reactor community is an issue.

MR. ZOULIS: So again we=re working and observing the demonstration pilots. And of course we=re going to brief the ACRS in February as Joe mentioned earlier and then the full committee briefing in March right after the paper is issued. We=re looking forward to interacting with the ACRS on these issues and working with our stakeholders to make sure that we have the information we need to develop the paper to the Commission with the options.

MEMBER POWERS: The areas that you=re having difficulty doing quantitative analysis on those are just security issues. Or what range of issues are you having?

MR. ZOULIS: Well, RP and EP are qualitative. They=re very qualitative. And Security right now is qualitative. So all three of those areas.

MEMBER POWERS: I don=t understand why radiation protection is qualitative.

MR. MARKLEY: This is Tony Markley. I was at the Summer and the Robinson RPI tabletops and exercises. And the example I give for radiation protection is if you look at the seal replacement issue that was evaluated. If you go to a reactor coolant pump seal that you have to replace maybe every six years versus every two year and you look at the number of seals where you have three of four pumps per plant, you=re going to have a significant positive impact of radiation dose averted by going with the longer life seals.

This process did a great job if you have numbers that you can plug into the evaluation and decision process. But for things like this in terms of positive benefits or adverse benefits in radiation protection, EP and security, it really doesn=t do a good job with that.

MEMBER POWERS: But I guess the question I have is why is radiation protection not an eminently quantifiable topic.

MR. ZOULIS: I don=t know if our HP expert is here.

MEMBER POWERS: On security, I have the same question. I=m just not as prepared to rebut any answer you give. I think I=m willing to take that issue on because I can=t think of anything that=s more eminently quantifiable than radiation protection.

MR. CARNEAL: I had a chance to observe the Prairie Island demonstration process and one of the issues that was on their list was an upgrade to rad monitors. And I think it might have been more of a process definition issue as they were following the process that was defined in the guidance. And then the feedback that the members from the industry that participated there had back to NEI was that those process diagrams didn=t fit really the RP considerations. They thought it should screen out a little higher than what the process was giving them. That=s an issue.

MEMBER POWERS: That=s their business.

MR. CARNEAL: Yes.

MEMBER POWERS: Radiation protection I think. Security is a little more problematical. Certainly people are making progress in that area. But I=m probably way too immature for the regulatory process right now. Environmental protection --

MR. CARNEAL: Emergency planning.

MEMBER POWERS: I=m sorry. Emergency planning. Now that you have the ETEs, can=t you use those as the vehicle for quantification?

MR. GLITTER: This is Joe Glitter. I mean, Dr. Powers, it=s possible to quantify a lot of that information. For example, in radiation protection, depending on whether you=re using linear no threshold or linear threshold models, you can always come up with latent cancer risks and that sort of thing and likewise with evacuation time estimates.

But the question you have to ask yourself is are you really getting anything from that quantification. And I think in the way this process is being implemented I think that the quality of the information you get in those areas is probably what you want for decision making purposes. If you overburden yourself with quantitative information, it=s not even clear what you do with that information.

CHAIRMAN STETKAR: The only part of that, Joe, though is right now the way the priorities are set is you get one from column A or two from column B or one medium from column C or those types of things where column A safety in principle has more quantitative information. The other ones if they=re completely qualitative it=s hard to say how objective am I in terms of evaluating. Do I have a medium versus a low or a very low in those other areas?

You don=t need to necessarily have them all on the same playing field in terms of you obviously can=t have protection against somebody falling in the spent fuel pool on the same metric as core damage frequency. But you can use personnel dose averted.

MR. GLITTER: And there have been areas for example in one of the tabletops I=ve observed. When they were looking at a cyber security problem, they looked at a subset of critical digital assets that had a direct nexus on safety. And they=re rated the same as safety. They didn=t treat them any differently.

So there are ways you can do it. But I think in the flow charts that have been developed and the process that=s been outlined follows fairly closely to what we do in the ROP where we also have to balance inputs in those areas along with safety inputs.

MEMBER SCHULTZ: I=m not sure if that=s a criticism or --

MEMBER POWERS: Yes. I mean defense but it=s scandalous.

MEMBER SCHULTZ: Again, the way I understood what has been proposed is it=s a guidance document. And the prescription for the categorization is I think a good guidance. And it does match up with what the agency has considered to be the appropriate priority in general.

It would be good to have -- There=s no reason why with regard to radiation protection that those elements can=t be quantified as Dana has suggested. Like in the safety area, there=s been a push to say if you can=t quantify them one to another than it=s appropriate or at least allowable to do a qualitative evaluation of them and rank them low, medium and high and move forward with that. I don=t necessarily think that=s a problem.

I think what the process doesn=t -- I haven=t studied the diagrams, but I think what the process doesn=t capture is all of the connectivity between safety and radiation protection and safety and emergency planning. And how one evaluates those would be something that with experience with --

You know these pilots have just been an initial phase of the work. And one would expect that in this initial phase we would focus on safety. And you said there are other pilot exercises that have been held where you=ve gone off and said, ALet=s look at the projects that have an impact on radiation protection and see if we can differentiate. Come up with a process that better differentiates those one to another.@ That=s good process.

But I think in time that will be developed. I think rather that=s a reason to move forward rather than to hold up anything that is a concern with the project.

I think the elements that you=ve chosen, the eight objectives that you looked to exam here, are good ones. But I don=t think they all necessarily fit. That is each one looks at the process a little differently. And so the fact that the process doesn=t meet all of the eight objectives as you=d like to see it or hope to see it doesn=t draw back from it. I think to some extent the process has met all of your objectives, the outset objectives.

MR. ZOULIS: We think you summarized it correctly. We are working with industry. We are trying to make sure that those flow charts are approved and we have continuous interaction to do that. And there are continuing to be interactions. But whether they=re final there, I don=t think that=s -- Personally, I don=t think -- I know for security definitely it=s not the case. But there is some discussion with our SMEs.

So I think that=s all I had. Next steps.

MR. CARNEAL: Sure. I=ll just cover the next steps that the staff is currently undertaking. We=re addressing those outstanding items from the two SRMs we received, continue and enhance existing processes whether they=re to be in rulemaking or expanding to other areas.

We=re continue to explore means to expand or address CER for a broader range of regulatory activities. In that, we=re including considerations of processes like rulemaking for RPI for developing additional internal processes to address CER in-house and at NRC.

The roll-up of the lessons learned from above efforts will be folded into our March 2015 paper. And in that paper we are going to develop and propose options moving forward for RPI. The Commission specifically requested that we brief ACRS ahead of the March 2015 paper. And then as we=ve discussed we=re looking at subcommittee in February of 2015 and a full committee in early March.

Are there any other questions?

CHAIRMAN STETKAR: You=re on target for March 2015?

MR. CARNEAL: I think we=re on target for March 2015. It=s going to be a significant effort writing all this stuff and gaining consensus is going to be.

CHAIRMAN STETKAR: Are you on target to come to us at the subcommittee level in February?

MR. CARNEAL: Yes.

CHAIRMAN STETKAR: Okay.

MR. CARNEAL: A typical plan is to send you a copy of that two weeks ahead of time I=m told.

CHAIRMAN STETKAR: It=s usually a month but we can negotiate over time. Not the day before the subcommittee meeting.

MR. CARNEAL: I=m not sure we can do a month.

CHAIRMAN STETKAR: It sounds like this one will be rather meaty. Do any of the members have any more for the staff?

MEMBER SCHULTZ: One comment or question that I have is that we talked about the RPI and then of course there=s the indication that cumulative effects of regulation looks somewhat similar to the RPI process. So we=ve determined that it would be appropriate to consider them in the same SECY discussion and then regulatory analysis is another thing that also uses PRA and all these other things. And it would be nice if that looked somewhat the same. So we=ll put that in.

There is some benefits for once we decided to do. But I see a potential negative and that is with all of that combination we don=t focus on any one of those things enough so that we get it done. Rather we put together this large document and process approach that only sits. Then somebody will say AThat=s all very interesting and we certainly took care of all those risk related elements and prioritizations and cumulative effects.@ And nothing happens.

Whereas I was excited about risk

prioritization initiative being something that that=s a meaty thing that looks like it=s been developed. And if we could only get everyone to focus on it and do it, it would be an extremely useful approach that could incentivize a number of different types of applications that will bear both low-hanging fruit and long-term benefit.

MR. CARNEAL: Yes.

MEMBER SCHULTZ: Combining all of this together makes me nervous. And I look forward to your report.

MR. CARNEAL: Alright. And in the March 2015 paper as far as RPI is concerned, we=re considering both near-term and long-term actions of how we can best implement this.

MEMBER SCHULTZ: I=m encouraged by and really excited about the involvement that the staff has taken with regard to participating the process in both observing and providing good deliberation and input into the process as well. A lot of good thinking has been done by the staff to assure that it=s headed in the right direction from the staff=s perspective.

MR. CARNEAL: Thank you.

CHAIRMAN STETKAR: Anything else for the staff?

(No verbal response)

Antonios, Jason, Joe, thanks a lot for coming in and at least giving us some insight as far as a snapshot of where you are and what you=ve done anyway. We=re really looking forward to seeing that SECY paper.

Now I=ve been told there=s nobody on the bridge line. So if you=re out there and can hear me, I=ve been told you=re not out there.

Is there anybody left in the room here who would like to make any comments? Or any questions?

(No verbal response)

If not, as we usually do in the subcommittee meeting, I=ll go around the table and ask for any final comments of the members. And I=ll start with you. Dr. Bley.

MEMBER BLEY: Yeah, I=ve got a few. And I too want to thank everybody. Really good discussions and presentations today. We haven=t seen this really before at all.

I do like that the process they brought is looking at multi-attributes and not just safety and prioritization. I like Antonios= map of how the process impacts nearly everybody around NRC. I thought that was pretty good.

I haven=t thought enough about this

business of lower safety things being beaten by other things. I think that=s worthy of a lot of thinking and examination.

The thing I=m a little uncomfortable about here and I=m uncomfortable about it in other places where we use expert panels is the lack of facilitator training back to what Steve said. And there=s a lot of ways expert panels go wrong and have gotten in trouble. And one of the big ones is you really need the facilitator to understand, have a knowledge of and control of biases that can affect it and understand things like anchoring and adjustment, availability which is really biases related to the ease with which things come back to mind, recency, familiarity, salience, representativeness which let=s us bring in stereotypes and ignore the probabilistic side of things.

The facilitator who really understands what they=re doing can feedback the implications of the judgments from the team in a way that can let the experts have a confirmation that they really understand the implications of what they=ve said. So that process can clean up a lot of problems.

And in a way, a good facilitator can turn all the others, the experts, into those professional critics or naysayers we were talking about during the thing by forcing them to think a little bit outside. Could there be anything that could push this in one direction or another? To have something formal in that regard I think could avoid problems. I don=t know if we=ve had any problems, but I=ve sure seen it in other kind of expert elicitation.

The idea of thinking about the dependence among the alternatives not analyzing them in detail but at least recognizing they could be there I think is important.

I have another impression and it=s a worry that if the PRA is not complete or isn=t completely examined you can miss some of the risk significance of an issue. And just an example is -- I haven=t thought a whole lot about but just hearing it today -- the open phase issue. From what I=ve heard, I=m not sure they really looked at the actual risk that an open phase condition can cause. It=s different than just losing an offsite power connection especially should equipment that=s not running get start signals while you=re under this condition.

Battery evaluation that we heard about focused on little differences in two possibilities, but didn=t think about those broader things like John brought up. That=s more of a worry. But I really like a lot of what we saw and heard today. And I think the fact that staff=s been involved in this all the way. Sorry for the long run, but I had a bunch of things.

CHAIRMAN STETKAR: Dana.

MEMBER POWERS: I don=t think any substantive comments to add what Dennis said.

CHAIRMAN STETKAR: Dick.

MEMBER SKILLMAN: I do. Just two. Assessing the risk of the resource impact for critical skill sets. Assessing the risk of the resource impact for critical skill sets, I would have thought the important characterization would have at the minimum attempted to put a very thick magnifying glass on if this change is made do I reduce the burden. If I don=t make the change, do I persist with or increase the burden on a critical skill set group?

Critical skill set group could be EMTs. It could be firefighters. It could be the shift manager or the lead SRO that has the duty for the plant for that shift. Some of the projects that we saw from the various participants were those kinds of things. This would actually reduce burden. This would actually take an issue off the table.

So I=m thinking that that resource impact might be something that should be included in the importance characterization. I understand Don Dube=s point. They considered that and chose to use that as a modifier. It seems to me if it can be used as a modifier it ought to be a standalone. That=s number one.

The second one based somewhat in part from Sonja Myers= comment relative to their communication system inside containment and the ability to get a false positive for fire, that will drive the site into their EALs and it will drive them into an unusual event. At least my experience would tell me that anything that can push you into an EAL deserves a greater amount of formal recognition in terms of characterization. I=ve been through I think four fires on site and one site area emergency. And I understand the distraction that that wheel of events initiates. And it is a true distraction to the control room. It=s a safety event at least in my judgment.

Those are the two, the potential impact on critical skill sets and in the EP realm being forced into an EAL when you don=t need to be forced into that EAL. Thank you.

CHAIRMAN STETKAR: Steve.

MEMBER SCHULTZ: I said a lot this

afternoon. But I did want to close with a couple of integrating comments. First, I really appreciate the preparation and the presentations that have been provided to us. It really gave us a very good impression of what has been done and what could be the benefits from the RPI process and where we will go going forward.

And that=s where I wanted to focus, going forward. With regard to the risk prioritization initiative, the pilot approach I think has been really impressive and I think it=s been well done to demonstrate the value of the process, both the development and the value of the process. And we just got the latest, but it shows how the process has been improved as a result of the pilots. That=s always a good thing.

The piece that I=m still trying to figure is how do we move the process then into real implementation. John Butler had on one of his slides the picture not to scale of how the process can be used to provide an improvement and reduction in risk as a function of time for any plant. If it=s used appropriately it=s going to result in that. And that=s obviously a good thing.

But how do we assure that this process in fact will be used in what I think ought to be it to both become a continuous improvement process for the facility? And as you said in your presentation, Antonios, that you would want to see it enhancing the utilization of risk practices and safety improvement at the plants utilizing risk insights better. How do we make that happen in a going forward process and ensure that it becomes a program that not only enhances what is already existing at the sites, but couples and coordinates the plant health committee with other aspects of safety improvement at the plants?

And I=ve said I see the advantages associated with combining this effort in evaluation with cumulative effects of regulation and regulatory analysis. But those features have different aspects and inputs.

So I think we just have to be careful to keep the differences separate and the similarities the same whatever. Take advantage of it, but don=t lose the opportunity to improve all of those elements because they are different. But thank you for the contributions provided today. They have been very good.

CHAIRMAN STETKAR: Thank you. And I don=t have much to add. I think I=ll -- One thing I=d mentioned, it=s come up here. It=s come up a couple of times. I do very much like this notion of an integrated perspective of all of the issues. I think that=s very, very useful.

The concern about does a reliability issue trump safety, some of those questions I think are more complex than just its reliability or its safety because in many cases it=s difficult to simply divorce reliability from safety. I think there might be some artificialities creeping into the way the things are evaluated.

I know -- and I hate to put Palisades on the block just because I happened to be there -- that when I was sitting there watching the aggregation process the group in some sense was struggling at times saying, AWell, according to the guidance this is in category two because it=s got one of these. I really would have liked it to be an and/or some sort of other convoluted logic because this didn=t seem to work okay for me. But following the guidance it has to be here.@

I don=t know how often the teams in the pilots struggled with that. So obviously this thought process when you=re balancing especially if you become more objective on some of the other metrics kind of shakes out after some more trials. But that was something that I saw people struggling with.

And with that because it=s getting late, I would again like to really thank all of the industry participants. I really appreciate all the time and effort you put into not only running through the process. But also I know it takes a lot of time and effort to prepare materials and congregate here. And I really do appreciate that. Thank you very much. It was really, really useful. I wish we could have started it earlier, but we couldn=t. That=s just a dig. Not necessarily to the people on this side of the room. And with that, unless there=s any other comments, we are adjourned.

(Whereupon, at 5:54 p.m., the above-entitled matter was concluded.)

Overview of Prioritization and Scheduling Initiative

John Butler, NEI
Jim Chapman, Curtiss-Wright
Don Dube, ERIN

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Purpose

- Provide overview of process
- Discuss detailed results from three of six pilot applications
  - Palisades
  - Hatch
  - Robinson

COMGEA-12-0001/COMWDM-12-00002

- A plant-specific approach to implementation of regulatory actions would serve to focus licensee and NRC attention more effectively on important safety issues in those cases in which they present higher relative risks and to defer other issues of lower safety significance. If such a prioritization were effected at each plant, it would improve the safety of the fleet and would also enable licensees to manage their resources and work in a more effective and efficient manner.
- Industry's proposal is to enhance safety by promoting the use of the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis when prioritizing regulatory actions, in order to recognize that each operating nuclear power plant faces unique contributors to risk.

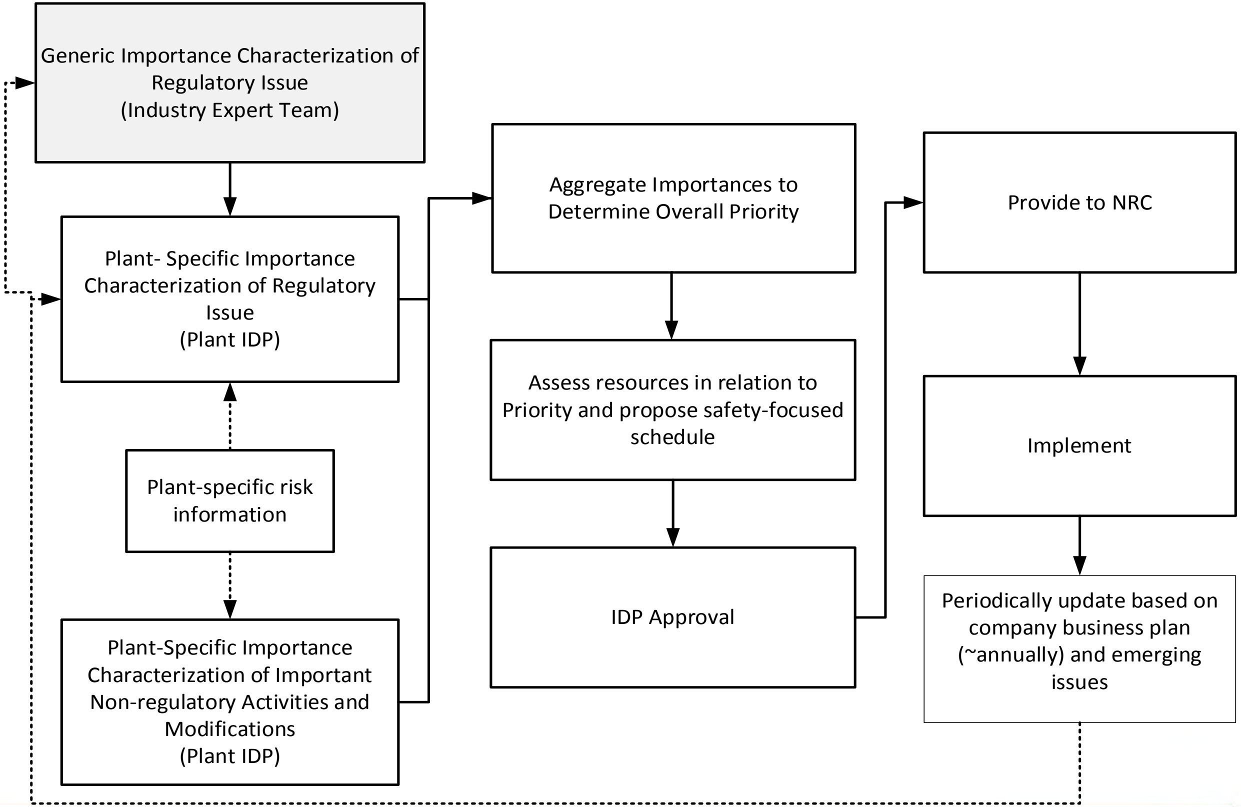
Timeline for Process Development

- Generic tabletops at NRC (Nov – Dec 2013)
- Plant-specific tabletops (Feb – Mar 2014)
- Generic Assessment Expert Team tabletops (May 2014)
- Plant-specific pilots at six sites (Summer 2014)
- Follow-up tabletops on EP, RP and Security (September 2014)
- Guidance revised to incorporate lessons learned; Issued as NEI 14-10 (October 2014)

Overview of Prioritization Approach

- Nuclear safety impact is the primary focus
- SDP thresholds are used (reverse perspective)
- Regulatory issues and plant-initiated activities are characterized into broad categories spanning a decade of risk
- Screening questions are risk-informed adaptations of NEI 96-07 (10 CFR 50.59) guidance
- Definition of "more than minimal" is consistent with RG 1.174 and 50.59 guidance
- Cost/benefit and personnel burden reduction are possible tie-breakers or adjustments at the end of the process.

Plant Process for Schedule Prioritization



Key Elements and Features of Prioritization

- Generic characterization of regulatory issues by expert team
  - Problem statement and potential solutions
  - Assignment of generic priority if appropriate
  - Considerations for plant-specific prioritization
- Plant-specific evaluation
- Formal plant review by Integrated Decision-making Panel like 50.65, 50.69, RITS 5b

What gets prioritized?

- Actions addressing regulatory issues and findings
- Plant-initiated actions addressing equipment with safety implications
- Other issues and activities, as identified by resource peaks in the business plan

What does NOT get prioritized?

- General O&M, facilities maintenance, etc.
- Immediate action necessary for continued safe operation
- Immediate repairs necessary for continued power production

Importance Characterization

- 5 categories
  - Nuclear Safety
  - Security (includes cyber)
  - Emergency Preparedness
  - Radiological Protection
  - Reliability of SSCs

Safety Importance Characterization

- Step 1: No Impact or Adverse Impact?
- Step 2: Minimal Impact?
- Step 3A: Relative Impact versus Current Relative Risk
  - Very Low
  - Low
  - Medium
  - High
- Step 3B: Quantitative

The thresholds in the left column are consistent with the SDP and are (in units of per yr), for CDF:

Green/White = 10^{-6},
White/Yellow = 10^{-5},
Yellow/Red = 10^{-4};

and for LERF:
Green/White = 10^{-7},
White/Yellow = 10^{-6},
Yellow/Red = 10^{-5}.

Table 3-1 Matrix by Current Risk and Potential Impact

UB is upper bound of the risk range; Mid is "mid-range" (0.3 times UB); LB is factor of 10 lower than UB[1]

Current Risk associated with Issue	**Potential Impact of Action Resolving Issue (Reduction in Risk)**				
	None	Very Small/Minimal	Small	Medium	High
	0%	0 to 25%	25 to 50%	50% to 90%	>90%
	Importance				
Green (VL) LB	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) Mid	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) UB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) LB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) Mid	Very Low	Very Low	Low	Low	Low
White (L) UB	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid	Very Low	Low	Medium	Medium	Medium
Yellow (M) UB	Very Low	Medium	Medium	Medium	Medium
Red (H) LB		Medium	Medium	Medium	Medium
Red (H) Mid		High	High	High	High
Red (H) UB		High	High	High	High

Security, EP & RP Importance Characterization

- Captures nexus with nuclear and public safety
- 2-step process following Safety importance characterization:
  - Step 1: What is the relative significance?
    - flowchart
  - Step 2: How effective is the proposed measure to address it?
    - matrix

Reliability Importance Characterization

- Concerned with reliability of SSCs (safety-related or power generation)
  - aging management, availability, forced outage, power reduction, or potential for a reactor scram
- Forward looking with strong nexus with Safety
- Performance indicators (PIs) under ROP include measures of unplanned scrams and unplanned power changes; MSPI
- Exceeding a threshold for a PI could result in the plant being placed in a column of the Action Matrix with heightened regulatory scrutiny.

Criteria to assign priority level

- Priority 1
  - Issue defined by NRC as adequate protection, OR
  - High for Safety, OR
  - Two or more Highs for any of the four other categories (Security, EP, RP, Reliability)
- Priority 2
  - Medium for Safety, OR
  - One High for any of the four other categories, OR
  - Two or more Mediums for any of the four other categories

Criteria to assign priority level (cont.)

- Priority 3
  - Low for Safety, OR
  - One Medium for any of the four other categories, OR
  - Two or more Lows for any of the four other categories
- Priority 4
  - Very Low for Safety, OR
  - One Low for any of the four other categories
- Priority 5
  - Does not meet any of the criteria for Priorities 1 through 4

Adjusting Licensing/Regulatory Schedules

- Assessment results used to support existing processes for re-scheduling
- Process an exemption request per 10 CFR 50.12 or 52.7
- Use commitment change process as described in NEI 99-04, Rev. 0, *Guidelines for Managing NRC Commitment Changes*

Backup Slides

Safety Importance – Step 1

Does the proposed activity or issue:

1. ☐ YES ☐ NO   **Result in an impact on the frequency of occurrence of a risk significant accident initiator?**

2. ☐ YES ☐ NO   **Result in an impact on the availability, reliability, or capability of SSCs or personnel relied upon to mitigate a risk significant transient, accident, or natural hazard?**

3. ☐ YES ☐ NO   **Result in an impact on the consequences of a risk significant accident sequence?**

4. ☐ YES ☐ NO   **Result in an impact on the capability of a fission product barrier?**

5. ☐ YES ☐ NO   **Result in an impact on defense-in-depth capability or impact in safety margin?**

If ALL the responses are NO, issue or activity screens to NO IMPACT and Nuclear Safety Importance is None.

If ANY response is YES, continue on to Step 2.

Safety Importance – Step 2

Does the proposed activity or issue:

1. ☐ YES ☐ NO Result in more than a minimal decrease in frequency of occurrence of a risk significant accident initiator?
2. ☐ YES ☐ NO Result in more than a minimal improvement in the availability, reliability, or capability of SSCs or personnel relied upon to mitigate a risk significant transient, accident, or natural hazard?
3. ☐ YES ☐ NO Result in more than a minimal decrease in the consequences of a risk significant accident sequence?
4. ☐ YES ☐ NO Result in more than a minimal improvement in the capability of a fission product barrier?
5. ☐ YES ☐ NO Result in more than a minimal improvement in defense-in-depth capability or improvement in safety margin?

If ALL the responses are NO, issue or activity screens to MINIMAL IMPACT and Nuclear Safety Importance is Very Low.

If ANY response is YES, continue on to Step 3.

Safety Importance – Step 3A

The thresholds in the left column are consistent with the SDP and are (in units of per yr), for CDF:

Green/White = 10^{-6},
White/Yellow = 10^{-5},
Yellow/Red = 10^{-4};

and for LERF:
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White (L) UB	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid	Very Low	Low	Medium	Medium	Medium
Yellow (M) UB	Very Low	Medium	Medium	Medium	Medium
Red (H) LB		Medium	Medium	Medium	Medium
Red (H) Mid		High	High	High	High
Red (H) UB		High	High	High	High

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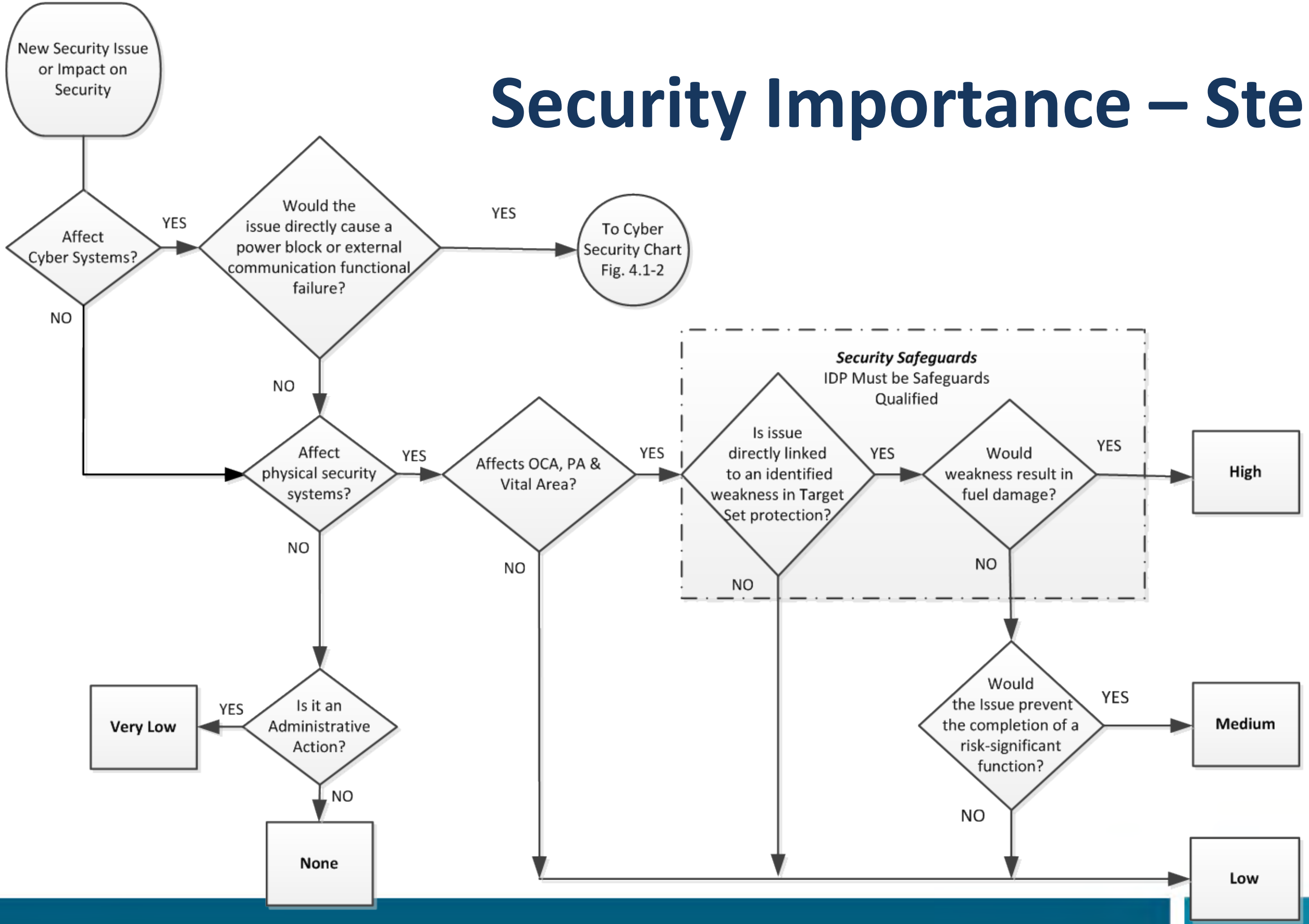
Safety Importance – Step 3B

Safety Importance determination using quantitative analyses

HIGH:	ΔCDF > 1E-4 /yr, or ΔLERF > 1E-5 /yr
MEDIUM:	1E-4 /yr ≥ ΔCDF > 1E-5 /yr, or 1E-5 /yr ≥ ΔLERF > 1E-6 /yr
LOW:	1E-5 /yr ≥ ΔCDF > 1E-6 /yr, or 1E-6 /yr ≥ ΔLERF > 1E-7 /yr
VERY LOW:	ΔCDF ≤ 1E-6 /yr, or ΔLERF ≤ 1E-07 /yr

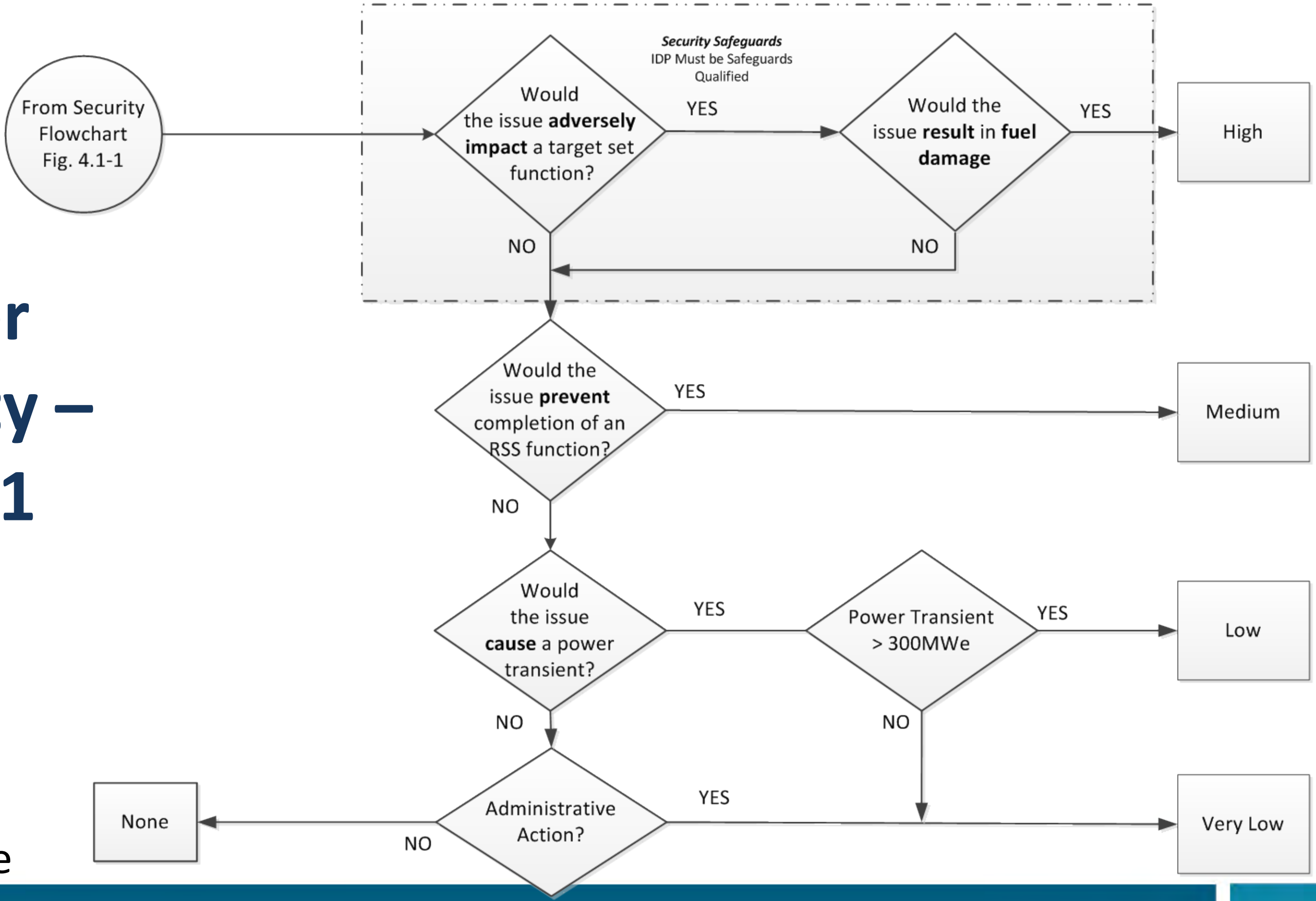
Security Importance – Step 1



Pilot Guidance

NOTE: As used in this document the term issue may be a cyber-security intrusion, a potential cyber-security intrusion, or a security action or potential action

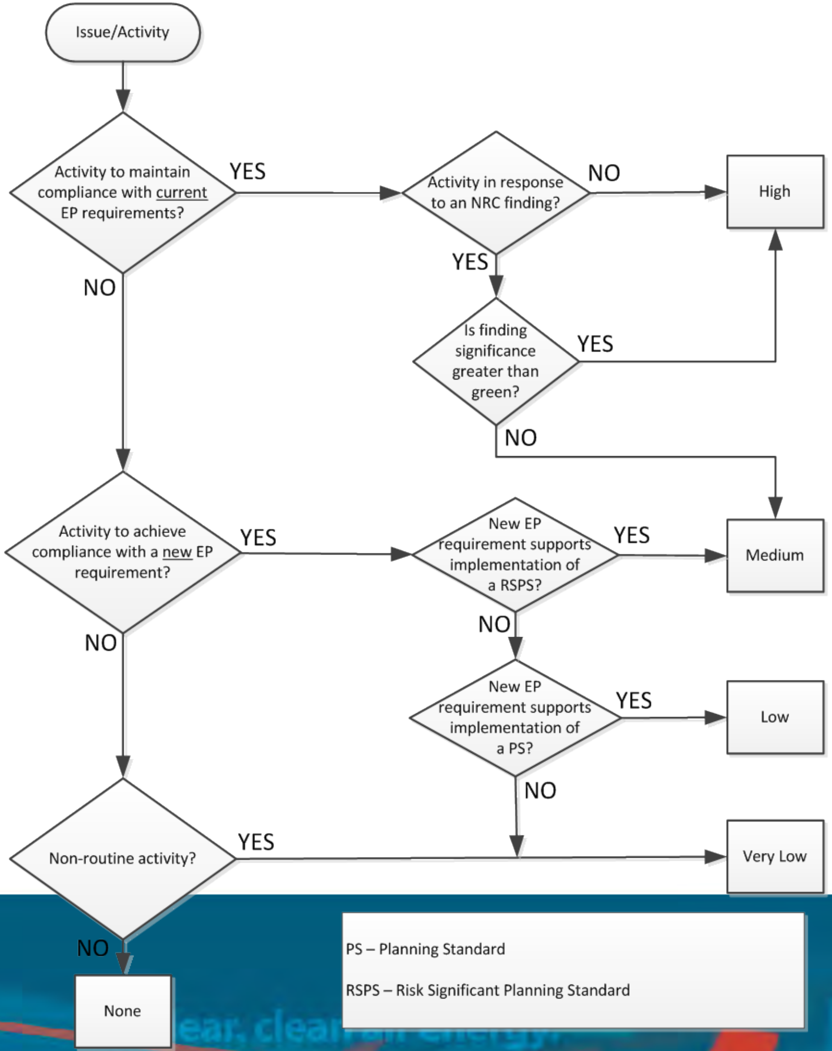
Cyber Security – Step 1



Pilot Guidance

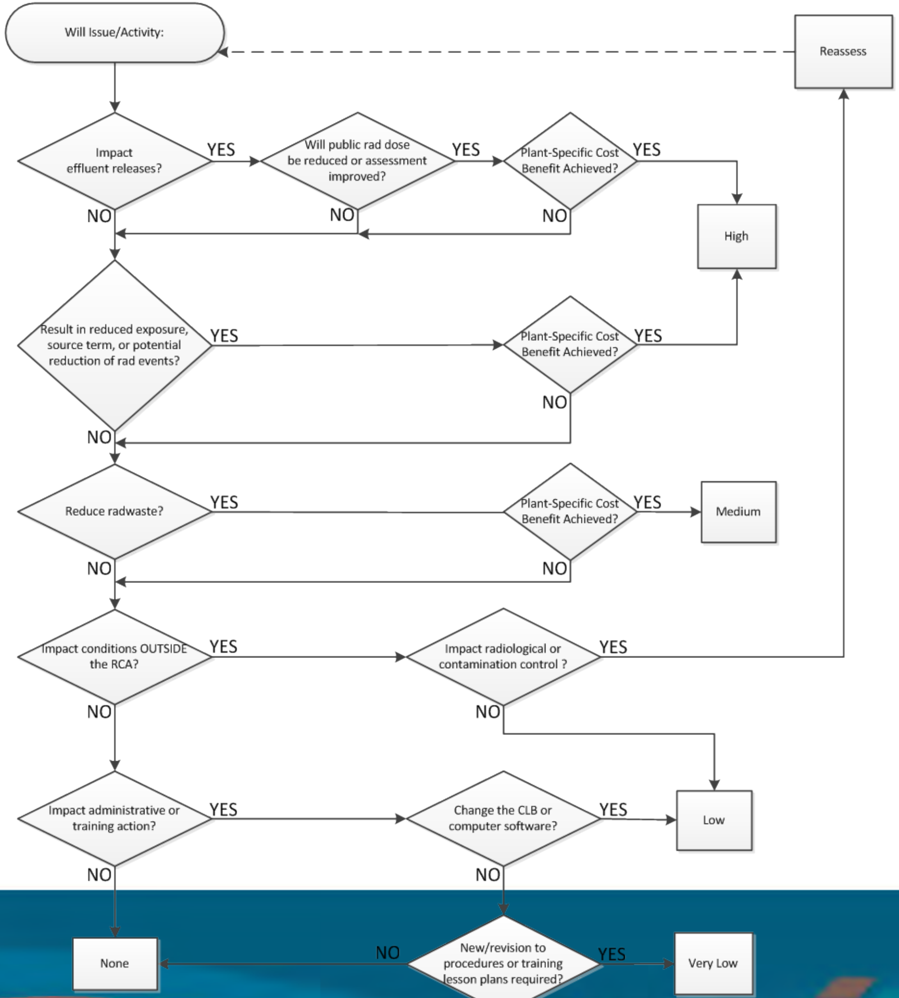
NOTE: *As used in this document the term issue may be a cyber-security intrusion or a potential cyber-security intrusion*

EP Importance - Step 1



Pilot Guidance

RP Importance – Step 1



Pilot Guidance

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Security, EP, RP Importance – Step 2

Table 4-1 Matrix by Current Significance and Potential Impact			
Current significance associated with the issue (from Step 1 Flowcharts)	**Potential Impact of Action Resolving Issue (Effectiveness)**		
	Not Effective	Somewhat Effective	Mostly Effective
	0 to 25%	25 to 80%	>80%
	Importance		
Very Low	Very Low	Very Low	Very Low
Low	Very Low	Very Low	Low
Medium	Very Low	Low	Medium
High	Very Low	Medium	High

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Reliability Importance – Step 1

For the proposed activity or issue:

1. ☐ YES ☐ NO Is there a significant risk of SSC failure?
2. ☐ YES ☐ NO Is there a significant replacement lead time?
3. ☐ YES ☐ NO Is there an obsolescence issue?
4. ☐ YES ☐ NO Is there an impact on plant reliability?
5. ☐ YES ☐ NO Is there an impact on SSC or personnel availability due to frequency of preventive maintenance?

If ALL the responses are NO, issue or activity screens to NO IMPACT and Reliability Importance is None.

If ANY response is YES, continue on to Step 2.

Reliability Importance – Step 2

Table 4-2 Matrix by Urgency and Potential Impact			
Time frame (in operating cycles) for action associated with the issue	Potential Impact of Action Resolving Issue (Duration of Plant Outage Avoided)		
	Day(s)	Week(s)	Month(s)
	Importance		
Long (≥ 2)	Very Low	Low	Medium
Short (< 2)	Low	Medium	High

NEI
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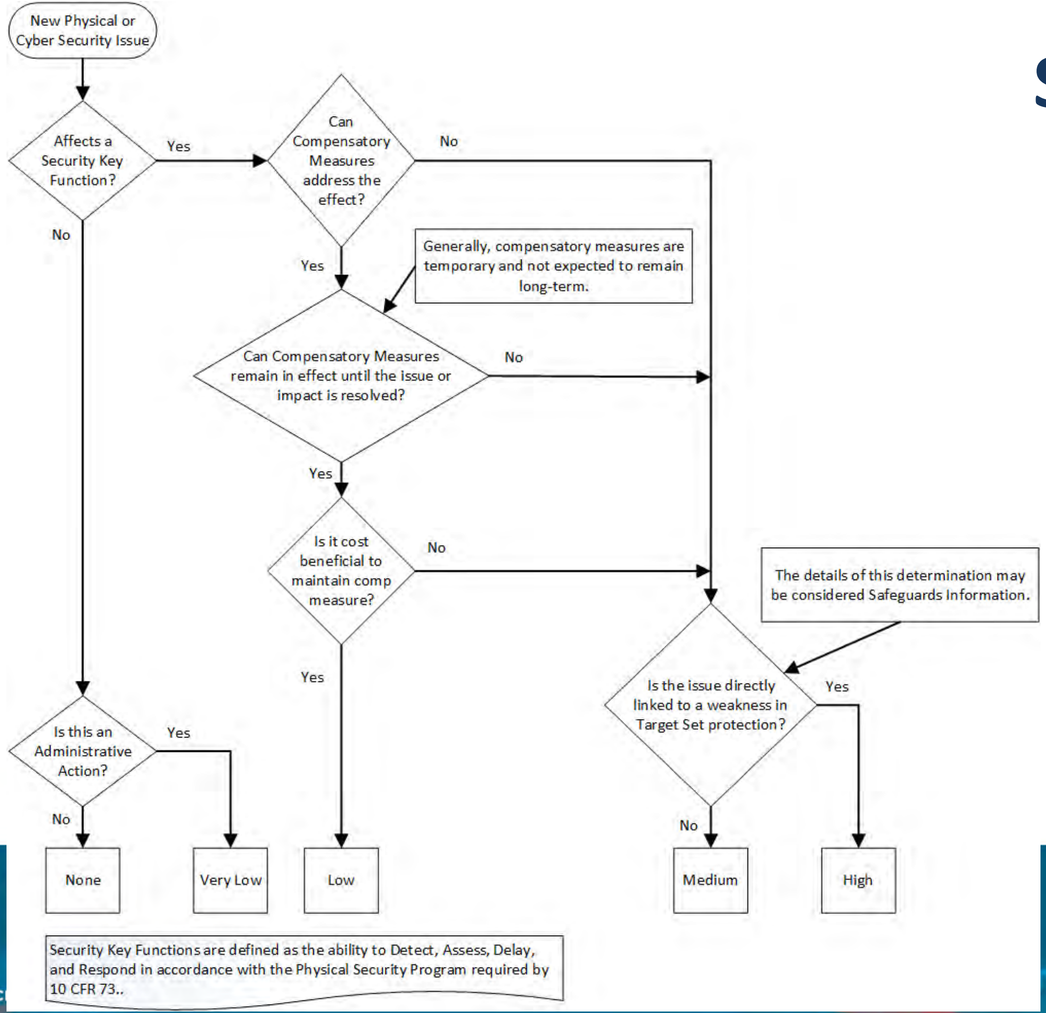
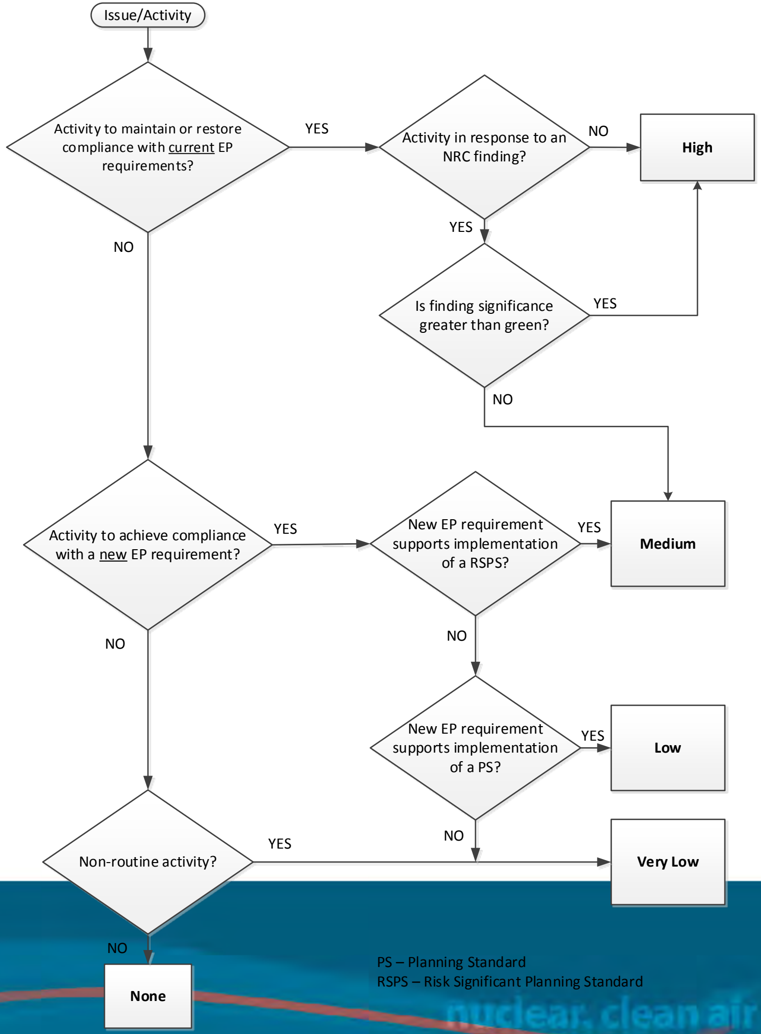
Security – Step 1 (Revised)



EP Importance – Step 1 (Revised)



PS – Planning Standard
RSPS – Risk Significant Planning Standard

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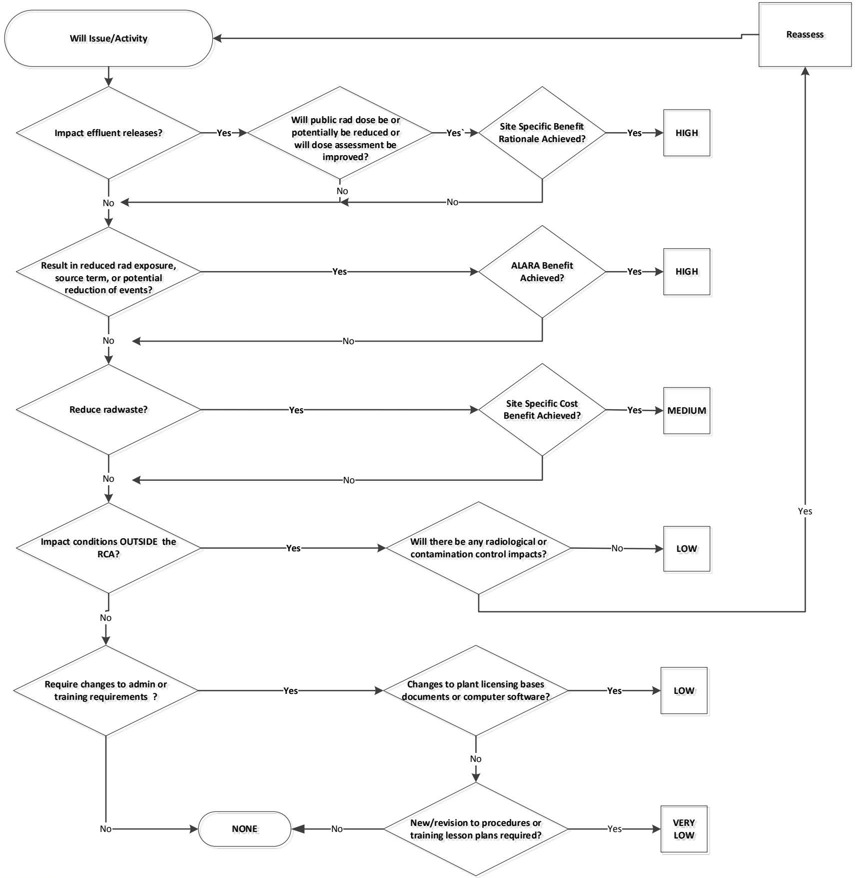
RP Importance – Step 1 (Revised)



Entergy Nuclear Excellence We Power Life

Palisades Power Plant

Advisory Committee on Reactor Safeguards

November 3, 2014

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Cumulative Impact Task Force

CITF Pilot

May through September 2014

Jim Miksa, Regulatory Assurance Engineer

Introduction

- **Entergy Interest**
  - Cumulative Impact Initiatives
  - 10 Sites with 12 Reactors
  - PWR and BWR designs
  - GE, CE, West, B&W NSSS designs
- **Palisades Selection**
  - Aging Management
  - Risk Informed Initiatives
  - Emergent Industry Issues

Pilot Application

- **SME Selection**
- **IDP Member Selection**
- **Training**
- **Pilot Schedule**
  - May – Site Lead Trained, Projects Selected
  - June – SME and IDP Members Selected, Process Training
  - July & August – Importance Evaluations
  - September – IDP Importance Review, Aggregation Meetings

Project 1 – Incipient Detection

Project Description

- Regulatory project in support of NFPA-805 license amendment.
- Incipient Detection, Very Early Warning Fire Detection System (VEWFDS), is an air aspirating type incipient fire detection system.
- Continually samples air to detect pre-combustion particles at the earliest stage of a fire (incipient stage) prior to visible/smoldering smoke.
- Allows for fire conditions to be identified in time for resolution prior to any noticeable fire damage.
- Installation planned for the Main Control Room, Cable Spreading Room, 1C & 1D Switchgear Rooms, Electrical Equipment Room, and both Station Battery Rooms.
- Replaces the existing fire alarm control panels that integrates the replacement detection, remaining detection, and control room annunciators.

Project 1 – Incipient Detection

Importance Evaluation

- Safety (Medium)
  - Step 1 – Any Impact
    - Q1 - Reduces Frequency of risk significant accident initiator (Fire)
    - Q5 – Improves defense in depth (Detect pre-combustion particles prior to visible smoke allowing resolution prior to noticeable fire damage.)

Project 1 – Incipient Detection

Importance Evaluation

- Safety (Medium)
  - Step 2 – More Than Minimal Impact
    - Q1 – Modification Allows crediting of detection in NFPA-805 fire scenarios which discernibly impacts core damage frequency in the Fire PRA by allowing assumed equipment lost to be limited to the fire scenario versus the entire fire area.
    - Q5 – Not more than minimal since allows for improved detection versus an added defense in depth function.

Project 1 – Incipient Detection

Importance Evaluation

- Safety (Medium)
  - Step 3a – Impact on Issue Risk (Qualitative)
    - Issue Risk Level – Red (H) LB for CDF based on risk value if allowance for sub-area detection can not be credited in fire PRA
    - Project Risk Reduction – High 90% based on system's ability detect fire at the incipient stage

Project 1 – Incipient Detection

Importance Evaluation - Step 3a – Impact on Issue Risk (Qualitative)

Table 3-1 Matrix by Current Risk and Potential Impact

UB is upper bound of the risk range; Mid is "mid-range" (0.3 times UB); LB is factor of 10 lower than UB[1]

Current Risk associated with Issue	Potential Impact of Action Resolving Issue (Reduction in Risk)				
	None	Very Small/Minimal	Small	Medium	High
	0%	0 to 25%	25 to 50%	50% to 90%	>90%
	Importance				
Green (VL) LB	<Very Low	<Very Low	<Very Low	<Very Low	<Very Low
Green (VL) Mid	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) UB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) LB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) Mid	Very Low	Very Low	Low	Low	Low
White (L) UB	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid	Very Low	Low	Medium	Medium	Medium
Yellow (M) UB	Very Low	Medium	Medium	Medium	Medium
Red (H) LB		Medium	Medium	Medium	Medium
Red (H) Mid		High	High	High	High
Red (H) UB		High	High	High	High

[1] The thresholds in the left column are consistent with the SDP and are (in units of per yr), for CDF: Green/White = 10^{-6}, White/Yellow = 10^{-5}, Yellow/Red = 10^{-4}; and for LERF: Green/White = 10^{-7}, White/Yellow = 10^{-6}, Yellow/Red = 10^{-5}.

- The Nuclear Safety Importance is: ☐<Very Low ☐Very Low ☐Low ☒Medium ☐High ☐Reassess to identify an effective activity/action

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Project 1 – Incipient Detection

Importance Evaluation

- Other Categories (None)
  - Security – System does not impact physical security barriers or cyber systems
  - Emergency Planning – System performs a preventive function vs mitigative function
  - Radiation Protection – System Located outside RCA
  - Reliability – New system

Project 1 – Incipient Detection

Prioritization and Scheduling

- NEI Process Priority 2
- Palisades Project Priority 2
- NEI Process Schedule Jun 2016
- Palisades Project Schedule Oct 2016
- Action to evaluate ability to move up in schedule

Project 2 – Open Phase

Project Description

- Regulatory issue associated with the January 30, 2012, Byron Station, Unit 2 Loss of Offsite Power Event.
- Installs an open phase monitoring and isolation system on Start Up Transformer 1-2 & Safeguards Transformer 1-1.
- Detects an open phase condition on the transformers' high side bushings.
- The system (OPDI) will accomplish the required automatic detection, isolation and trip annunciation functions necessary for the various open phase conditions (single OP, single OP with grounded fault, double OP, double OP with grounded fault with loaded, minimally loaded and no load conditions).
- Palisades is not vulnerable to a failure mechanism identical to Byron because all transformers of interest have insulators either in compression or are of dual insulator design.
- A generic industry Probability Risk Assessment (Open Phase Condition Industry Update) for OPC determined that there is a "Very Low" probability of this type of event occurring.

Project 2 – Open Phase

Importance Evaluation

- Safety (Very Low)
  - Step 1 – Any Impact
    - Q2 - Impacts availability of SSCs and availability / reliability of personnel should an OPC exist.

Project 2 – Open Phase

Importance Evaluation

- Safety (Very Low)
  - Step 2 – More Than Minimal Impact
    - Q1 – OPC Modification provides automatic detection and isolation which discernibly improves SSC availability and personnel availability and reliability impacts as compared to the current detection and isolation methods

Project 2 – Open Phase

Importance Evaluation

- Safety (Very Low)
  - Step 3b – Impact on Issue Risk (Quantitative)
    - Issue Risk Level – Green (VL) Mid for CDF based on associated issue risk value of

      2.5 E-7 from PRA model
    - Project Risk Reduction – High 90% based on system's ability detect and isolate a OPC condition

Project 2 – Open Phase

Importance Evaluation - Step 3b – Impact on Issue Risk (Quantitative)

Table 3-1 Matrix by Current Risk and Potential Impact

UB is upper bound of the risk range, Mid is "Mid range" (0.3 times UB), LB is factor of 10 lower than UB(1)

Current Risk associated with Issue	Potential Impact of Action Resolving Issue (Reduction in Risk)				
	None	Very Small/Minimal	Small	Medium	High
	0%	0 to 25%	25 to 50%	50% to 90%	>90%
	Importance				
Green (VL) LB	< Very Low	< Very Low	< Very Low	< Very Low	< Very Low
Green (VL) Mid	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) UB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) LB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) Mid	Very Low	Very Low	Low	Low	Low
White (L) UB	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid	Very Low	Low	Medium	Medium	Medium
Yellow (M) UB	Very Low	Medium	Medium	Medium	Medium
Red (H) LB		Medium	Medium	Medium	Medium
Red (H) Mid		High	High	High	High
Red (H) UB		High	High	High	High

1 -The thresholds in the left column are consistent with the SDP and are (in units of per yr), for CDF: Green/White = 10-6, White/Yellow = 10-5, Yellow/Red = 10-4; and for LERF: Green/White = 10-7, White/Yellow = 10-6, Yellow/Red = 10-5.

- The Nuclear Safety Importance is: ☐<Very Low ☒Very Low ☐Low ☐Medium ☐High ☐Reassess to identify an effective activity/action.

Project 2 – Open Phase

Importance Evaluation

– Other Categories (None)

- Security – System does not impact physical security barriers or cyber systems
- Emergency Planning – System performs a preventive function vs mitigative function
- Radiation Protection – Only Areas outside RCA impacted
- Reliability – New system

Project 2 – Open Phase

Prioritization and Scheduling

- NEI Process Priority 4
- Palisades Project Priority 18
- NEI Process Schedule Nov 2018
- Palisades Project Schedule May 2017
- Action to evaluate submitting an exemption to the OPC isolation function and maintain the monitoring function based on Palisades design.

Project 3 – "B" Cooling Tower

Project Description

- Rebuild the "B" Cooling Tower to ensure reliability through the end of current operating license (2031).
- "B" cooling tower is a wood structure that has been in service for 37 years
- Standard life expectancy for Redwood Cooling Tower Structures is 20 years.
- The Tower has been maintained by performing inspections and replacing members in accessible areas.
- Fill sections are not easily accessible and neither outage inspections nor routine walk downs can provide adequate inspection in these areas.
- There is an increased risk of cooling tower structural failure because the fill material surrounds the most heavily loaded columns in the tower, those that support the distribution header.
- The east end of the "B" Cooling Tower is experiencing bowing columns similar to "A" tower prior to replacement but to a lesser extent.
- Prior to replacement of "A" cooling tower the external visible evidence showed the columns in first 10 cells of the west end of "A" Tower were bowing by 6-8".

Project 3 – "B" Cooling Tower

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Importance Evaluation

- Safety (Very Low)
  - Step 1 – Any Impact
    - Q1 - Reduces frequency of risk significant accident initiator (Unplanned Power reduction)
    - Q5 – Improves defense in depth (Circulating water system to act as a heat sink via condenser)

Project 3 – "B" Cooling Tower

Importance Evaluation

- Safety (Very Low)
  - Step 2 – More Than Minimal Impact
    - Q1 – Not more than minimal (Operator transient training and operating history give high probability of recovering loss of vacuum prior to unit trip)
    - Q5 – Not more than minimal (Maintaining circulating water system as a defense in depth function is not discernable because of multiple other methods to remove decay heat, such as atmospheric dump valves, main steam relief valves, and once through cooling.

If ALL questions are answered NO, then the issue or activity screens to minimal impact and the Nuclear Safety Importance is VERY LOW.

Project 3 – "B" Cooling Tower

Importance Evaluation

- Reliability (High)
  - Step 1 – Any Impact
    - Q1 – Risk of SSC failure (OE Vermont Yankee and "A" tower gives an increased risk of tower failure from this condition)
    - Q2 – Replacement Lead Time Impact (Repairs of failed tower would take a minimum 3 months, with an additional 1-2 month design, sourcing, and mobilization effort.)
    - Q4 – Plant Reliability Impact (Require an immediate derate to 55% for a minimum of 3 months)
    - Q5 – Preventive Maintenance Impact (Increased PM scope due to tower age)

Project 3 – "B" Cooling Tower

Importance Evaluation

- Reliability (High)
  - Step 2 – Reliability Importance
    - Timeframe for Action – Short (<2 cycles) based on based on VY OE, PAL "A" Tower condition at replacement, tower age, inability to inspect
    - Potential Unit Outage Time Avoided – Months ($\geq$ 60 days) based on time to repair a failed tower.

Project 3 – "B" Cooling Tower

Importance Evaluation - Reliability – Urgency and Potential Impact

Table 4-2 Matrix by Urgency and Potential Impact			
Time frame (in operating cycles) for action associated with the issue	**Potential Impact of Action Resolving Issue (Duration of Plant Outage Avoided)**		
	Day(s)	Week(s)	Month(s)
	Importance		
Long (≥ 2)	Very Low	Low	Medium
Short (< 2)	Low	Medium	High

- The Reliability Importance is: ☐Very Low ☐Low ☐Medium ☒High

Project 3 – "B" Cooling Tower

Importance Evaluation

- Other Categories (None)
  - Security – No impact system does not impact physical security barriers or cyber systems located outside protected area
  - Emergency Planning – No Impact system is not relied upon for accident mitigation
  - Radiation Protection – No Impact areas outside RCA

Project 3 – "B" Cooling Tower

Prioritization and Scheduling

• NEI Process Priority	2
• Palisades Project Priority	4
• NEI Process Schedule	May 2017
• Palisades Project Schedule	May 2017

Aggregation and Scheduling

- **Assigned NEI Priority**
- **Pairwise Comparison between NEI Priorities**
  - Exception taken – Install Permanent Reactor Cavity Fall Protection downgraded priority 3 to 4.
- **Pairwise Comparison with-in NEI Priority**
- **Assign Palisades Priority**
- **Schedule Completion Dates Assigned**

Aggregation and Scheduling

NEI Priority Guidance

5.0 AGGREGATION TO DETERMINE PRIORITY

After the plant IDP has assigned each issue a level of importance (high, medium, low, very low, or none) in each of the five categories (Safety, Security, EP, RP, and Reliability), the following criteria are used to assign the issue a priority level from 1 to 5. Prioritization and scheduling will be periodically updated based on plant-specific planning, e.g., annually in conjunction with updates to the business plan.

Priority 1

- Issue defined by NRC as adequate protection, OR
- High for Safety, OR
- Two or more Highs for any of the four other categories (Security, EP, RP, Reliability)

Priority 2

- Medium for Safety, OR
- One High for any of the four other categories, OR
- Two or more Mediums for any of the four other categories

Priority 3

- Low for Safety, OR
- One Medium for any of the four other categories, OR
- Two or more Lows for any of the four other categories

Priority 4

- Very Low for safety, OR
- One Low for any of the four other categories

Priority 5

- Does not meet any of the criteria for Priorities 1 through 4

Aggregation and Scheduling

Priority Assignment Examples

Issue	Category	Importance Category					NEI Priority	Palisades Priority
		Safety	Emergency Planning	Radiation Protection	Security	Reliability		
Additional High Head Diesel Driven Aux Feedwater Pump	Regulatory	Medium	None	None	Very Low	None	2	1
Incipient Detection for Cable Spreading, electrical equipment room	Regulatory	Medium	None	None	None	None	2	2
Cooling Tower E-30B Replacement due to Aging	Plant Improvement	Very Low	None	None	None	High	2	4
Combine EOPs and SAMGs into one Procedure	Regulatory	Low	Very Low	None	None	None	3	7
Replace Refueling Machine Control Consoles due to Aging	Plant Improvement	None	None	None	None	Low	4	8
Install Permanent Personnel Fall Protection at Rx Cavity Tilt Pit	Plant Improvement	None	None	Meduim	None	None	4	11
Reliable Spent Fuel Pool Instrumentation Installation	Regulatory	Very Low	None	None	None	None	4	12
Develop and install an electrical open phase detection and isolation	Regulatory	Very Low	None	None	None	None	5	18
Replace pressurizer heater breakers due to Accelerated Aging from Elevated Ambient Temperatures	Plant Improvement	None	None	None	None	None	5	19

Aggregation and Scheduling

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- NEI Scheduling guidance
- Identify each project as Outage or On-Line
- Sort each group (Outage and On-Line) per NEI/Palisades priority
- Based on plant conditions (i.e. Outage train windows) assign target completion dates
- Based on available resources (Personnel, Budget, etc.) adjust completion dates

Aggregation and Scheduling

NEI Scheduling guidance

- Sufficient resources (financial and skilled personnel) should be dedicated to Priority 1 activities.
- Priority 2 activities should be worked after maximum feasible resources are assigned to all Priority 1 activities.
- Priority 3 activities should be worked after maximum feasible resources are assigned to all Priority 1 and 2 activities.
- Priority 4 activities should be worked after maximum feasible resources are assigned to all Priority 1, 2 and 3 activities.
- Priority 5 activities should be worked after maximum feasible resources are assigned to all Priority 1, 2, 3 and 4 activities.

Aggregation and Scheduling

Schedule Completion Dates Assignment Examples

Issue	Plant Condition	Current Schedule	Pilot Scheduled	Comments
Additional Diesel Driven Auxiliary Feedwater Pump (NFPA-805)	Outage	MAY 2017	MAY 2017	First left train outage to support modification implementation is 1R25.
Incipient Detection in Cable Spreading and Electrical Equipment Room (NFPA-805)	On-Line	OCT 2016	JUN 2016	Discuss with fleet projects the ability to move up modification implementation to before Jun 2016.
Cooling Tower E-30B Replacement (Aging)	Outage	MAY 2017	MAY 2017	
Combine Emergency Operating Procedures and Severe Accident Management Guidelines into one Procedure (Fukushima)	On-Line	DEC 2016	JUN 2016	
Replace Refueling Machine Control Consoles (Aging)	Outage	MAY 2017	MAY 2017	
Permanent Personnel Fall Protection Install at Rx Cavity Tilt Pit (Personnel Safety)	Outage	OCT 2015	OCT 2015	Resources available to complete in 1R24 without impacting higher priority projects.
Reliable Spent Fuel Pool Instrumentation Installation (Fukushima)	On-Line	JAN 2015	DEC 2017	Project is currently designed and funded for installation in 2015
Install Electrical Open Phase Detection and Isolation (NRC Bulletin)	Outage	MAY 2017	NOV 2018	Isolation function placed in service after 18 months of monitoring. Consider exemption to not install isolation function.
Replace Pressurizer Heater Breakers (Aging)	On-Line	MAR 2015	JUN 2019	

Aggregation and Scheduling

Aggregation Actions:

- Consider feasibility of installing incipient detection earlier than currently scheduled (Currently October 2016).
- Request procedure change for addition of PRA risk insights to Plant Health Committee discussions and priority assignments.
- Consider use of PRA insights as a basis for an exemption from the open phase isolation function.

Lessons Learned

Value/Benefit

- Issue characterization evaluations provided a systematic approach using PRA insights to consistently determine the importance of projects .
- Characterization evaluations completed by SMEs and reviewed by site senior leadership provides valuable input used to make risk informed decisions on project priority.
- The project aggregation through pairwise comparison of project benefits aids in maintaining a risk reduction focus when allocating limited resources.
- IDP meetings provided a venue for station senior leadership to align priorities including key members of the plant health committee.
- The NEI process provides a common platform for the industry and the NRC staff to discuss the risk benefits of individual issues/projects.

Lessons Learned

Process Improvement Opportunities

- Completed importance evaluations, new importance evaluations, and emergent importance evaluations require re-aggregation on a periodic or emergent basis.
- Project scope definition is critical to the quality of the importance evaluation and has a significant impact on time spent completing the importance evaluation.
- The training material assumed the SMEs had a basic understanding of 50.59 evaluations and an intermediate understanding of PRA modeling.
- During aggregation and scheduling the IDP panel discussions affecting prioritization and scheduling should be documented.

Plant Hatch Cumulative Impacts Pilot
Advisory Committee on Reactor Safeguards

Greg Johnson – Regulatory Affairs Mgr

11/03/2014

SOUTHERN COMPANY

Hatch CITF Pilot

Danny Bost (Southern Nuclear CNO) is Chairman, NEI Cumulative Impact Working Group.

Danny Bost asked Hatch be a CITF Pilot Plant.

Original vision was a process which would allow for re-schedule of NRC related projects and even removal of projects based on risk.   An “everything on the plate” perspective.

Hatch CITF Pilot

Hatch Pilot Preparation:

20 Projects selected to Pilot.

Core Team established to perform individual assessments with subject matter experts.

NEI Training conducted with Pilot kick off.

Pilot Integrated Decision-Making Panel (IDP) selected. Same as Maintenance Rule expert panel.

Hatch CITF Pilot

Hatch Pilot Preparation:

Pilot Integrated Decision-Making Panel (IDP).

Regulatory Affairs Manager

OPS Control Room SRO (2)

Work Controls Planner

Engineering Supervisor

Maintenance Manager

Licensing Supervisor

Risk Informed (PRA) – Principal Engineer

Licensing Engineer (3)

Hatch CITF Pilot

Hatch Issue Prioritization:

20 Projects Total

6 Projects were related to NRC Commitments

1 Project NEI Commitment (Open Phase)

13 Projects, Plant Health

Hatch CITF Pilot

Project	Project Description	Comments
1	HPCI Controls Replacements	Plant Health, Obsolescence issue
2	RCIC Controls Replacements	Plant Health, Obsolescence issue
3	Battery Charger Replacement	Plant Health, Obsolescence issue
4	600V Breaker Replacements	Plant Health, Obsolescence issue
5	MSIV Conversion	Plant Health, Component Upgrade
6	Safety Relief Valve Upgrades	Plant Health, Component Upgrade
7	Motor Control Center Pan Assemblies	Plant Health, Obsolescence issue
8	EDG Improvements	Plant Health, System Upgrade
9	Rx Building Roof	Plant Health, Material Condition
10	Seismic Monitoring System	Plant Health, Obsolescence issue
11	Diagonal Cooler Replacements	Plant Health, Material Condition
12	EDG Excitation Panels	Plant Health, Obsolescence issue
13	NFPA-805	NRC Commitment: Not able to assess.
14	Cyber Security	NRC Rule
15	Reliable Spent Fuel Pool Instrumentation	NRC Flex Order
16	Open Phase Protection	NRC Bulletin . NEI commitment no firm NRC commitment.
17	License Renewal Commitments	NRC Program Commitment: Too broad to review.
18	Diesel Generator LOCA/LOSP Timer Cards	Plant Health, Component Upgrade
19	Degraded Grid Transformers	NRC CDBI Finding W Commitment date
20	Weld Overlay	NRC Program Commitment (ISI)
	NRC Commitment Related	

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Hatch CITF Pilot

Project	Project Description	Comments
1	HPCI Controls Replacements	Plant Health, Obsolescence issue
2	RCIC Controls Replacements	Plant Health, Obsolescence issue
3	Battery Charger Replacement	Plant Health, Obsolescence issue
4	600V Breaker Replacements	Plant Health, Obsolescence issue
5	MSIV Conversion	Plant Health, Component Upgrade
6	Safety Relief Valve Upgrades	Plant Health, Component Upgrade
7	Motor Control Center Pan Assemblies	Plant Health, Obsolescence issue
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19	Degraded Grid Transformers	NRC CDBI Finding W Commitment date
20	Weld Overlay	NRC Program Commitment (ISI)
	NRC Commitment Related	

Hatch Pilot Projects

Project	Project Description	Comments
1	HPCI Controls Replacements	Plant Health, Obsolescence issue
2	RCIC Controls Replacements	Plant Health, Obsolescence issue
3	Battery Charger Replacement	Plant Health, Obsolescence issue
4	600V Breaker Replacements	Plant Health, Obsolescence issue
5	MSIV Conversion	Plant Health, Component Upgrade
6	Safety Relief Valve Upgrades	Plant Health, Component Upgrade
7	Motor Control Center Pan Assemblies	Plant Health, Obsolescence issue
8	EDG Improvements	Plant Health, System Upgrade
9	Rx Building Roof	Plant Health, Material Condition
10	Seismic Monitoring System	Plant Health, Obsolescence issue
11	Diagonal Cooler Replacements	Plant Health, Material Condition
12	EDG Excitation Panels	Plant Health, Obsolescence issue
13	NFPA-805	NRC Commitment: Not able to assess.
14	Cyber Security	NRC Rule
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17	License Renewal Commitments	NRC Program Commitment: Too broad to review.
18	Diesel Generator LOCA/LOSP Timer Cards	Plant Health, Component Upgrade
19	Degraded Grid Transformers	NRC CDBI Finding W Commitment date
20	Weld Overlay	NRC Program Commitment (ISI)
	NRC Commitment Related	

Hatch Pilot Project – SRV's

SRV Project

- Replace the existing Hatch U1 and U2 two-stage pilot operated Main Steam Safety/Relief Valves (SRVs) with 3-stage pilot operated SRVs. The 3-stage SRVs have a modified pilot that helps reduce the possibility of an inadvertent lift and leak by.
- One of 11 U2 SRVs was replaced with a 3-Stage in 2013.
- All eleven U1 SRVs were replaced during the 2014 refueling outage and replaced with 3-stage SRVs.
- Remaining 10 of 11 U2 SRVs will be replaced in 2015.

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Hatch Pilot Project – SRV's

SRV Project (continued)

<u>Importance Evaluation</u>

Safety (low)

- Step 1- Any Impact?
  - Q2 – Yes, Increased reliability of a SSC relied upon to mitigate a risk significant transient.
  - Q4 – Yes, Result in an impact in capability of fission product barrier.   SRV is part of RPV boundary.

Hatch Pilot Project – SRV's

SRV Project (continued)

<u>Importance Evaluation</u>

Safety (low)

- Step 2- More than minimal impact?
  - Q2 – Yes, Improved reliability greatly reduces or eliminates the need for mid-cycle shutdown to replace. More than minimal improvement.
  - Q4 – No, Result in an impact in capability of fission product barrier. Not more than minimal. Past strategy to replace ensure capability of the SRV.

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Hatch Pilot Project – SRV's

SRV Project (continued)

Importance Evaluation

Safety (low)

- Step 3a – Impact to risk (Qualitative)
  - The two stage SRV have a history of pilot valve leaking requiring mid-cycle shutdown. Replacing the SRV pilot mid-cycle results in a direct opening between the RPV and Primary Containment. During the mid cycle outage the decay heat levels are high with short reactor coolant boiling times. This results in higher than nominal shutdown risk levels. Because of this the existing risk evaluates to White with the improvement in risk as Medium. This yields an overall Safety Importance of Low.

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Hatch Pilot Project – SRV’s

Table 3-1 Matrix by Current Risk and Potential Impact					
UB is upper bound of the risk range; Mid is “mid-range” (0.3 times UB); LB is factor of 10 lower than UB[1]					
Current Risk associated with Issue	Potential Impact of Action Resolving Issue (Reduction in Risk)				
	None	Very Small/Minimal	Small	Medium	High
	0%	0 to 25%	25 to 50%	50% to 90%	>90%
	Importance				
Green (VL) LB	<Very Low	<Very Low	<Very Low	<Very Low	<Very Low
Green (VL) Mid	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) UB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) LB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) Mid	Very Low	Very Low	Low	Low	Low
White (L) UB	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid	Very Low	Low	Medium	Medium	Medium

Hatch Pilot Project – SRV's

SRV Project (continued)

<u>Importance Evaluation</u>

Other Categories:

- Security (none)
- Emergency Planning (none)
- Radiation Protection (none)
- Reliability (Low)

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Hatch Pilot Project - SRVs

<u>Prioritization and Scheduling</u>

• NEI Process Priority	3
• Hatch IDP Priority	2
• Project Schedule	March, 2015*

*Unit 1 is complete. Unit 2 will complete March 2015

Hatch Pilot Project – EDG Excitation

EDG Excitation Project

- The standby ac power supply consists of five diesel generators for both Hatch Nuclear Plant Units 1 and 2 and supplies standby power for 4160-V emergency service buses.
- If an EDG is determined to be INOPERABLE, the Technical Specification Required Action Statement is to return the system to OPERABLE status within 14 days and if not returned to OPERABLE status within 14 days to then be in Mode 3 in 12 hours and Mode 4 in 36 hours.
- EDG is also a MSPI system.
- The EDG System Excitation Panels are subcomponents of the EDG which enable the generator to achieve the required output voltage. About 60% of the parts of the Excitation Panels are obsolete.
- Present project plans are to replace the EDG Excitation Panels one per refueling outage starting in 2015. The excitation panels currently installed in the plant are functioning reliably as designed. A limited quantity of spare parts is available on site. In the event failures were to start occurring, the replacement schedule would need to be accelerated due to depletion of the spare parts.

Hatch Pilot Project – EDG Excitation

EDG Excitation Project (continued)

Importance Evaluation

Safety (very low)

- Step 1- Any Impact?
  - Q2– Yes, Improvement in reliability of SSC used to mitigate an accident.

Hatch Pilot Project – EDG Excitation

EDG Excitation (continued)

Importance Evaluation

Safety (very low)

- Step 2- More than minimal impact?
  - All Questions - No
  - Q2 – No, Reliability is not impacted at present and spare parts are presently available. With parts bridging strategy and implementation plan should not be a more than minimal impact to EDG reliability.

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Hatch Pilot Project – EDG Excitation

EDG Excitation (continued)

<u>Importance Evaluation</u>

Other Categories:

- Security (none)
- Emergency Planning (none)
- Radiation Protection (none)
- Reliability (Medium)

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Hatch Pilot Project – EDG Excitation

<u>Prioritization and Scheduling</u>

• NEI Process Priority	3
• Hatch IDP Priority	3
• Project Schedule	March, 2020

Hatch Pilot Project – Degraded Grid

Degraded Grid

- With the existing medium voltage distribution system configuration, if grid voltage were to degrade, a small voltage band exists where manual operator action would be required to switch power to the diesel generator. If this condition happened concurrent with a loss of coolant accident (LOCA) it is possible that voltage margins would be too low to allow the required motors needed to mitigate the consequences of a LOCA to start.
- The proposed solution increases the number and size of the startup transformers to address this situation. Larger transformers would have lower impedance. More transformers would split loads, thereby using less current which results in a lower voltage drop. This helps to reduce voltage losses thereby increasing voltage margins.
- Logic would be introduced that would automatically tie to different off-site power, during a LOCA, when a grid under-voltage alarm is received.

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Hatch Pilot Project – Degraded Grid

Degraded Grid (continued)

<u>Importance Evaluation</u>

Safety (very low)

- Step 1- Any Impact?
  - Q1 – Yes, Impact to accident initiator. LOSP
  - Q2 – Yes, Increased reliability of a SSC relied upon to mitigate an accident.
  - Q5, - Yes, impact to defense in depth.

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Hatch Pilot Project – Degraded Grid

Degraded Grid (continued)

Importance Evaluation

Safety (very low)

- Step 2- More than minimal impact?
  - Q1 – Yes, 3rd transformer reduces likelihood of accident initiator.
  - Q2 – Yes, improved reliability.
  - Q5 – Yes, 3rd transformer provides defense in depth.

Hatch Pilot Project – Degraded Grid

Degraded Grid (continued)

Importance Evaluation

Safety (very low)

- Step 3a – Impact to risk (Quantitative)
  - Existing Risk: Degraded Grid X LOCA= 1.34 E-10.
  - Improved Risk due after 3rd transformer installed.
  - Increased Risk during implementation.
  - Net result is little improvement overall.

Hatch Pilot Project – Degraded Grid

Table 3-1 Matrix by Current Risk and Potential Impact					
UB is upper bound of the risk range; Mid is "mid-range" (0.3 times UB); LB is factor of 10 lower than UB[1]					
Current Risk associated with Issue	Potential Impact of Action Resolving Issue (Reduction in Risk)				
	None	Very Small/Minimal	Small	Medium	High
	0%	0 to 25%	25 to 50%	50% to 90%	>90%
	Importance				
Green (VL) LB	<Very Low	<Very Low	<Very Low	<Very Low	<Very Low
Green (VL) Mid	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) UB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) LB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) Mid	Very Low	Very Low	Low	Low	Low
White (L) UB	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid	Very Low	Low	Medium	Medium	Medium

Hatch Pilot Project – Degraded Grid

Degraded Grid (continued)

Importance Evaluation

Other Categories:

- Security (none)
- Emergency Planning (none)
- Radiation Protection (none)
- Reliability (Low)

Hatch Pilot Project – Degraded Grid

Prioritization and Scheduling

• NEI Process Priority	4
• Hatch IDP Priority	4
• Project Schedule	March, 2020

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Hatch Pilot Projects - Aggregation

		Step 2					Step 3	Other					
Project	Project Description	Q1	Q2	Q3	Q4	Q5	Safety Risk Assessment	Cyber	EP	RP	Reliab	NEI Priority	Comments
1	HPCI Controls Replacements	N	N	N	N	N	VL	N	N	N	Med	3	Plant Health, Obsolescence issue
2	RCIC Controls Replacements	N	N	N	N	N	VL	N	N	N	Med	3	Plant Health, Obsolescence issue
3	Battery Charger Replacement	N	N	N	N	N	VL	N	N	N	Low	4	Plant Health, Obsolescence issue
4	600V Breaker Replacements	N	N	N	N	N	VL	N	N	N	Low	4	Plant Health, Obsolescence issue
5	MSIV Conversion	N	N	N	N	N	VL	N	N	N	Low	4	Plant Health, Component Upgrade
6	Safety Relief Valve Upgrades	N	Y	N	N	N	Low	N	N	N	Low	3	Plant Health, Component Upgrade
7	Motor Control Center Pan Assemblies	N	N	N	N	N	VL	N	N	N	Low	4	Plant Health, Obsolescence issue
8	EDG Improvements	N	N	N	N	N	VL	N	N	N	Med	3	Plant Health, System Upgrade
9	Rx Building Roof	N	N	N	N	N	None	N	N	N	None	5	Plant Health, Material Condition
10	Seismic Monitoring System	N	N	N	N	N	VL	N	N	N	Low	4	Plant Health, Obsolescence issue
11	Diagonal Cooler Replacements	N	N	N	N	N	VL	N	N	N	Med	3	Plant Health, Material Condition
12	EDG Excitation Panels	N	N	N	N	N	VL	N	N	N	Med	3	Plant Health, Obsolescence issue
13	NFPA-805												NRC Commitment: Not able to assess.
14	Cyber Security	Y	Y	Y	N	Y	VL	Med	VL	N	Med	2	NRC Rule
15	Reliable Spent Fuel Pool Instrumentation	N	N	N	N	N	VL	N	N	Med	None	3	NRC Flex Order
16	Open Phase Protection	N	Y	N	N	Y	VL	N	N	N	Low	4	NRC Bulletin . NEI commitment no firm NRC commitment.
17	License Renewal Commitments												NRC Program Commitment: Too broad to review.
18	Diesel Generator LOCA/LOSP Timer Cards	N	N	N	N	N	V/L	N	N	N	Low	4	Plant Health, Component Upgrade
19	Degraded Grid Transformers	Y	Y	N	N	Y	VL	N	N	N	Low	4	NRC CDBI Finding W Commitment date
20	Weld Overlay	N	N	N	N	N	VL	N	N	N	High	2	NRC Program Commitment (ISI)
	NRC Commitment Related												

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Hatch Pilot Project - Aggregation

SNC Edwin I. Hatch Nuclear Plant Cumulative Effect Pilot Aggregation															
		Step 2					Step 3	Other Importance				Priority and Schedule			
Project	Project Description	Q1	Q2	Q3	Q4	Q5	Safety Risk Assessment	Cyber	EP	RP	Reliab	NEI Priority	Ranking	General Comments
17	License Renewal Commitments												N/A	NRC Commitment: Too broad to review.
13	NFPA-805												N/A	NRC Commitment: Not able to assess at this point in the 805 process.
20	Weld Overlay	N	N	N	N	N	VL	N	N	N	High	2	1	NRC Commitment (ISI Plan)
6	Safety Relief Valve Upgrades	N	Y	N	N	N	Low	N	N	N	Low	2	2	Plant Health
14	Cyber Security	Y	Y	Y	N	Y	VL	Med	VL	N	Med	2	3	NRC Commitment (Cyber)
15	Reliable Spent Fuel Pool Instrumentation	N	N	N	N	N	VL	N	N	Med	None	3	6	NRC Commitment (FLEX)
1	HPCI Controls Replacements	N	N	N	N	N	VL	N	N	N	Med	3	3	Plant Health
2	RCIC Controls Replacements	N	N	N	N	N	VL	N	N	N	Med	3	4	Plant Health
8	EDG Improvements	N	N	N	N	N	VL	N	N	N	Med	3	2	Plant Health
11	Diagonal Cooler Replacements	N	N	N	N	N	VL	N	N	N	Med	3	5	Plant Health
12	EDG Excitation Panels	N	N	N	N	N	VL	N	N	N	Med	3	1	Plant Health
3	Battery Charger Replacement	N	N	N	N	N	VL	N	N	N	Low	4	4	Plant Health
4	600V Breaker Replacements	N	N	N	N	N	VL	N	N	N	Low	4	3	Plant Health
5	MSIV Conversion	N	N	N	N	N	VL	N	N	N	Low	4	2	Plant Health
7	Motor Control Center Pan Assemblies	N	N	N	N	N	VL	N	N	N	Low	4	5	Plant Health
10	Seismic Monitoring System	N	N	N	N	N	VL	N	N	N	Low	4	8	Plant Health
16	Open Phase Protection	N	Y	N	N	Y	VL	N	N	N	Low	4	7	NEI commitment no firm NRC commitment.
18	Diesel Generator LOCA/LOSP Timer Cards	N	N	N	N	N	VL	N	N	N	Low	4	1	Plant Health
19	Degraded Grid Transformers	Y	Y	N	N	Y	VL	N	N	N	Low	4	6	NRC Commitment (Hatch CDBI)
9	Rx Building Roof	N	N	N	N	N	None	N	N	N	N/A	5	1	Plant Health
	NRC Commitment Related													

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Hatch Pilot - Schedule

						2R23	1R27				
		Priority and Schedule			Outage	U2	U1	U2	U1	U2	U1
Project	Project Description	NEI Priority	Ranking	Scheduling Comments	2014	2015	2016	2017	2018	2019	2020
17	License Renewal Commitments			Perform as Scheduled. Programmatic improvments					July, 2018		
13	NFPA-805			Perform as Scheduled, LAR to the NRC by 10/4//2016			LAR to NRC Oct, 2016				
20	Weld Overlay	2	1	Perform as Scheduled. Last Outage opportunity before the end of the inspection period.		2R23					
6	Safety Relief Valve Upgrades	3	2	Perform as Scheduled. U1 complete. U2 in 2R23 in 2015.		2R23					
14	Cyber Security	2	3	Perform as Scheduled, Cyber Milestone 8 required to be complete 12/31/2016			MS 8 12/31/2016				
15	Reliable Spent Fuel Pool Instrumentation	3	6	Perform as Scheduled, Plan is to implement Fall 2015.			U1 3/2016, U2 12/2016				
1	HPCI Controls Replacements	3	3	Perform as Scheduled, Unit 1 NO 2018, Unit 2 NO 2019.					Unit 1 NO	Unit 2 NO	
2	RCIC Controls Replacements	3	4	Perform as Scheduled. Unit 1 NO 2016, Unit 2 NO 2017.			Unit 1 NO	Unit 2 NO			
8	EDG Improvements	3	2	Perform as Scheduled. % D/G's. 1 D/G per year (2015, 2016, 2017, 2018, 2020)		NO	NO	NO	NO		NO
11	Diagonal Cooler Replacements	3	5	Perform as Scheduled		U2 RHR/CS	U1 RHR/CS U1 RCIC	U2 RCIC			
12	EDG Excitation Panels	3	1	Perform as Scheduled		2A D/G	1C D/G	2C D/G	1A D/G		1B D/G
3	Battery Charger Replacement	4	4	Perform as Scheduled. U1 NO 2014, U2 NO 2015	U1 (NO)	U2 (NO)					
4	600V Breaker Replacements	4	3	Perform as Scheduled. Several/year thru 2019							
5	MSIV Conversion	4	2	Perform as Scheduled. U2 only, 3 in 2015, 3 in 2017.		U2 (3)		U2 (3)			
7	Motor Control Center Pan Assemblies	4	5	Perform as Scheduled. Several/year thru 2018							
10	Seismic Monitoring System	4	8	Could re-schedule, Obsolescence					U1	U2	
16	Open Phase Protection	4	7	Reassess based on on-going Industry/ NRC discussions. NEI Commitment date 12/2017			U1	U2			
18	Diesel Generator LOCA/LOSP Timer Cards	4	1	Could re-schedule		2A D/G	1B D/G	2C D/G			
19	Degraded Grid Transformers	4	6	Could re-schedule. Committment Date is March 2020							U1&U2
9	Rx Building Roof	5	1	Activity is in progress. Could have been rescheduled.	In Progress						

Hatch Lessons Learned

Not every Project can be assessed by this process.

The aggregation process seems particularly valuable as a tool for looking at everything with the same perspective.

Hatch Pilot – Value Added

- Project Aggregation is beneficial.
- Provides an “everything on the plate” perspective.
- Rigorous and repeatable process.
- PRA insight driven, not a PRA science project.
- Reliability component is a needed and necessary part of the assessment tool. It provided needed input to make sure you are doing the right thing based on risk.

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Hatch Pilot – Final Perspective

20 Projects assessed.

After Aggregate Review only 1 NRC related Project selected for a potential commitment date change. Change from a March 2020 date to a March 2022 date.

Any schedule change still requires NRC approval.

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Cumulative Effects of Regulation

Pilot Results-Robinson Nuclear Plant

DUKE ENERGY®

Robinson Pilot Experience

- Robinson Site Lead – Sonja Myers
  - Engineering Manager – Equipment Reliability
    - 3 years Robinson Experience
    - 32 years Nuclear Engineering Experience at
      - Equipment Reliability
      - Design
      - Licensing
      - Project Management
    - Multiple Stations
      - Robinson
      - Palo Verde
      - Comanche Peak
      - Prairie Island

Introduction of Robinson Participation in Pilot

- Duke Participation:
  - Opportunity to Optimize Use of Limited Resources
  - Immediate Need to Prioritize Regulatory Actions Against Plant-Identified Actions
    - Commensurate with Safety Significance and Cost Effectiveness
  - Better Prioritization Leads to Improved Plant Safety

- Robinson Nuclear Plant
  - Cost Impact of Each Issue for Single Unit Sites is Greater
  - Pre-GDC Plants Pose Opportunities for Unique Challenges
  - Opportunity based on Operating Cycle (i.e. No outage in 2014)

Selection of Integrated Decision Making Panel

- Panel Makeup
  - Diverse Panel Selected
    - Senior Management
    - Operations
    - Engineering
    - PRA
    - Licensing
    - Maintenance
    - Training
  - Included
    - Duke Fleet Experience
    - Robinson Specific
    - Outside Duke Experience

Selection of Integrated Decision Making Panel

- Site Director – Mike Glover – 40 years of Duke experience including Engineering, Operations and Senior Station Management at 3 Duke sites as well as Corporate
- Operations – Chris Orr-30 years nuclear experience. Held RO and SRO licenses at Catawba. On-Line Corporate Functional Area Manager (CFAM) in Nuclear Corporate. Assistant Ops Manager Robinson
- Major Projects – Terry Simonson - 30 years of Nuclear at Duke. Held various leadership roles at the site in Engineering and Maintenance.
- Probabilistic Risk Analysis – Bruce Morgen- 35 years of nuclear experience and is the Manager of PRA Applications for the Brunswick, Harris and Robinson Nuclear Plants
- Licensing- Richard Hightower 33 years of Nuclear experience including Program Engineering and is the Manager of Nuclear Regulatory Affairs at the Robinson Nuclear Plant.
- Ops Training – Robert Shane - 30 years of Nuclear experience. SRO at Robinson and was licensed for 18 years. Supervisor of Operator Initial Training.
- Engineering – Gary Swider - 38 years of nuclear experience. He has extensive experience in engineering management at St Lucie Power and Millstone. Engineering Recovery Manager for RNP

Issue Prioritization

- Selection Process
  - Regulatory Issues Currently under Scoping, Design or Implementation
  - Reliability Issues near the funding line
  - Included Personal Safety, Emergency Plan Impacts, and Projects with Dose Impacts
  - Issues as Recommended by Station Management

Issue Prioritization

- 11 Regulatory Based Projects
  - NFPA 805 Mods (3)
  - Fukushima Mods (2)
  - Cyber-security
  - TSTF 523 implementation
  - Insulation Replacement for GSI-191
  - Open Phase – Byron Event
  - MRP-227A material change-out
  - Lake Level Indication

Issue Prioritization

- 11 Reliability based Projects
  - Loss of RCP Seal Cooling
  - LCV-1417A fail open to fail closed
  - Local Operator Action to Reset Breaker to Instrument Air Compressor
  - Operator Burden- Inhibiting Fire Suppression
  - Replace existing Vacuum switches
  - Replace System 6185 Cable Vault CO2 system
  - Install Communication Repeater in Containment
  - Diaphragm Valve replacement
  - Loose Parts Monitoring Upgrade
  - Isolation valve in RWST Supply to charging pumps pipe 4-SI-82
  - Replace B-Battery with Larger Battery

- Review of Example Evaluations
  - TSTF-523 Implementation
  - Replacement of B Battery with a Larger Capacity Battery
  - Installation of the Westinghouse RCP Shutdown Seals

TSTF-523 Evaluation

TSTF-523 proposed modifying the existing Surveillance Requirements (SRs) related to gas accumulation for the Emergency Core Cooling Systems(ECCS) and adds new SRs on entrained gas to the specifications governing the Residual Heat Removal (RHR) , Shut Down Cooling(SDC) and Containment Spray (CS) systems. Existing SRs are revised to facilitate the performance of the gas accumulation SR. The Bases are revised to reflect the change to the SRs. Changes to other SRs are made to facilitate performance of the gas accumulation SRs.

The Limiting Condition for Operation (LCO) Bases for the specifications governing the ECCS, and the RHR, SDC, and CS Systems are revised to acknowledge that management of gas voids is important to system operability.

The actions taken from Generic Letter 08-01 response has been effective in detecting and preventing voids at Robinson. Incorporating the monitoring and testing for voids into Tech Specs will assure sustainability of the actions. It is judged that there is not a discernable change by changing the commitment from the Generic Letter response to including the commitment into Tech Specs.

Implementing the change to Tech Specs will increase the frequency of testing. This will negatively impact personnel as the personnel will be unavailable to perform other maintenance or operations activities. Increased testing frequency would also increase the dose received by station personnel. Overall this was determined to have no increased safety impact and a negative impact on dose and equipment reliability.

Nuclear Safety importance	Very Low
Security importance	None
Emergency plan importance	None
Radiological protection importance	Negative Impact
Reliability importance	Negative Impact

Importance Evaluation

- Safety (Very Low)
  - Step 1 – Any Impact
    - Q2 – Improves Performance of ECCS Functions if Voids are Found
    - Q3 – Improves Performance of Containment Spray Functions Impacting Long Term Containment Cooling
    - Q5 – Improves Defense in Depth for ECCS Functions. Specifically, RCS Pressure, RCS Heat Removal, and Inventory Control are Positively Impacted.

Importance Evaluation

- Safety (Very Low)
  - Step 2 – More Than Minimal Impact
    - Q2 – The actions taken from Generic Letter 08-01 response has been effective in detecting and preventing voids at Robinson. Not a discernable change by changing the commitment from the Generic Letter response to including the commitment into Tech Specs.
    - Q3 - The change has a positive impact on the dose received during risk signification accident sequences where long term containment integrity is required. However, based on the existing monitoring for voids, this impact is judged to be minimal.
    - Q5 – Not more than minimal since testing is already performed versus an added defense in depth function.

If ALL questions are answered NO, then the issue or activity screens to minimal impact and the Nuclear Safety Importance is VERY LOW.

- Other areas
  - Equipment Reliability
    - This will negatively impact personnel as the personnel will be unavailable to perform other maintenance or operations activities.
  - Radiation Protection
    - Increased testing frequency would also increase the dose received by station personnel. Overall this was determined to have no increased safety impact and a negative impact on dose and equipment reliability.

Replacement of B Battery with a Larger Capacity Battery

Station Battery B (STATION-B) has minimal margin for increased loading. Station Battery B does not currently meet the sizing requirements of IEEE 485, including recommended margins. A larger battery must be selected to meet the sizing requirements of IEEE 485. Space in the Battery Room is limited and in order to expand Station Battery B, Battery Charger B-1 (BAT-CHRGR-B-1) must be relocated. Originally, the station batteries were considered to have an eight (8) hour duty cycle. In 1987, the battery duty cycle was reclassified as a one (1) hour duty cycle based on an RNP commitment to the battery sizing methodology of IEEE 485.

Previously (prior to 2011) the battery chargers were manually restarted within 1 hour of a LOOP or LOCA/LOOP event. Modifications to the plant were made in 2011 to automatically restart the in-service battery charger within the first minute after restoration of power from the associated emergency diesel generator. The duty cycle of the battery was not changed due to the addition of the automatic restart capability.

Each of the two safety-related station batteries is sized to carry its expected shutdown loads following a plant trip and a loss of all AC power for a period of 1 hour without battery terminal voltage falling below minimum allowable voltage. The battery is capable of meeting its current design function. The additional margin does not result in a longer battery duty cycle.

The battery is currently scheduled for replacement in 2015 based on its time in operation. Based on the remaining 18 years for the plant operating, no additional age related replacement may be necessary based on prior operating history and replacement schedule. The change was determined to be only a minimal improvement.

Nuclear Safety importance	Very Low
Security importance	None
Emergency plan importance	None
Radiological protection importance	None
Reliability importance	Low

Replacement of B Battery with a Larger Capacity Battery

- Safety (Very Low)
  - Step 1 – Any Impact
    - Q2 – Improves Capability of Safety Related Battery in Response to LOCA/LOOP concurrent with the single failure of the A EDG
    - Q5 – Improves Defense in Depth for Vital Electrical Power During a LOCA/LOOP Concurrent with the single failure of the A EDG

Importance Evaluation

- Safety (Very Low)
  - Step 2 – More Than Minimal Impact
    - Q2 – The battery is capable of meeting its current design function. The Change does not result in a longer battery duty cycle. Based on estimated time increases of minutes, the change is not more minimal.
    - Q5 – Based on estimated time increases of minutes, the change is not more minimal.

If ALL questions are answered NO, then the issue or activity screens to minimal impact and the Nuclear Safety Importance is VERY LOW.

Installation of the Westinghouse RCP Shutdown Seals

This project is to replace all the reactor coolant pump (RCP-A, RCP-B, RCP-C) No. 1 seal inserts with the Westinghouse SHIELD thermal shutdown seals

The new seals reduce the RCS Inventory losses from the currently analyzed 25 gpm to 1 gpm during a loss of RCP seal cooling event. This results in an increase in the time response required before a Charging Pump is required to be started to make-up to the RCS in either a SBO or SSA postulated fire scenario. In the current calculation, RCP seal losses are assumed to be 25 gpm per pump. The installation of the Westinghouse SDS seals would significantly extend the time until the core was uncovered (likely days) during a postulated station blackout event as the pump seal loss contribution would drop from a total of 75 gpm to 3 gpm.

The proposed design change replaces the dependency on time critical manual operator actions with a mechanical design feature to ensure the RCS remains intact.

Nuclear Safety importance	Medium
Security importance	None
Emergency plan importance	None
Radiological protection importance	None
Reliability importance	Low

Importance Evaluation

- Safety (Medium)
- Step 1 – Any Impact
  - Q2 – Positive Impact
    - Increase the Capability of RCP seals to maintain RCS pressure boundary during loss of all seal cooling event by reducing the RCS inventory losses significantly.
    - Increase Availability of Operators by Reducing time critical manual operator actions required to respond to a loss of all seal RCP cooling event
  - Q3- Positive Impact
    - Reduces the RCS Inventory losses from the currently analyzed 25gpm to 1 gpm during a loss of RCP seal cooling event.
    - Reduces the need for time critical operator actions with the restoration of RCP seal cooling during a SBO or fire that results in a loss of RCP Seal cooling

Importance Evaluation

- Safety (Medium)
- Step 1 – Any Impact
  - Q4 – Positive Impact
    - The new seal design will increase the capability of the RCP seals to maintain RCS pressure boundary during a loss of all seal cooling event. This is due to the decreased RCS inventory losses resulting in an increased time to start a Charging Pump and make-up to the RCS.
  - Q5 – Positive Impact
    - The installation of the new SDS shields introduces a second barrier (or defense in depth) in case of a loss of all seal cooling event.

Importance Evaluation

- Safety (Medium)
- Step 2 – More Than Minimal
  - Q2 – Positive Impact
    - – Results in less operational challenge to maintain Pressurizer level on scale as required by 10CFR50, Appendix R during this postulated event.
    - – Allotted time to start a make-up pump is planned to be increased due to the limited RCS losses.
    - – Reducing / eliminating the dependency on Manual Operator Actions to ensure RCS integrity during SBO and Fire events.
  - Q3- Positive Impact
    - – Reduces the RCS Inventory losses from the currently analyzed 25gpm to 1 gpm during a loss of RCP seal cooling event.
    - – Reduces the need for time critical operator actions with the restoration of RCP seal cooling during a SBO or fire that results in a loss of RCP Seal cooling

Importance Evaluation

- Safety (Medium)
- Step 2 – More Than Minimal
  - Q4 – Positive Impact
    - The new seal design will increase the capability of the RCP seals to maintain RCS pressure boundary during a loss of all seal cooling event. This is due to the decreased RCS inventory losses resulting in an increased time to start a Charging Pump and make-up to the RCS.
  - Q5 – Positive Impact
    - The installation of the new SDS shields introduces a second barrier (or defense in depth) in case of a loss of all seal cooling event.

Installation of the Westinghouse RCP Shutdown Seals- PRA insights

- <u>Estimated Contribution to Core Damage Frequency from RCP Seal LOCAs</u>
-
- -Contribution of RCP Seal LOCAs to Internal Events CDF: 2.5E-06
- -Contribution of RCP Seal LOCAs to Fire CDF: 2E-05
- -Contribution of RCP Seal LOCAs to Seismic CDF: 1E-05
- <u>-Contribution of RCP Seal LOCAs to other External Events: 1E-06</u>
- -Estimated Contribution of RCP Seal LOCAs to Total CDF: 3.35E-05
- Based on the above risks, the consequential LOCAs from loss of RCP seal cooling, the current risk is considered in a medium yellow category.
- Shutdown Seals are estimated to fail to actuate when demanded at a rate of 2.17%, and successful actuation results in the prevention of RCP Seal LOCAs. As such, installation of the Shutdown seals will reduce the CDF from Seal LOCAs by about 98% (3.28E-05), which is a 'High' impact in Table 1-1.
- This correlates to a high reduction of risk based on the matrix and a corresponding medium ranking.

Importance Evaluation - Step 3a – Impact on Issue Risk (Qualitative)

Table 1-1 Matrix by Current Risk and Potential Impact

UB is upper bound of the risk range; Mid is "mid-range" (0.3 times UB); LB is factor of 10 lower than UB

Current Risk associated with Issue	**Potential Impact of Action (Reduction in Risk)**				
	None	Very Small/Minimal	Small	Medium	High
	0%	0 to 25%	25 to 50%	50% to 90%	>90%
Note: Address the specific issue first, then assess impacts on other risk contributors	**Priority**				
Green (VL) LB 1E-7	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) Mid	Very Low	Very Low	Very Low	Very Low	Very Low
Green (VL) UB 1E-6	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) LB	Very Low	Very Low	Very Low	Very Low	Very Low
White (L) Mid	Very Low	Very Low	Low	Low	Low
White (L) UB 1E-5	Very Low	Low	Low	Low	Low
Yellow (M) LB	Very Low	Low	Low	Low	Low
Yellow (M) Mid **Pre-Mod**	Very Low	Low	Medium	Medium	Medium **Post-mod**
Yellow (M) UB 1E-4	Very Low	Medium	Medium	Medium	Medium
Red (H) LB		Medium	Medium	Medium	Medium
Red (H) Mid		High	High	High	High
Red (H) UB 1E-3		High	High	High	High

Aggregation Process and Results

- Robinson performed Pairwise comparisons within the Priority Groups
  - All Priority items ranked within the group
  - Comparisons between Groups Performed
  - Overall Panel Consensus Gained
- Recommendations
  - TSTF-523 Commitment Re-evaluated – Acted upon to Remove Commitment
  - Cancellation of Battery Upgrade – Acted upon to change to Replacement with like for like
  - Cancellation of 2 additional projects – Returned to Plant Health Committee

- Process is repeatable
  - Comparisons to Pilot Results on Similar Issues Demonstrated this
  - Structure Removes Emotion
    - Battery Replacement Showed Little Risk Improvement
    - Operator Actions Remedy Showed Risk Improvement.
    - Proposed Solutions may Change based on the Review
- Reliability Issues can have impact on Risk
  - Using the process, documented the impact on Risk
  - Communicated the Risk associated with Reliability Issues
- Collaborative Review brought Insights to Scoring
  - Experienced Plant Personnel Assured Robinson Unique Design was Considered.
  - Plant Uniqueness Considered
  - The Inter-disciplinary Review Identified Factors That had not Been Fully Considered Previously

Value Proposition

- The Process Added Value In Man-hour, Dose and Expenditure:
  - Regulatory
    - Commitment Change on ECCS Voids
      - Reduction in Future Dose Received
      - Actions implemented with initial Generic Letter Response were Effective
    - Changed Solution on Byron Open Phase based on Screening
  - Reliability Mods
    - 3 Projects recommended for Cancellation
    - Non-Project Alternates were Equally Effective

- Structure to Compare Risk Significance with Reg Driven Projects to Station Driven Projects

Questions/Discussion

DUKE ENERGY®

Panel Discussion

Jim Miksa, Entergy

Sonja Myers, Duke Energy

Phil Lashley, FirstEnergy

John Grubb, Xcel Energy

Greg Johnson, Southern Nuclear

Jerry Loignon, SCANA

All issues are not created equal

- Current plant scheduling processes typically place a high priority on regulatory driven issues
  - Independent of its importance at site relative to other activities
- Tabletops and pilots demonstrated the strength and value of a straightforward and robust process that prioritizes plant safety
  - Identified issues of low relative importance receiving high priority on plant schedule (and vice versa)
- Examples:
  - Spent Fuel Pool Instrumentation
  - Palisades Incipient Detection
  - Robinson Battery Enhancement

Plant Design Affects Issue Importance

- A “generic” resolution schedule is often applied to generic issues without consideration of plant-specific design features that affect issue importance
- Example:
  - Open Phase Vulnerability

Reliability Attribute Provides Forward Look on Safety

- Reliability attribute provides nexus to safety for key systems, structures and components required by Tech Specs and monitored under ROP
- Allows prioritization of plant improvements driven by parts obsolescence and/or plant reliability
- Examples:
  - Hatch HPCI/RCIC control
  - Davis-Besse Control Rod Replacement EOL

Value Seen in Multi-disciplinary Panel

- Use of a highly experienced multi-disciplinary panel, guided by a structured process, is seen to be critical to process success
  - Process focusses discussion on key importance attributes
  - Risk insights (both positive and negative)
- Pilot Examples

Process is Robust and Repeatable

- Pilots evaluated 107 issues
  - 61 plant-initiated (plant improvement) activities
  - 46 driven by regulatory requirement or plant commitment
- Results showed process to be robust and repeatable
- Examples:
  - NFPA 805 modifications
  - Spent Fuel Pool Level Instrumentation

NPFA 805 Modifications

Importance and Priority Determinations

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL02	M	N	N	N	N	2
PAL03	M	N	N	N	N	2
ROB02	M	N	N	N	N	2
ROB03	M	N	N	N	N	2
ROB04	M	N	N	N	N	2
PI02	M	N	N	N	N	2
PI03	M	N	N	N	N	2
HAT01	-*	-	-	-	-	-

M – Medium, N – None * - Issue too broadly defined for assessment

Desig.	Title
PAL02	Incipient Detection for Cable Spreading, electrical equipment room
PAL03	Electrical Coordination Modifications
ROB02	NFPA 805 - Incipient Detection
ROB03	NFPA 805 - Suppression and detection modification
ROB04	NFPA 805 - Electrical Coordination
PI02	NFPA 805 – Hot Shutdown Panel
PI03	NFPA 805 - Incipient Fire Detection
HAT01	NFPA 805 – All changes

Spent Fuel Pool Level Instrumentation

Importance and Priority Determinations

Desig.	Safety	Security	EP	RP	Reliability	Priority
PAL12	VL	N	N	N	N	4
SUM06	VL	N	N	N	N	4
DB17	VL	N	N	N	N	4
HAT11	VL	N	N	M	N	3

Desig.	Title
PAL12	Reliable Spent Fuel Pool Instrumentation Installation
SUM06	SFP Level Indication
DB17	Flex Spent Fuel Pool Level Modification
HAT11	Reliable Spent Fuel Pool Instrumentation

M – Medium, VL – Very Low, N – None

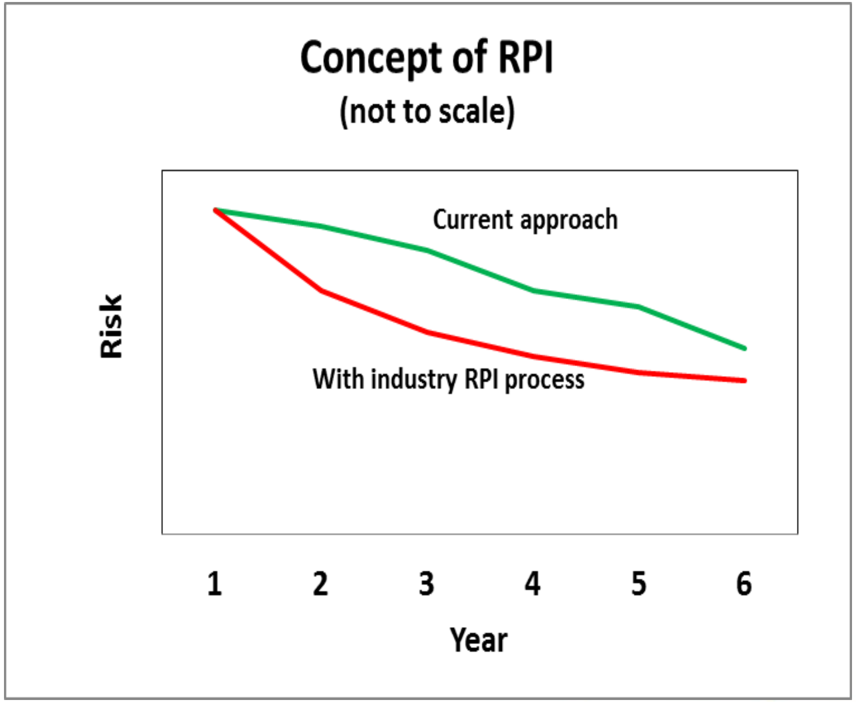
Results

- Value seen in viewing varied projects through common risk-informed lens
- Pilots identified recommended changes to schedule/scope for both regulatory and plant-initiated activities

Robinson	Hatch	Davis-Besse
• Open Phase Initiative (Schedule Delay) • Gas Accumulation Tech Spec (Scope Change) • GSI-191 (Potential Scope/Schedule Change) • Battery Upgrade (Termination)	• Open Phase Initiative (Schedule Delay) • Degraded Grid Transformers (Schedule Delay)	• SFP Level Instrumentation (No change, too far advanced)

Value Proposition of Prioritization

- Prioritization and associated scheduling actions allows plants to implement sooner some key plant improvements that have languished due to competing regulatory priorities
- Results in faster safety improvements
- A **WIN – WIN** Proposition



Next Steps

- November 4 meeting with NRC staff to discuss pilot results
- Formal issuance of NEI 14-10, *Guidelines for Prioritization and Scheduling Implementation*
- Continuing discussions with NRC staff on application of prioritization to emerging issues and rulemakings
- Inclusion in March 2015 SECY paper:
  - "Endorsement" of NEI 14-10 as acceptable supporting basis for schedule changes based on importance at plant site.
  - Incorporation of safety focused prioritization in discussion and planning for new emerging issues
  - Use of safety focused prioritization in planning and scheduling of rulemakings

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Cumulative Effects of Regulation / Risk Prioritization Initiative (CER) / (RPI)

ACRS Meeting Slides

November 3, 2014

Outline

- Background
- What is CER?
- NRC Actions to Address CER
- CER Relationship to RPI
- CER Key Messages
- Staff Perspectives
- RPI – Overview and Observations
- Next Steps
- References

Background

- CER began in late 2009 with Commission SRM (M091208), "Enhancements to Emergency Preparedness Regulations," January 13, 2010:
  - "For this and future rulemakings the staff should consider if the schedule for implementing those new regulations should be influenced by the aggregate impact of new regulations(s) and others that may already be scheduled for implementation."

- SECY-11-0032 "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process"
  - Described rulemaking process enhancements to implement CER
  - SRM-SECY-11-0032 approved the CER processes and provided further direction in SRM (which led to SECY-12-0137)

Background Cont'd

- SECY-12-0137 "Implementation of the Cumulative Effects of Regulation Process Changes"
  - Provided update on CER implementation
  - Current focus is addressing SRM-SECY-12-0137(later slide)

- COMSECY-14-0014 "Cumulative Effects of Regulation and Risk Prioritization Initiative: Update on Recent Activities and Recommendations for Path Forward"
  - Merged CER and Risk Prioritization Initiative (RPI)
  - Deliverables have been merged in response to SRM-COMSECY-14-0014

What is CER?

- **Describes the challenges** that licensees, or other impacted entities (such as State partners) face while **implementing new regulatory positions, programs, or requirements**

- Is an organizational effectiveness challenge that results from a licensee or impacted entity implementing a number of complex regulatory positions, programs or requirements within **a limited implementation period and with available resources**

- Can potentially **distract** licensee or entity staff **from executing other primary duties that ensure safety or security**

NRC Actions to Address CER

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- Rulemaking process modifications:
  - Interact with external stakeholders early in the rulemaking process
  - Publish guidance concurrently with proposed / final rules
  - Engage external stakeholders on CER impacts of proposed rules
  - Additional public interaction during final rule implementation
- NRC staff is considering expansion to other regulatory areas

CER Relationship to Risk Prioritization Initiative (RPI)

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- RPI is an initiative to explore the idea of enhancing safety by applying probabilistic risk assessment (PRA) to determine the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis
- CER and RPI deliverables were merged in COMSECY-14-0014
- If approved, RPI could address CER concerns for power reactor licensees

CER Key Messages

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- Resolution of adequate protection issues takes priority over CER concerns.

- The NRC has already implemented several rulemaking procedures that improve consideration of CER, including providing increased stakeholder interactions, publishing supporting guidance concurrent with rules, requesting specific comment on CER in proposed rules, and developing informed implementation timeframes.

- The staff's efforts to expand consideration of CER are being undertaken in conjunction with actions directed by the Commission, including SRM-COMGEA-12-001/COMWDM-12-002

Staff Perspective: Benefits of CER Consideration

- Potential Benefits:
  - Increases interactions with external stakeholders
  - Improves quality of regulatory analyses by seeking cost information early in process
  - Can inform implementation schedules and limit unintended consequences
  - Provides stability by issuing guidance along with requirements
- Information gathered can be used to evaluate regulatory actions necessary to address safety or security issues

Risk Prioritization Initiative (RPI)

NRR/DRA

Overview

From SRM on RPI:

"The Commission has approved an initiative to further explore the idea of enhancing safety by applying probabilistic risk assessment (PRA) to determine the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis."

- ✓ Request NRC staff to develop a Notation Vote Paper
- ✓ Explore ideas on a process to incentivize Level 1, 2 PRA use
- ✓ Consider rulemaking options (voluntary) and resource estimates
- ✓ Address issue management (i.e., should not perpetually defer)
- ✓ Consider how inspection and compliance issues should be treated
- ✓ Should be risk-informed, i.e., follow NRC risk framework

Overview (Cont'd)

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Nuclear safety is advanced when licensees and the staff focus their time, attention, and resources on the issues of greater safety significance at each plant – i.e. addressing the most safety significant issues first.

Overview (Cont'd)

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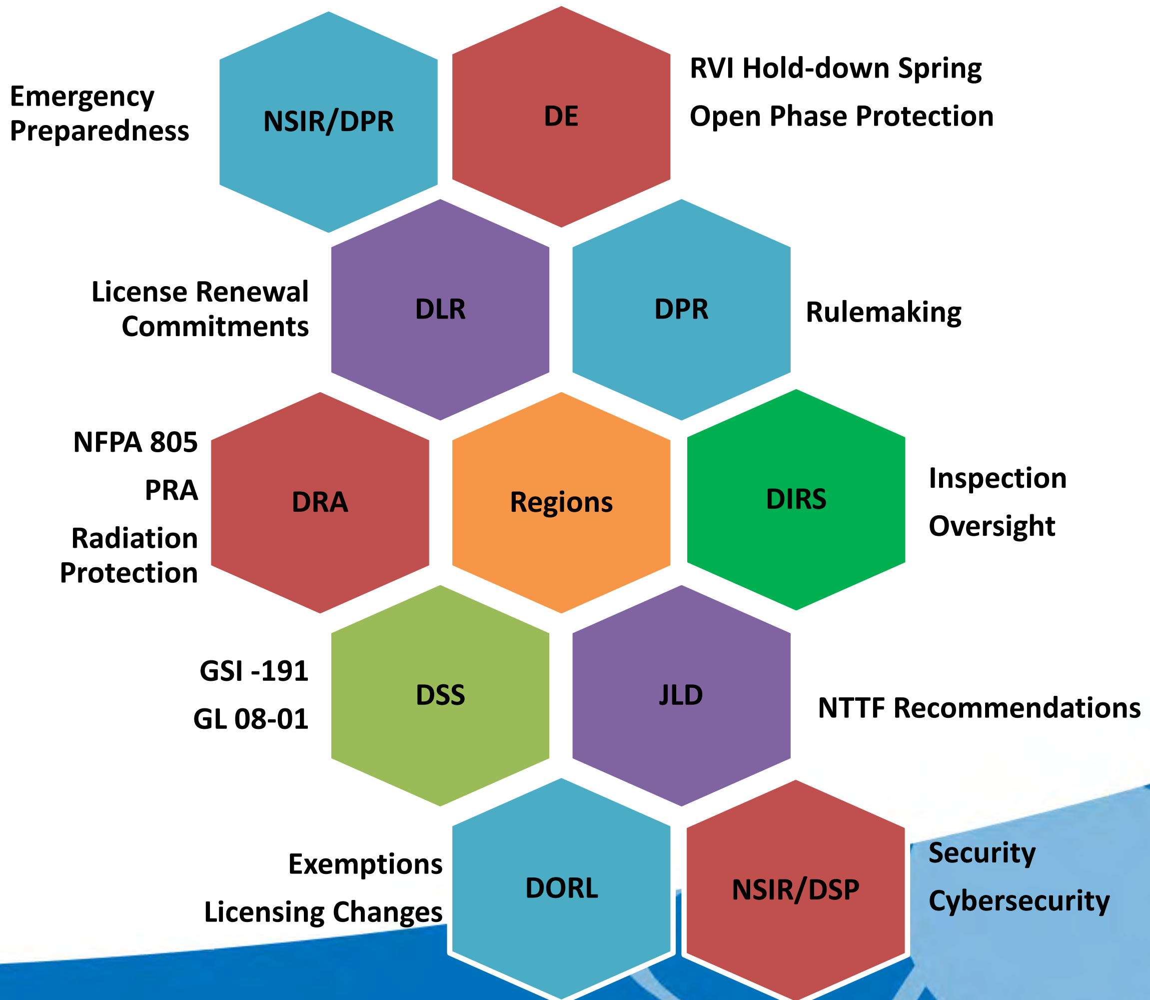
- Public/Industry Interactions:
  - Draft Guidance developed by NEI
  - Generic and Plant-specific Tabletops
  - March 2014 RIC Technical Session
- COMSECY to the Commission to merge CER & RPI
- Demonstration Pilots

Demonstration Pilots

- Demonstration Pilots address issues across Offices and Divisions (Emergency Preparedness, Radiation Protection, & Security)



Observations

High-Level Objectives:

- Evaluate the extent to which the prioritization process is reliable, repeatable, and transparent
- Assess the level of incentive to develop PRA
- Critically evaluate the licensee’s use of deferral and elimination processes for regulatory activities of low risk and safety significance
- Consider how the process informs (or not) an eventual discussion on how corrective actions for findings, violations, and degraded or nonconforming conditions adverse to quality will be treated as part of the risk prioritization initiative.

Observations (Cont'd)

High-Level Objectives:

- Evaluate how regulatory and non-regulatory activities are treated and the implications of the integrated assessment of priority of all items in the aggregation process.
- Obtain the most recent NEI guidance on the Risk Prioritization Initiative evaluate its use
- Assess the ability of the RPI under review to appropriately prioritize initiatives from multiple disciplines (e.g., RP, Security, and EP).
- Observe, note, and collect any items of importance for communication in an eventual full briefing to the ACRS in advance of the transmission of the March 2015 paper to the Commission.

Next Steps

- Addressing SRM-SECY-12-0137 and SRM-COMSECY-14-0014
  - – Continue to enhance existing processes
  - – Continue to explore means to expand/address CER for broader range of regulatory activities
  - – Roll-up of lessons-learned from above efforts will be folded into March 2015 paper
  - – Develop and propose options for RPI
    - Commission requested that the staff brief ACRS ahead of March 2015 paper

References

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- SECY-11-0032, "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process" (March 2, 2011; ML110190027)
- SRM-SECY-11-0032 (October 11, 2011; ML112840466)
- SECY-12-0137 "Implementation of the Cumulative Effects of Regulation Process Changes" (October 5, 2012; ML12223A162)
- SRM-SECY-12-0137 (March 12, 2013; ML13071A635)
- SRM to COMGEA-12-0001/COMWDM-12-0002 – "Proposed Initiative To Improve Nuclear Safety And Regulatory Efficiency," dated February 6, 2013 (ADAMS Accession No. ML13037A541)
- COMSECY-14-0014 – "Cumulative Effects of Regulation and Risk Prioritization Initiative: Update on Recent Activities and Recommendations for Path Forward," dated April 9, 2014 (ML14086A729)
- SRM-COMSECY-14-0014 (July 18, 2014;ML14199A187)
- Staff's Plan to Participate In Demonstration Pilots (July 20, 2014; ML14169A167)
- Information about RPI: www.regulations.gov (Docket ID: NRC-2013-0064)