

**IEEE NPEC Subcommittee SC-3**  
*Operating, Maintenance, Aging, Testing, & Reliability*  
**Meeting 13-2 Minutes**



**Tuesday Morning, July 30, 2013**  
**Mystic, CT**

Members Present:	George Ballassi	Kirk Melson
	John Beatty	Ed Muhtashemi
	Suresh Channarasappa	Jim Parello
	Tom Crawford (Secretary)	Vish Patel
	Marie Cuvelier	Sheila Ray
	John Erinc	Ted Riccio
	Sharon Honecker	Rebecca Steinman
	Steve Hutchins	John Stevens
	Jacob Kulangara	Yvonne Williams (Vice Chair)
	Jim Liming (Chair)	
Members Absent:	Gopal Aravapalli	Joe Napper
	Tom Carrier	Glen Schinzel
	Hamid Heidarisaafa	John Taylor (Corresponding)
	Peter Kang	
Guests:	Edward Eustace	Malia Zaman (IEEE)
	George Kyle	

## **1.0 Introduction**

- **Opening Remarks and Meeting Agenda**

Jim called the meeting to order at 08:00. After introductions around the table, Jim reviewed and updated the agenda. George moved to approve the agenda, as amended; and Tom seconded. The motion passed by acclamation.

## **2.0 Secretary's Report**

- **Approval of SC-3 13-1 Meeting Minutes**

Tom reviewed the draft minutes which had been previously distributed and posted on the website. He noted that we do have a quorum present (15 of 21 members) for general business and standards action. After minor editorial updates, a motion was made by Ted to accept the minutes as amended, seconded by George, and passed by acclamation.

- **SC-3 Membership**

The rolling attendance report attached to the minutes was reviewed for the attendance of SC-3 members. The current report is contained in Attachment 2.

**IEEE NPEC Subcommittee SC-3**  
***Operating, Maintenance, Aging, Testing, & Reliability***  
**Meeting 13-2 Minutes**

Marie Cuvelier, John Erinc, Ed Muhtashemi, and Sheila Ray were confirmed as SC-3 members.

- **Alligator Fund**

The status of the alligator fund was reviewed and we concluded that funds are adequate at the present time. Jim Parello had previously recommended keeping the fund below \$1,000 in light of IEEE's reporting requirements. We agreed that there would be no collection for this meeting. The Alligator Fund status is contained in Attachment 3.

- **Action Item Status**

The status of the action items was reviewed; the action item list is provided in Attachment 4.

*SC-3 Name Change (AI-11-2-C)* – the subcommittee name change to “Operations, Maintenance, Aging, Testing, & Reliability” was discussed. It was previously identified that the NPEC P&P / O&P will have to be updated. Jim Liming submitted a request for the change in January, but there has been no NPEC action as of the close of the N13-2 meeting.

*Thank You Letter to Bob Lane (AI-12-1-A)* – The letter thanking Bob for donating the projector was issued by Jim Liming on July 31, 2013 (Attachment 9), and this AI is closed.

*Strawman for gap analysis for SC3 standards (Action 12-2-B)* – Development of a Template / Strawman for gap analysis for the SC3 standards remains open and is assigned to Yvonne.

*Master Scheduling Template for SC-3 WG's (Action 13-1-A)* – Initial discussions were held during the S13-1 meeting, but there has been no follow-on. Ted has the action.

*Tutorial on IEEE Style Guide and use of the Standards Template (Action 13-1-B)* – NPEC obtained a presentation from IEEE and group discussion, which was held during the N13-2 meeting. This AI is Closed.

*IEEE Patent Claims slides (Action 13-1-C)* – Jim had the action to present the slides, and that was completed during the S13-2 meeting. This AI is Closed.

### **3.0 Chair's Report**

- **Leadership Review / Succession Planning**

Jim requested volunteers for SC-3 leadership positions, and reviewed the current succession planning for the group. Jim Liming will turn the Chair over to Yvonne for the 14-01 meeting. Tom Crawford will move to Vice Chair. Joe Napper was not present.

**IEEE NPEC Subcommittee SC-3**  
***Operating, Maintenance, Aging, Testing, & Reliability***  
**Meeting 13-2 Minutes**

John Stevens agreed to assume the position of Assistant Secretary (or Secretary if Joe does not accept it).

- **Leadership Telecons**

No Leadership telecons were held between the 13-1 and 13-2 meetings.

- **PAR / Standards Status**

PAR / Standards Status was reviewed and updated on the SC-3 Standards Status Spreadsheet provided in Attachment 5. The updates were subsequently passed on to Paul Yanosy for the overall NPEC status list.

#### **4.0 Post-Fukushima Issues**

Jim Liming noted that responses to the NRC's Fukushima letter have involved risk assessment, seismic margin assessment, and potentially seismic PRA's.

#### **5.0 Working Group Reports**

- **WG-3.1**

Yvonne reported that standards status is per the Status Report.

The WG is continuing work on the preparation of the initial version of IEEE P1819. Yvonne reviewed the Work-in-Progress presentation proposed for the NPEC meeting. The status slides are in Attachment 12. The PAR for this new standard was approved 25 March 2010 and expires 31 December 2014. Discussion concluded that it is likely we will need to extend this PAR, and Yvonne will add a line for 'PAR Extension' to the schedule after the item for 'Approve Body'. Tom moved to approve the presentation for the NPEC N13-02 meeting; the motion was seconded by George; and it was passed by acclamation.

- **WG-3.2**

Marie presented the status of P692. Draft 4d was balloted, approved, and submitted to RevCom. The status slides are in Attachment 10.

Dave Horvath has announced his retirement from Tetra-Tech and resigned from NPEC, SC-3, and WG's 3.1, 3.3, & 3.4. He stated his intention to remain with WG 3.2 through approval of P692. Marie was assigned action to coordinate development of a leadership plan for WG 3.2 following Dave's departure (***Action 13-2-B***).

**IEEE NPEC Subcommittee SC-3**  
***Operating, Maintenance, Aging, Testing, & Reliability***  
**Meeting 13-2 Minutes**

- **WG-3.3**

Sharon provided an overview of the WG 3.3 status as follows:

- IEEE 352 is being actively revised and will be worked on during the WG meeting later this day, primarily to review working group comments on the current draft.
- IEEE 577 was approved on 10/19/2012 and there are currently no plans to start the next revision.
- IEEE 933's second recirculation ballot has closed and there were additional editorial comments to be resolved. The IEEE will advise us if this requires an additional recirculation ballot. The goal is to submit the standard to RevCom as soon as this matter is addressed.

- **WG-3.4**

Rebecca reviewed the proposed NPEC preview of this standard. The approved PAR expires December 31, 2015, but the current activities should allow for publication prior to PAR expiration. Yvonne moved to approve the status presentation for the N13-02 NPEC meeting, and Tom seconded. The motion passed by acclamation.

## **6.0 Liaison Reports**

Liaison reports were provided as follows:

- NRC – Peter Kang was absent. Sheila Ray provided an update and agreed to send a Liaison Report (*Action 13-2-C*), which was subsequently received and is provided in Attachment 7.
- ASME – Glen Schinzel was absent, so there was no update.
- NRMCC – George Ballassi provided an overview and stated that the intent of NRMCC is to be a clearinghouse for everything “Risk Informed”. The NRMCC Telecon Minutes from February and March are provided in Attachment 8.

During the period between the S13-1 and S13-2 meetings, we were notified that the ASME Special Committee on Condition Monitoring was looking for electrical experience. We passed that request off to SC-2, which is very interested in working with ASME in that area.

## **7.0 Old and New Business**

George brought up that PES has issued a new WG Policies & Procedures Manual template and requested that all WG's conform to the new standard. This is a different template than the one we approved last year. Once the new version is obtained, we will review it and seek further guidance from NPEC.

**IEEE NPEC Subcommittee SC-3**  
*Operating, Maintenance, Aging, Testing, & Reliability*  
**Meeting 13-2 Minutes**

The new Action Items from this meeting were reviewed, as discussed above and in Attachment 4.

A motion for adjournment was made by Ted, seconded by Steve Hutchins, and passed by acclamation.

Prepared by Tom Crawford, SC-3 Secretary.

SC-3 Website information:

<http://grouper.ieee.org/groups/npec/private/sc3/sc-3.html>  
 login name: [REDACTED] password: [REDACTED]

.....  
**ATTACHMENTS**

Attachment 1 Agenda	Attachment 2 Rolling Attendance	Attachment 3 Alligator Fund
Attachment 4 Action Items	Attachment 5 NPEC SC-3 Standards Status Spreadsheet	Attachment 6 ASME Liaison Report (None)
Attachment 7 NRC Liaison Report	Attachment 8 NRMCC Liaison Report	Attachment 9 Letter to Bob Lane
Attachment 10 P692 Status Presentation	Attachment 11 P1205 Preview Presentation	Attachment 12 P1819 WIP Presentation



## Agenda – Meeting 13-2

### NPEC Subcommittee SC-3, *Operations, Maintenance, Aging, Testing and Reliability*

<b>Meeting Date/Time:</b>	Tuesday, 7/30/2013 0800-1200 ET	<b>Chairman :</b>	James Liming
		<b>Vice Chair:</b>	Yvonne Williams

<b>Desired Outcomes:</b>	<ol style="list-style-type: none"> <li>1. Review status/activities of each SC Working Group</li> <li>2. Update SC3 standards master schedule</li> <li>3. Understand proposed changes for revision to IEEE Standards</li> </ol>
--------------------------	--

WHAT	WHO	WHEN
Welcome, Review Desired Outcomes <ul style="list-style-type: none"> <li>• Meeting logistics</li> <li>• Introductions</li> </ul>	J. Liming All	0800-1815
Chairman's Introduction <ul style="list-style-type: none"> <li>• Opening remarks</li> <li>• Review/approve agenda</li> </ul>	J. Liming	0815-0830
Secretary's Report <ul style="list-style-type: none"> <li>• Approval of SC3 13-1 Meeting Minutes</li> <li>• Action Item review/status</li> <li>• SC3 membership review</li> <li>• Alligator fund report</li> </ul>	T. Crawford	0830-0900
Chairman's Report <ul style="list-style-type: none"> <li>• SC3 Leadership review – succession planning</li> <li>• Leadership telecons</li> <li>• NPEC meeting preparations</li> </ul>	J. Liming	0900-0930
Post-Fukushima Issues <ul style="list-style-type: none"> <li>• Review of identified Post-Fukushima actions.</li> </ul>	J. Liming	0930-0940
<b>BREAK</b>	All	0940-1000
Working Group Reports <ul style="list-style-type: none"> <li>• WG-3.1 (Testing) (Includes P1819 WIP)</li> <li>• WG-3.2 (Security)</li> <li>• WG-3.3 (Reliability)</li> <li>• WG-3.4 (Aging) (includes P1205 Preview presentation review)</li> </ul>	Y. Williams M. Cuvelier S. Honecker R. Steinman	1000-1005 1005-1010 1010-1015 1015-1050
Liaison Reports <ul style="list-style-type: none"> <li>• NRC Report</li> <li>• ASME Report</li> <li>• NRMCC Report</li> </ul>	P. Kang G. Schinzel G. Ballassi	1050-1110
Old Business <ul style="list-style-type: none"> <li>• Master schedule for Std review/updates</li> </ul>	All	1110-1135
New Business <ul style="list-style-type: none"> <li>• As identified during this meeting</li> </ul>	All	1135-1145
Review of Action Items	T. Crawford	1145-1155
Next meeting date/location	J. Liming	1155-1200
Meeting closeout/adjournment	J. Liming	1200

### Attendance at SC-3 Meetings

Last	First	2011-2	2012-1	2012-2	2013-1	2013-2
<b>Aravapalli</b>	<b>Gopal</b>	x				
<b>Ballassi</b>	<b>George</b>	x	x	O	X	X
<b>Beatty</b>	<b>John</b>	x	x		X	X
<b>Carrier</b>	<b>Tom</b>	x	x	X	X	
<b>Channarasappa</b>	<b>Suresh</b>	x	x	X	X	X
<b>Crawford</b>	<b>Tom</b>	x	x	X	X	X
<b>Cuvelier</b>	<b>Marie</b>				X	X
<b>Erinc</b>	<b>John</b>					X
Eustace	Edward					X
Fitzpatrick	Bob	x				
Goedeke	Scott	x	x			
<b>Heidarisaafa</b>	<b>Hamid</b>				Correspond	
<b>Honecker</b>	<b>Sharon</b>	x	x	X	X	X
<b>Horvath</b>	<b>Dave</b>	x		X	X	Resigned
<b>Hutchins</b>	<b>Steve</b>	x	x		X	X
<b>Kang</b>	<b>Peter</b>	x		X	X	
<b>Kulangara</b>	<b>Jacob</b>			X	X	X
Kyle	George					X
Lane	Bob	x			Resigned	
<b>Liming</b>	<b>Jim</b>	x	x	X	X	X
Matharu	Singh	x	x	X	Moved SC-4	
<b>Melson</b>	<b>Kirk</b>	x	x			X
<b>Muhtashemi</b>	<b>Ed</b>					X
<b>Napper</b>	<b>Joe</b>			X		
<b>Parello</b>	<b>Jim</b>	x	x	O	X	X
<b>Patel</b>	<b>Vish</b>	x	x	X	X	X
<b>Ray</b>	<b>Sheila</b>				X	X
<b>Riccio</b>	<b>Ted</b>	x	x	X	X	X
<b>Schinzel</b>	<b>Glen</b>			X		
<b>Simic</b>	<b>Zdenko</b>	Half	x			Resigned
<b>Steinmann</b>	<b>Rebecca</b>	x	x		X	X
<b>Stevens</b>	<b>John</b>			X	X	X
<b>Williams</b>	<b>Yvonne</b>	x	x	X	X	X
Worrell	Tom				X	
Members are shown in <b>bold</b> and colored as of end of most recent meeting.						
TOTAL PAYING ATTENDEES		21	17	15	20	21
TOTAL NON-PAYING ATTENDEES		0	0	2	0	0

## NPEC Subcommittee SC-3

### *Operating, Maintenance, Aging, Testing and Reliability*

#### Alligator Fund

The Alligator Fund is made up of voluntary contributions from SC-3 members to defray the cost of meeting rooms, refreshments, etc.

Meeting	Beginning Balance	Meeting Contributions	Expenses	Ending Balance
S05-1	\$312.14	\$207.18	\$359.82	\$159.50
S05-2	\$159.50	\$240.00	\$0.00	\$399.50
S06-1	\$399.50	\$220.00	\$178.67	\$440.83
S06-2	\$440.83	\$160.00	\$335.00	\$265.83
S07-1	\$265.83	\$200.00	\$201.70	\$264.13
S07-2	\$264.13	\$600.00	\$340.87	\$523.26
S08-1	\$523.26	\$300.00	\$347.80	\$475.46
S08-2	\$475.46	\$320.00	\$386.26	\$409.20
S09-1	\$409.20	\$180.00	\$12.00	\$577.20
S09-2	\$577.20	\$210.00	\$92.54	\$694.66
S10-1	\$694.66	\$220.00	\$380.90	\$533.76
S10-2	\$533.76	\$425.00	\$474.90	\$483.86
S11-1	\$483.86	\$200.00	\$14.00	\$669.86
S11-2	\$669.86	\$430.00	\$480.50	\$619.36
S12-1	\$619.36	\$340.00	\$203.00	\$756.36
S12-2	\$756.36	\$150.00	\$0.00	\$906.36
S13-1	\$906.36	\$0.00	\$0.00	\$906.36
S13-2	\$906.36	\$0.00	\$0.00	\$906.36



**NPEC Subcommittee SC-3**  
*Operating, Maintenance, Aging, Testing and Reliability*  
**Action Items List**

<b>Item No.</b>	<b>Subcommittee 3.0 Actions</b>	<b>Owner</b>	<b>Due Date</b>	<b>Closure Comments</b>
11-2-C	SC-3 name in NPEC needs to reflect reliability	Jim Liming	Next AdCom mtg	Bring up at AdCom meeting 11-2. 12-1 mtg: more complicated - Jim to bring up at 12-1 AdCom meeting to make sure what is required and then get those actions started. 13-1 mtg: Will affect NPEC P&P and O&P. Malia confirmed that it could be handled as an editorial change. It just will take time to process. Jim to bring up to ADCOM. Preferred name is: "Operations, Maintenance, Aging, Testing, and Reliability". Request Submitted 01/22/13; see S13-1 Meeting Notes, Attachment 5. No NPEC action, as of the close of the N13-2 Meeting.
12-1-A	Send a formal thank-you letter to Bob Lane from SC-3 for the projector donation	Jim L	shortly after 12-1 mtg	Complete 07/31/2013; see S13-2 Meeting Notes, Attachment 9. ACTION CLOSED.
12-2-B	Develop a Template / Strawman for gap analysis for SC3 standards	Yvonne	13-2 mtg.	No follow-on as of S13-2 meeting.
13-1-A	Lead a group to prepare a Master Scheduling Template for the SC-3 WG's.	Ted	13-2 mtg.	Initial discussions held 01/22/13. No follow-on as of S13-2 meeting.
13-1-B	Request a tutorial on the Style Guide and use of the Standards Template, particularly addressing the movement of an older standard into the new template.	Jim L / Malia	13-2 mtg.	Jim to coordinate with Malia. NPEC requested and SA provided during S13-2 meeting. ACTION CLOSED.
13-1-C	Discuss IEEE Patent Claims slides.	Jim Liming	13-2 mtg.	Action completed during S13-2 meeting. ACTION CLOSED.
13-2-A	Contact non-attending members and determine their intentions.	Tom	14-1 mtg	Simic, Gopal, and Joe Napper have missed several meetings and have not contacted other members. Tom will attempt to contact them to determine whether they wish to remain as active members or not.
13-2-B	Coordinate development of a leadership plan for WG 3.2 following Dave Horvath's departure.	Marie	14-1 mtg	New item from S13-2 meeting.

## SC-3 "Operations, Maintenance, Aging, Testing & Reliability"

Chair: Jim Liming

PROJECT	Year	Re-Affirmation	PAR Expiration	TITLE	Working Group	Chair	Cycle Year	N12-1	N12-2	N13-1	N13-2	N14-1	N14-2	Status/Comments
336	2010			IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities	1	Y. Williams	3							Revision approved by the StdBd on June 17, 2010
338	2012			IEEE Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems	1	Y. Williams	1							Std approved by SB Feb. 6, 2012
352	1987	2009	Dec-2016	IEEE Guide for General Principles of Reliability Analysis of Nuclear Power Generating Stations and Other Nuclear Facilities	3	S. Honecker	4		WIP					Submitted to RevCom for reaffirmation at the Sept Meeting PAR approved June 17, 2010 thru Dec 2014. PAR revision to change from recommended practice to standard approved by at NesCom Jan. 18th meeting. Reaffirmation approved by SB March 2010. PAR approved by
577	2012			IEEE Standard Requirements for Reliability Analysis in the Design and Operation of Safety Systems for Nuclear Power Generating Stations	3	S. Honecker	1							Approved by SASB Aug. 30, 2012 Published on Oct. 19, 2012
692	2010		Dec. 2016	IEEE Standard Criteria for Security Systems for Nuclear Power Generating Stations	2	D. Horvath	3			Preview				Published in 2010, PAR 692a to amend 692-2010 approved 9-10-2011. Changes found too significant for an amendment. PAR 692 to revise 692-2010 approved 12-5-2012. Preview to SC-3 & NPEC in Jan 2013. Completed first ballot 4/26/2013. Recirc. Ballot #1 completed on 6/20/2013. Recirc. Ballot #2 completed 7/9/2013. Under REVCOM review; to be approved at 8/22/2013 REVCOM meeting. Expect to publish by the end of 2013. Current PAR is active until 2016.
933	1999	2004	Dec-2013	IEEE Guide for Definition of Reliability Program Plans for Nuclear Generating Stations and Other Nuclear Facilities	3	S. Honecker	9							Ballot closed Mar. 2011. PAR extended to 2013. Recirculation ballot #1 closed 1/21/13. Recirc. Ballot #2 closed 7/25/2013. Resolving editorial (from IEEE editor) comments for potential Recirc. Ballot #3.
1205	2000	2007	Dec. 2015	IEEE Guide for Assessing, Monitoring, and Mitigating Aging Effects on Class 1E Equipment used in Nuclear Power Generating Stations	4	R. Steinman	6							Re-affirmation approved by Std Bd March 22, 2007; SC-3 approval for preview to NPEC on 7/31/2013. PAR approved by ADCOM 3/31/2011
P1819			Dec. 2014	Standard for Risk-Informed Categorization and Treatment of Electrical Equipment in Nuclear Facilities	1	Y. Williams	0				WIP			PAR approved by StdBD March 25, 2010. WIP to NPEC 7/31/2013.

## NRC Liaison Report – NPEC 13-02

- Information notices, bulletins, generic letters, etc.
  - Support development of RIS on embedded devices within safety components
  - NRC INFORMATION NOTICE 2012-XX: AGE RELATED CAPACITOR DEGRADATION (to be issued soon)
  - IFR - North Anna 1 & 2 DBE ground motion exceedance
  - Revision 3 to Regulatory Guide 1.152, which endorses IEEE Std 7-4.3.2
  - Drafting the rulemaking package for codification of IEEE 603-2009 into 10 CFR 50.55a(h)
- Fukushima Event-Related Activities Affecting Nuclear Plant Instrumentation and Controls:
  - Requests for additional information have been forwarded to licensees in preparation of reviewing action item responses.
  - Short-term items: orders and draft ISGs for areas such as spent fuel pool instrumentation
  - Requests for additional information have been transmitted to licensees on spent fuel pool instrumentation plans
- Reviewing PWROG submittal on treatment of EDG TS frequency and voltage;
- Reviewing BWROG/PWROG submittal on TSTF-531- Revision of TS 3.8.1
- SBO Rulemaking (directed by Commission and recommended by the NTF)
- Office of New Reactors (NRO) Activities:
  - NRO has not received an application for a small modular reactor at this time; only pre-application meetings.
  - Developing a design-specific SRP for the small modular reactors
  - Continuing to review the EPR and US-APWR applications
  - Initiated first I&C ITAAC inspections for the AP1000
  - mPower SMR Design Specific Review Standard for Chapter 7 has been issued for interim use and public comment
- Susceptibility of nuclear station to external faults research is examining the vulnerability of a Nuclear Station to faults that take place outside the nuclear station.

- Research is underway on an extended battery operation study that will fully evaluate commercial NPP battery response to station blackout (SBO) events outside the scope of the current SBO rule (i.e., extended SBO events).
- RES is supporting the SBO rule making team in the development of necessary regulatory guidance.
- Research on cable degradation in a submerged environment is evaluating the effects of submergence and water intrusion on cable insulation.
- Research on assessment of condition monitoring methods for electrical cables - NRC is working with NIST
- Single phase open circuit issue – Public Meeting held 6/27/2013. Meeting Summary can be found at ML13196A002. The industry representatives provided the current status of new hardware installed at some operating plants, progress report on new software developed to analyze the open circuit conditions and different approaches by several licensees to identify open circuit conditions on the offsite sources. Attendees from new reactor designs provided an overview of their plant design and proposed detection schemes. From a regulatory perspective, the staff is considering all regulatory tools available to the staff to ensure that licensees, design centers, and applicants take appropriate actions to correct the design vulnerability. The staff stated that the design features implemented by licensees to demonstrate compliance with single phase open conditions should be documented in the plant safety analyses report and will be considered part of the licensing basis of the plant(s).
- Research Information Letter 1002, Identification of Failure Modes in Digital Safety Systems – Expert Clinic Findings, Part 2, is being prepared.
- Advanced diagnostics and prognostics research is underway.
- RES is supporting the 10 CFR 50.55a(h) rule development effort.
  - Regulatory Guide 1.153, “Criteria for Safety Systems”, will be revised in parallel with the 10 CFR 50.55a(h) rulemaking task
- **Draft Reg Guides issued for public comment**
  - DG-1235 - Qualification Tests for Safety-Related Actuators in Nuclear Power Plants (ML12219A402), 04/2013
  - DG-1269 - Maintenance, Testing and Replacement of Vented Lead-Acid Storage Batteries for Nuclear Power Plants (ML110870131), 03/2013

**NUCLEAR RISK MANAGEMENT COORDINATING COMMITTEE (NRMCC)**  
**Teleconference Minutes -- DRAFT (for APPROVAL)**  
**February 21, and March 5, 2013, from 11:30am – 1:00pm Eastern**

Members	Present = x / Absent = Ø	
	2/21/13	3/5/13
Ralph Hill, Co-Chair, ASME	x	X
Chuck Moseley, Co-Chair, ANS	x	x
Victoria Anderson/Biff Bradley (NEI)	Ø	x
George Ballassi/Jim Liming (IEEE)	x	x
Robert Bari (BNL)	x	x
Sid Bernsen	x	x
Robert Budnitz, (ANS-JCNRM)	x	Ø
Kenneth Canavan/Stuart Lewis (EPRI)	Ø	Ø
Mary Drouin (NRC)	x	Ø
Bryan Erler	x	x
Rick Grantom/Pamela Nelson (ASME-JCNRM)	x	x
Robert Rishel/Stephen "Larry" Noran (BWROG)	Ø	x
Roy Linthicum/Raymond Fine (PWROG)	x	Ø
James O'Brien (DOE)	Ø	x
Craig Sellers (Enercon)	Ø	Ø
Michael G. Stamatelatos (NASA)	Ø	Ø
Steven Unikewicz/Kent Sutton (Alion Science & Tech)	Ø	x
Ian Wall	x	Ø
Kevin Ennis/Oliver Martinez (ASME Staff)	Ø	Ø
Pat Schroeder (ANS Staff)	x	x

**1) Call to Order**

The teleconferences were called to order.

**2) Roll Call and Announcements**

Roll call was taken. NRMCC Co-chair Chuck Moseley thanked members for their indulgence with the teleconferences in lieu of a physical meeting.

**3) Approval of Agenda**

Ralph Hill asked for Chuck Moseley to add an item on the agenda to update members on a new American Nuclear Society (ANS) Standards Committee related to risk-informed, performance-based methods. Moseley suggested that this be added to new business. Sid Bernsen suggested that the issue of expediting development and approval of standards be discussed as well as endorsement and use of standards. Moseley suggested covering these topics on the second call.

**4) Integrated Risk Management Milestone/Roadmap Schedule**

Ralph Hill reiterated the concept of the roadmap schedule was to develop and maintain a plan that combined risk informed standards activities from ANS, American Society of Mechanical Engineers (ASME), and the ASME/ANS Joint Committee on Nuclear Risk Management (JCNRM) as well as other entities represented on the NRMCC. It would be updated on some periodicity (to be determined) where the responsible entity would provide updates to a caretaker who would maintain and update the schedule. Hill confirmed that Ian Wall had volunteered to be the caretaker. A simple process procedure that can be used by all participants was needed. Points of contact needed to be identified for each entity to provide periodic updates. Robert Budnitz confirmed that Ian Wall will be the contact for the JCNRM

and suggested that the new ANS Risk-Informed and Performance-Based Principles Policy Committee (RPBPPC) may provide the link for ANS. Moseley and Budnitz would confirm.

Action Item 2/2013-01: Chuck Moseley and Robert Budnitz to confirm the name of an ANS point of contact to provide information about ANS risk-informed/performance-based standards in development for the schedule. Completed prior to the second teleconference and reported. Prasad Kadambi will be ANS POC. CLOSED

Mary Drouin offered to send the schedule to the appropriate NRC department for review and that she would serve as the NRC point of contact. Hill clarified that the schedule would be reviewed and recommendations could be made on the need to prioritize projects.

Points of Contact were identified as follows:

JCNRM , Ian Wall	NRC, Mary Drouin
ASME, Ralph Hill	IEEE, George Ballassi
ANS, Prasad Kadambi	

**5) Industry Reports**

- a. Nuclear Energy Institute (NEI)  
No report provided.
- b. Pressurized Water Reactors Owner’s Group (PWROG)  
Ray Fine stated that the PWROG meets three times a year with the next meeting scheduled for April of 2013. Several PWROG members participate in JCNRM activities.
- c. Boiling Water Reactors Owner’s Group (BWROG)  
Larry Naron, BWROG Vice Chair, provided a presentation available as Attachment A to these minutes. He stated that he included items in the report that were on the calendar for 2013. The presentation was briefly summarized. Naron explained that pilot plans were being considered.
- d. Electric Power and Research Institute (EPRI)  
A presentation of EPRI activities was provided in advance by Stuart Lewis. Additionally he provided a paper by Stephen Hess entitled “Risk Informed Safety Margin Characterization for Effective Long Term Nuclear Power Plant Safety Management.” The two documents are provided as Attachments B and C respectively.
- e. U.S. Nuclear Regulatory Commission (NRC)  
Mary Drouin reported that the NRC was working on Interim Staff Guidance (ISG) on advanced light water reactor probabilistic risk assessment (PRA), low power/shutdown PRA, and screening criteria and uncertainty PRA requirements. The NRC is also involved in work on the Level 3 PRA project and has opened up dialog with the PWROG to do a peer review of the Level 3 project. The peer review will be using the Level 1 PRA standard as well as the Level 2 and Level 3 PRA draft standards. A Technical Analysis Approach Plan is being developed which details how the PRA model is being constructed and will be published. The challenge will be how to do the integrated site risk analysis. There is a working group addressing the NRC’s Near Term Task Force (NTTF) recommendation which is a significant staff effort. Drouin is involved with the working group for Recommendation 1. The working group is proposing three activities: categorization for beyond design basis event (BDBE), categorization beyond design

basis analysis (DBA); developing a decision process for defense in depth, risk, and safety margins, and where to credit voluntary initiatives. A white paper will be issued in the next couple of weeks providing the status of staff activities on the recommendations. A year's extension was granted for transmitting the SECY paper to the Commission. The new due date is February of 2014. A public meeting will be scheduled once they are further along. Drouin wasn't sure of the status with NFPA 805.

Action Item 2/2013-02: Mary Drouin to inform Pat Schroeder when the white paper on Recommendation 1 of the NTTF is available; Schroeder to notify/provide to NRMCC members. COMPLETED (white paper emailed to members 2/27/13)

f. U.S. Department of Energy (DOE)

James O'Brien reported that the DOE was in a transition and was looking at how to better use quantitative risk assessment in analysis of non reactor facilities. He stated that the DOE PRA standard was being finalized. Chip Langdon had been interacting with the risk community that may impact DOE work going forward. The DOE was in the final stages of addressing Fukushima-related issues for emergency response. An operator experience report is to be completed later. O'Brien added that a public law was the driver for DOE to use PRA to the extent practical for best practices. It was recognized that focus may change with the appointment of a new DOE Secretary.

g. Institute of Electrical and Electronics Engineers (IEEE)/ Nuclear Power Engineering Committee (NPEC)

George Ballassi explained that he was the chair of the IEEE NPEC committee. He stated that significant revision of IEEE Std 338 regarding periodic testing intervals was recently completed. A draft standard for risk informed categorization of IEEE Draft Std 1819 Draft Standard for Risk-Informed Categorization and Treatment of Electrical and Electronic Equipment at Nuclear Power Generating Stations and Other Nuclear Facilities was in development. Ballassi confirmed that he would serve as the point of contact for the milestone schedule. Sid Bersen questioned if there was a need for coordination with other IEEE committees. Ballassi suspected that there was benefit in coordination with other IEEE committees but that he was not familiar with projects outside of the NPEC. Ballassi was requested to provide the scope and schedule of IEEE draft standard 1819 to Pat Schroeder to be incorporated into the milestone schedule.

Action Item 2/2013-03: George Ballassi to provide Pat Schroeder the scope and schedule for IEEE draft standard 1819 for inclusion in the milestone schedule. done

h. ASME/ANS JCNRM

Brief Report on 1<sup>st</sup> NRMCC Teleconference

On the initial teleconference, JCNRM Co-Chair Robert Budnitz confirmed that the JCNRM was meeting February 25 – 28, 2013, in Phoenix and highlighted a few areas that would be covered at the meeting. He stated that there was a concerted effort to bring in members in mid career to take over. Pat Schroeder updated the committee on the status of the JCNRM Business Agreement and procedures. Both were moving along well and were currently out for review with the ANS Standards Board Policy Task Group.

## Report on 2<sup>nd</sup> NRMCC Teleconference

Rick Grantom reported that the JCNRM meeting was well attended. He explained that an adjustment may be made to the milestone schedule due to overlap of ballots and volunteer resources to review. Ian Wall would be updating the JCNRM milestone schedule. Grantom informed members that the following items were discussed:

- A policy for issuing standards for trial use.
- A commitment from Palo Verde Nuclear Power Plant to run a LPSD pilot.
- Addendum B of ANSI/ASME/ANS RA-S was expected to be published in the August 2013 time frame.
- Work on the next edition has started and is the first priority of the JCNRM.
- Also developing standards on LPSD, Level 2 PRA, Level 3 PRA, non reactor PRA, and advanced LWR standard.
- A new subcommittee, Subcommittee on Risk Application (SCoRA), held its initial meeting; SCoRA to interface with other standards development organization on PRA-related standards.
- The subcommittee on maintenance addressing conservatism in the fire PRA portion of RA-S. Leadership reaffirmed.
- Discussed role of FLEX in PRA and its implications.
- Will be coordinating the JCNRM February 2014 meeting with the ASME Board of Nuclear Codes and Standards (BNCS).

Grantom confirmed that the JCNRM will coordinate meeting schedules with the NRMCC for the September 2013 meeting in Baltimore, Maryland. He recognized some overlap with SCoRA and the NRMCC. Chuck Moseley reminded members that the ANS approved a standing committee reporting to the ANS Standards Board to serve a similar function. Grantom stated that the BNCS had a similar committee. Both Moseley and Hill saw a need for coordination between these committees. Grantom suggested that this be handled via teleconference.

Action Item 2/2013-04: Chuck Moseley to facilitate a teleconference regarding interface details between SCoRA, RPBPPC, etc. in the July/August time frame.

i. Other ASME

Bryan Erler reported on work with the Japan Society of Mechanical Engineer (JSME) related to Fukushima issues and potential changes to standards that were needed. He stated that ASME meets with JSME four times a year during code week. Four areas were being addressed – component integrity, integrity of containment, integrity of valves, severe accident guidelines to respond to the initiating events. It is a long-term effort. The task group plans to meet during the Regulatory Information Conference. Ralph Hill added that a new regulatory agency, the Nuclear Regulation Authority - NRA, was established by the Japanese. They have proposed new regulations which are very conservative. Our JSME colleagues are doing design evaluations for BDE using deterministic methods.

j. National Aeronautics and Space Administration (NASA)  
No report provided.

## 6) Old Business



- a. Action Item 02/2012-01: Ralph Hill to confirm resources to maintain milestone schedule. Hill confirmed that Ian Wall had agreed to be the milestone schedule caretaker. CLOSED
- b. Action Item 2/2012-04: Mary Drouin to provide Ralph Hill a schedule for NRC PRA activities for the combined milestone schedule.  
Drouin stated that the Risk-Informed and Performance-Based Plan (RPP) gets updated every year which includes a status report and schedule. The report is publicly available and can be used. The link was provided prior to the second teleconference. CLOSED  
  
The link to the RPP website: <http://www.nrc.gov/about-nrc/regulatory/risk-informed/rpp.html>  
The link to the paper on the website: <http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2012/2012-0149scy.pdf>
- c. Action Item 9/2012-01: Robert Budnitz to provide Pat Schroeder a brief statement with need for NRMCC members to review ASCE/SEI 43-05 for use in a request to the American Society of Civil Engineers for permission to distribute. CLOSED
- d. Action Item 9/2012-02: Mary Drouin to provide the NRMCC details on the NRC public meetings on NTTF recommendations when scheduled through Pat Schroeder.  
Drouin stated that an extension had been issued to complete the ISGs. Public meetings will be scheduled. Drouin will let Pat Schroeder know when the public meetings are scheduled. OPEN
- e. Action Item 9/2012-03: Ralph Hill to request that the JCNRM co-chairs be invited to the bi-annual ASME/NRC nuclear standards coordination meeting. Hill confirmed that he requested that the JCNRM co-chairs be invited to the bi-annual meeting and that invitations should be issued as needed. CLOSED
- f. Action Item 9/2012-04: Rick Grantom to request that the JCNRM PIII Subcommittee review JCNRM standards to determine which would be best for application to new small modular reactor (SMR)/ integral pressurized-water reactor (iPWR) designs. JCNRM Vice Chair Pamela Nelson confirmed that this action item would be discussed at their meeting on February 28, 2013. CLOSED
- g. Action Item 9/2012-05: Ralph Hill to find out if there is NRC and DOE representation on the Boiler Pressure Vessel Code (BPVC) Section XI, Division 2, committees. Information was provided. CLOSED
- h. Action Item 9/2012-06: Stuart Lewis to provide a presentation at the February 2013 NRMCC meeting to elaborate on EPRI activities.  
Due to a schedule change, Lewis was not able to present. As noted under 5 (d) above, a presentation was provided with EPRI activities. CLOSED
- i. Action Item 9/2012-07: Rick Grantom to follow up with Thomas Boyce on NRC's need for a technology neutral standard for SMRs. It was reported that additional coordination was needed. OPEN
- j. Action Item 9/2012-08: Ralph Hill to secure a list of NRC representatives/liaisons on the III and XI and JCNRM subordinate committees from Thomas Boyce. CLOSED
- k. Action Item 9/2012-09: James O'Brien to provide a summary of the DOE workshop to the NRMCC at the next meeting. It was noted that the DOE standard was only part of this activity. OPEN

- l. Action Item 9/2012-10: Ralph Hill to talk to Rick Swayne and Kevin Ennis to 1) get Addendum B expedited particularly as the NRC will be endorsing a portion and 2) availability of a Word version for the next addition. Hill reported that the discussion was held. CLOSED
- m. Action Item 9/2012-11: Rick Grantom to check the JCNRM meeting schedule to see if the JCNRM Standards Committee and the NRMCC meetings could be held on consecutive days in the future. The next JCNRM meeting was scheduled for September 2013 in Baltimore, Maryland. Grantom suggested that the NRMCC meeting be held on Friday, the day after the JCNRM meeting. CLOSED
- n. Action Item 9/2012-12: Charles Moseley to provide the MS Project Schedule concept to the ANS Standards Board at their upcoming meeting. Ralph Hill discussed this with Don Spellman during recent meetings with NRC, and Don was supportive. CLOSED
- o. Action Item 9/2012-13: JCNRM co-chairs, NRMCC co-chairs to identify society contacts that can provide updated standards information to be incorporated into the schedule. CLOSED
- p. Action Item 9/2012-14: NRMCC co-chairs and others (such as EPRI) to help find a custodian for the schedule. Ian wall has agreed to be custodian. CLOSED
- q. Action Item 9/2012-15: Craig Sellers to follow up with Steven Unikewicz on Action Item 2/2012-03 (below) on potential for individuals from other disciplines that use PRAs to address the NRMCC. This action item was not addressed on the call. OPEN
  - Action Item 2/2012-03: Steven Unikewicz to provide names and contact information for individuals from other disciplines that use PRAs to the NRMCC co-chairs to extend an invitation to attend NRMCC meeting and make a presentation.
- r. Action Item 9/2012-16: Rick Grantom to include explanation in his report to BNCS on lessons learned at the Palo Verde Nuclear Power Plant related to risk-informed methods when updating their ISI plan. Pamela Nelson reported that Rick Grantom informed the BNCS. CLOSED

## 7) New Business

INTRO to 7 a) & b)

Ralph Hill provided some introductory comments on the attachments distributed before the meeting. They show that there are a lot of risk related activities emerging and it does not appear that any single organization understands how one may involve or impact the other. These include post-Fukushima consideration for BDB accident evaluations and safety margins as well as resiliency. Mary Drouin does not believe that there was good coordination in this effort and believed that coordination was critical. She suggested that the NRMCC should organize a workshop and invite these individuals. Hill stated that page on safety margin in characterization report on 1-9 included specific comments in regards to PRA and JCNRM should review.

- a. Post Fukushima: Considerations for Beyond Design Bases Accident Evaluations
 

Ralph Hill stated that he didn't intend to go into detail in this discussion. He stated that a lot of post- Fukushima focus was being placed on BDBE and plant life extensions. He provided a paper entitled "Beyond Design Basis Evaluation" available as Attachment D.
- b. Resiliency
 

Ralph Hill explained that "Resiliency" was a new concept emerging (i.e., the ability of infrastructure to recover from a catastrophic event, such as Fukushima accident). He saw this as

a new issue that should be considered and that the NRMCC might be the place to address. A paper from Dr. Bilal M. Ayyub with the University of Maryland was provided on this topic (see Attachment E). Previously Mary Drouin suggested that the NRMCC may want to organize a workshop and invite the appropriate individuals. Bryan Erler expressed concern about developing standards too quickly but thought that research was needed. Moseley suggested that Dr. Ayyub be invited to address the committee in Baltimore on this subject.

Action Item 2/2013-05: Ralph Hill to invite Dr. Ayyub to address the NRMCC on Resiliency at the September 2013 meeting in Baltimore.

Sid Bersen expressed concern with public over reaction and urged that this be taken seriously as it impacted the industry. He suggested that acceptance criteria for accidents likely to occur be readdressed.

c. DOE PRA Standard

A copy of the DOE PRA standard was provided in advance of the teleconference for reference.

d. New ANS Standards Board Committee

Chuck Moseley informed members that the ANS had approved a new committee to facilitate development/maintenance of ANS standards to use risk-informed insights called the Risk-Informed and Performance Based Principles Policy Committee (RPBPPC). The RPBPPC was not a standards developing committee but an interface for ANS standards using risk informed technologies. The RPBPPC would work with the JCNRM as needed.

**8) Review of New Action Items**

Action items are documented throughout.

**9) Next Meeting**

It was agreed that the next physical meeting would be held with the JCNRM in September 2013 in Baltimore, Maryland.

**10) Adjournment**

Both teleconferences were adjourned.

**CHAIR**

George A. Ballassi  
General Dynamics Electric Boat  
[gballass@gdeb.com](mailto:gballass@gdeb.com)

**VICE CHAIR**

James Parelli  
Westinghouse Electric Company LLC  
[parelli@westinghouse.com](mailto:parelli@westinghouse.com)

**SECRETARY**

Steve Fieger  
U.S. NRC  
11545 Rockville Pike  
CSB-4C07M  
Rockville, MD 20852-2746  
[stephen.fieger@nrc.gov](mailto:stephen.fieger@nrc.gov)

**SECRETARY ELECT**

Thomas Koshy  
International Atomic Energy Agency  
[t.koshy@iaea.org](mailto:t.koshy@iaea.org)

**PAST CHAIR**

Satish Aggarwal  
SK Nuclear  
[ieee.npec@yahoo.com](mailto:ieee.npec@yahoo.com) or [sa@ieee.org](mailto:sa@ieee.org)

**STANDARDS COORDINATOR**

Paul L. Yanosy, Sr.  
Westinghouse Electric, Co. LLC  
[yanosypl@westinghouse.com](mailto:yanosypl@westinghouse.com)

**SUB-COMMITTEE CHAIRS**

**SC-2 Qualification**

John White  
True North Consulting  
[j.l.white@ieee.org](mailto:j.l.white@ieee.org)

**SC-3 Operations, Maintenance,  
Aging, Testing, and Reliability**

James K. Liming  
ABSG Consulting  
[JLiming@absgconsulting.com](mailto:JLiming@absgconsulting.com)

**SC-4 Auxiliary Power**

David Gladey  
PPL Susquehanna, LLC  
[dgladey@pplweb.com](mailto:dgladey@pplweb.com)

**SC-5 Human Factors, Control  
Facilities, and Human Reliability**

Robert B. Fuld  
Westinghouse Electric, Co. LLC  
[fuldrb@westinghouse.com](mailto:fuldrb@westinghouse.com)

**SC-6 Safety Related Systems**

David Herrell  
MPR Associates  
[dherrell@mpr.com](mailto:dherrell@mpr.com)

July 31, 2013

Mr. Robert Lane  
ATC Nuclear  
777 Emory Valley Road  
Oak Ridge, TN 37830

**Subject: IEEE SC-3 Computer Projector – Thank You Message**

*Bob*  
Dear Mr. Lane:

It is with great pleasure that I issue this message of our greatest thanks and admiration for your gracious gift of a high-quality computer projector to the IEEE Nuclear Power Engineering Committee, Subcommittee 3 (SC-3), "Operations, Maintenance, Aging, Testing, and Reliability." This computer projector has proven to be extremely valuable to our subcommittee and our associated Working Groups. I and many of our membership often remark how we wish we had more dedicated members like you. We wish to thank you for your past service to our subcommittee as well as for this valuable gift. We trust that you are doing well, and we wish you all the best for the future.

With sincerest thanks and high regards,



James K. Liming  
Chairman, SC-3

# Status of IEEE P692

IEEE Standard Criteria for Security Systems for  
Nuclear Power Generating Stations

IEEE SC-3 13-02 Meeting  
Mystic, CT  
July 2013

# P692 Status since SC-3 | 3-0 | meeting

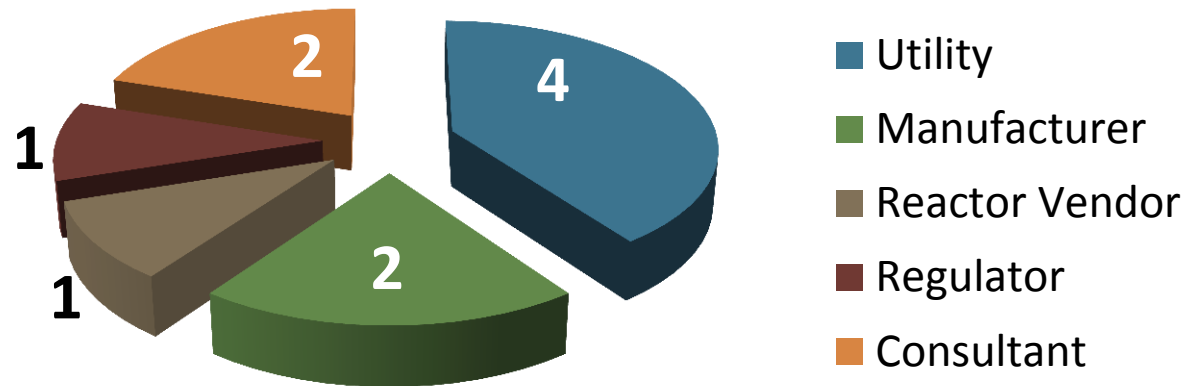
- ✓ January 22, 2013 – Draft 3c of the Standard previewed at the SC-3 meeting (for approval) and on the following day at the NPEC meeting for permission to ballot.
- ✓ March 24, 2013 – The ballot group was formed.
- ✓ April 26 2013 – The initial ballot was completed.
- ✓ May 29-30 2013 – The working group met to address comments received on initial ballot.
- ✓ June 7, 2013 – Recirc ballot was initiated.
- ✓ June 20, 2013 – Recirc ballot completed.
- ✓ June 25, 2013: WG-3.2 met by conference call to address comments
- ✓ June 28, 2013 – Second Recirc Ballot was initiated.
- ✓ July 9, 2013 – Second Recirc Ballot was completed.
- ✓ July 10, 2013 – Completed Form for Submittal of Proposed Standard to RevCom.
- ❑ August 22, 2013 – RevCom Meeting followed by SA Board Meeting.
- ❑ December 2013 – Publication.

# IEEE P692 D4d – Current Status

- Draft D4d is currently being reviewed by IEEE RevCom
- On the agenda for approval at their August 22, 2013 meeting
- Expected publication in December 2013.

# WG-3.2 Members Update

- WG-3.2 Membership Roster was reviewed and updated:
  - 4 members removed for lack of participation
  - 1 new member (vendor)
- Updated Membership breakdown (9 members):





Thank you for your attention!

**Questions or Comments?**

# Additional slides

## Results of Initial Ballot – Draft D4b

- 47 eligible people in the ballot group, 44 voted, hence 93% returned ballot (>75% required)
- 42 affirmative votes
- 1 negative vote with comments
- 1 abstention by lack of time
- 97% affirmative
- 88 comments received, 4 classified as “Must Be Satisfied”
- WG-3.2 meeting organized at Vogtle on May 29-30, 2013 to resolve comments
- 88 comments resulted in 31 changes

# Results of Recirc Ballot – Draft D4c

- 47 eligible people in the ballot group, 44 voted, hence 95% returned ballot (>75% required)
- 44 affirmative votes
- 0 negative vote with comments
- 1 abstention by lack of time
- 100% affirmative
- 24 comments received, resulted in 5 modifications
  - *which* changed into *that* in subclause 4.1 “Design basis”
  - Other changes were editorial
- Second Recirc Ballot initiated within a week

# Recirc Ballot – Resulting change in Draft D4c

An integrated security system shall provide the means to collect, display, and audibly annunciate in the appropriate alarm monitoring station any alarm or abnormal event that is generated by any monitoring system required by the facility's security plan. An integrated security system shall provide the means to observe and assess the isolation zones and physical barriers at the perimeter through the use of video surveillance or other suitable means, ~~which~~ **that** limits exposure of responding personnel to attack. The integrated system shall also provide equipment for access control, entry/exit control, and response force communications.

# Results of Second Recirc Ballot – Draft D4d

- 47 eligible people in the ballot group, 44 voted, hence 93% returned ballot (>75% required)
- 45 affirmative votes
- 0 negative vote with comments
- 1 abstention by lack of time
- 100% affirmative
- 1 comment received: “Meets all IEEE Editorial Requirements”



## PI205 Preview

“Guide for Assessing, Monitoring,  
and Mitigating Aging Effects on  
Electrical Equipment Used in  
Nuclear Power Generating Stations  
and Other Nuclear Facilities”

July 31, 2013 (NPEC 13-02)  
Rebecca L. Steinman (WG-3.4 Chair)



# Preview – PI 205

## Presentation Contents

1. PAR Summary
2. Working Group Membership
3. Table of Contents
4. Summary of Changes
5. Schedule



# Preview – P I 205

## I. PAR Summary

- History of IEEE Std I205
  - Originally published in 1993
  - Revised and published in 1997
  - Reaffirmed in 2000
  - NPEC chair requested revision 2010

# Preview – P I 205

## I. PAR Summary

- **PAR** was approved March 31, 2011; expires December 31, 2015.
- **Scope of Proposed Standard:** This document provides guidelines for assessing, monitoring, and mitigating aging effects on electrical equipment used in nuclear power generating stations and other nuclear facilities.
- **Purpose of Proposed Standard:** The purpose of this document is to provide guidance in assessing and monitoring aging effects and in developing and implementing aging management programs for electrical equipment used in nuclear power generating stations and other nuclear facilities.

# Preview – P I 205

## I. PAR Summary (continued)

- **Need (Purpose) for the Project:**
  - IEEE Std 1205 was originally written to support licensing renewal efforts. In subsequent years, commercial nuclear power plant owners have been required to address aging of non-safety related equipment in response to 10 CFR 50.65 and to develop aging management programs addressing structural, mechanical, and electrical structures, systems and components (SSCs) in response to 10 CFR 54.
  - The purpose of this revision of IEEE Std 1205 is to incorporate the following changes to make the guide more useful and applicable to electrical equipment utilized in nuclear facilities.

# Preview – PI 205

## 2. Working Group Membership

11 members when work began in 2011  
17 members now

Rebecca Steinman – Chair  
Suresh Channarasappa – Vice Chair  
George Kyle – Secretary

George Ballassi  
Ramesh Boddula  
Nissen Burstein  
Howard Butler  
Hamid Heidarisafo  
Charles Hills  
David Horvath

Steven Hutchins  
Robert Konnik  
James Liming  
Kirk Melson  
Sheila Ray  
John Stevens  
Leina Tocchetto

# Preview – PI205

## 3. PI205 Table of Contents

### IEEE Std I205-2000 (R2007)

1. Overview (Scope, Purpose)
  2. References
  3. Definitions
  4. Stressors, aging mechanisms, & aging effects
  5. Discussion
  6. Aging assessment
  7. Monitoring & mitigating aging degradation
  8. Data
- Annex A: Aging effect tables
- Annex B: Monitoring of environments
- Annex C: Condition monitoring
- Annex D: Equipment & system examples
- Annex E: Aging management program attributes
- Annex F: Bibliography

### PI205

1. Overview (Scope, Purpose)
  2. **Normative references**
  3. Definitions
  4. Stressors, aging mechanisms, & aging effects
  5. **Principles of aging assessment**
  6. Aging assessments
  7. Monitoring & mitigating aging degradation
  8. Data
- Annex A: Aging effect tables
- Annex B: Monitoring of environments
- Annex C: Condition monitoring **techniques**
- Annex D: **Examples of practical applications of aging methodologies**
- Annex E: **Arrhenius equation examples**
- Annex F: Aging management program attributes
- Annex G: Bibliography

# Preview – P I 205

## 4. Summary of Changes

- Expands the scope from Class IE to any electrical equipment and to facilities other than nuclear power generating stations.
  - Replace “Class IE equipment” with “electrical equipment” or “susceptible equipment” depending on context
  - Replace “plant” with “facility”
- Added IEEE Std 627 as a normative reference
- Added definitions for Class IE, condition monitoring, essential function, service conditions
- Updated other definitions to standardize across related NPEC standards

# Preview – PI 205

## 4. Summary of Changes (cont'd)

- Updated Clause 5 to reflect needs for aging assessment beyond just supporting license renewal
- Updated Clause 6 to:
  - Describe “essential functions” of equipment instead of limiting it to “safety functions” of Class I E equipment
  - Add some new descriptions of specific applications and corresponding forms of the Arrhenius equation
  - Add clarification to the Arrhenius method discussion of the assumptions, sensitivities, and limitations
- Updated the format of the Annex A tables (split last column into two columns) to clarify in situ and laboratory methods of monitoring aging stressors and their potential effects
- Added fourth table to Annex A for printed circuit board aging effects

# Preview – P I 205


## 4. Summary of Changes (cont'd)

- Updated Annex C to reflect current condition monitoring practices
- Revised Annex D to only two examples, one that screened out of I205 for another program and one that required an aging assessment
- Added new Annex E for examples of using the different versions of the Arrhenius equation
- Updated Annex G to reflect recent aging research and new IEC/IEEE stds on condition monitoring. Also annotated the bibliography to clarify reference association with the different annexes



# Preview – P I 205

## 5. Schedule

- 
- Preview to NPEC: 7/13
  - Complete ballot pool: 9/13
  - Complete 1<sup>st</sup> ballot: 11/13
  - Resolve ballot comments: 1/14
  - Recirculation ballot: 3/14
  - Submittal to RevCom: 5/14
  - Publish: 9/14



# Preview – P I 205

Questions?