

**IEEE NPEC Subcommittee SC-3**  
***Operations, Maintenance, Aging, Testing, & Reliability***  
**Meeting 20-2 Minutes**



**Wednesday Morning, 15 Jul 2020**  
**WebEx Virtual Meeting**

Members Present:	George Ballassi (PC) John Beatty Suresh Channarasappa Tom Crawford (Chair) Jacob Kulangara Jim Liming (C) Khoi Nguyen Kirk Melson	Ed Mohtashemi James Parello (C) Clint Pierce Rebecca Steinman (VC) Phil Ward Khadijah West Yvonne Williams (PC) Kiang Zee
Members Absent:	Hamid Heidarisa (C) Joe Napper (C)	Craig Sellers (C)
Guests:	Malia Zaman	

## 1.0 Introduction

- **Opening Remarks and Meeting Agenda**

Meeting was called to order at 8:06 AM by Tom Crawford, Chair. The meeting has met the quorum requirements to conduct business with 14 of 14 members present, as shown in Attachment 2.

Tom presented the draft agenda; as we went through the agenda Jacob questioned the questions marks shown for WG 3.2, but Tom explained they were appropriate since the WG currently has no officers. Rebecca moved to approve the agenda as written; Yvonne seconded. The agenda was unanimously approved by voice vote. The Approved Agenda is included in Attachment 1.

As there are no changes to the attendees from the WG meetings on 14 July, Tom dispensed with the introductions.

Tom went through the Patent Slides and the new Copyright slides; he noted that these are available in iMeet Central. They are also included as Attachments 9 & 10.

## 2.0 Secretary's Report

- **SC-3 Approval of S20-1 Meeting Minutes**

The SC3 20-1 draft meeting minutes were reviewed, and there were four minor changes:

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- (1) replaced "meetings yesterday" with " meetings on 14 July" in 1.0,
- (2) corrected spelling of Khadijah's name,
- (3) spelled out MEC as Mandatory Editorial Coordination, and
- (4) corrected spelling of Seller under ASME report.

Yvonne moved to approve the minutes as revised; Jacob seconded the motion. The minutes were unanimously approved by voice vote as revised.

- **Action Item Status**

17-2-B – Action remains open. Rebecca suggested starting a discussion thread on iMeet Central to capture training topic suggestions.

19-2-C – COMPLETE as of 14 July 2020.

19-2-D – In-progress. Jim P. suggested Rebecca distribute to other SC when completed.

19-2-E – COMPLETE as of 18 November 2019.

20-1-A – Review completed on 14 Jul 2020. PAR to be drafted afternoon of 15 July 2020 and distributed via iMeet Central for WG approval.

The updated action item list is provided in Attachment 4.

- **SC-3 Membership**

The membership roster has been updated by Tom and the information has been validated. Tom discussed a letter received from the NRC nominating Khoi and Khadijah to replace Ngola Otto and Jorge Cintron-Rivera as the NRC representatives on SC-3. The letter is provided as Attachment 12.

Tom formally nominated Khadijah to become an SC-3 member. Yvonne seconded the nomination. Khadijah was unanimously approved to become a member of SC-3. She is already a member of WG 3.1 and WG 3.3.

- **Alligator Fund**

There were no expenses to the Alligator Fund. No meeting fee was collected due to the virtual meeting. The Alligator Fund balance is \$680.72 and status is contained in Attachment 3.

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

- **Leadership Review / Membership**

The current officers are: Tom Crawford, Chair; and Rebecca Steinman, Vice Chair. A volunteer to fill the Secretary position is still needed. Tom indicated that he is approaching the time to step down as SC-3 Chair. Rebecca indicated she has no company support for IEEE standards, unable to travel in 2021 and is therefore hesitant to move up to the Chair position.

Tom reiterated that we all need to recruit new members and encourage our younger members to step up into leadership positions.

It was noted that Suresh Channarasappa is the current NPEC Standards coordinator. He took over from Greg Hostetter at the end of NPEC 20-1.

- **Leadership Telecons**

There were no Leadership telecons since the previous meeting.

- **NPEC Preparations**

The NPEC meeting is scheduled as a virtual WebEx meeting scheduled to start at 9 am and end at 1 pm (EDT). There is no meeting fee, but both members and guests need to use 123SignUp to obtain the WebEx link and password.

There are no previews for NPEC 20-2.

### **4.0 Working Group Reports**

- **WG-3.1**

The P336 PAR expires December 2020. Ballot comments are resolved; standard is ready for ready for recirculation ballot. Malia noted that efforts to date are sufficient to not need to renew the PAR. Yvonne noted that the templates in iMeet Central are out of date and that it would be better to post a link than the actual files.

**ACTION:** Rebecca to remove templates from iMeet Central and add link to wiki being developed for WG chairs.

IEEE 338 PAR expires in 2022. The WG is currently updating P338.

IEEE 1819 was published in 2016 and will need updating by 2026. Yvonne will mail awards to members who were not present at NPEC 19-2 to receive them in person. No other actions at this time.

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- **WG-3.2**

Tom reported that the WG Chair and Vice Chair have both retired and the secretary has resigned. The last WG meeting was in Oct 2018, and a roster and working copy of P692 have been provided. New officers are needed to reconstitute this WG ASAP. The PAR for P692 expires in 2022.

**ACTION:** Rebecca to reach out to Exelon colleagues to attempt to find new WG members and email Dave Horvath (past chair of WG-3.2) for suggestions for members.

**ACTION:** Tom will bring up need for leadership and support at the ADCOM meeting and NPEC 20-2. He will follow-up with a message to all NPEC members via iMeet Central.

**ACTION:** Rebecca to create a social media request for volunteers that SC-3 members can post to their personal social media feeds.

- **WG-3.3**

IEEE P577 is currently under revision. A working copy of IEEE 577 is on the iMeet workspace. WG plans to preview the revised standard at NPEC 21-1. The P577 PAR expires in 2022.

**ACTION:** Tom and/or Yvonne to send preview PowerPoint template to Khoi.

IEEE 933 expires in 2023; Khoi created preliminary draft PAR. WG to finalize PAR on 15 July 2020 and post to iMeet Central for review. Approval target is NPEC 21-1.

IEEE 352 expires in 2026.

- **WG-3.4**

WG 3.4 is dormant. IEEE 1205 expires in 2024. Rebecca will reconstitute the WG in mid-2021 and submit PAR at end of 2021.

## **5.0 Liaison Reports**

Liaison reports were provided as follows:

- NRC – Khoi provided highlights of his report; the full report is in Attachment 7.
- ASME – Craig Sellers provided a report to Tom Crawford and it is provided in Attachment 6.
- SCoRA – Kiang was unable to attend ASME meeting, but reported the group is only receiving inputs so far and not taken any actions. Kiang has an action to update ASME on NPEC activities to risk-inform IEEE standards.

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## **6.0 Old Business**

- **Standards Status**

We are scheduled to preview P577 during the 21-1 meeting. Targeting IEEE 933 PAR approval by 21-1 meeting. A copy of the updated SC-3 schedule is provided in Attachment 8. The current NPEC SC-3 Standards Schedule is provided in Attachment 5.

- **iMeet**

ACTION 19-2-D remains open for Rebecca to create a mini-tutorial on iMeet Central usage. Both her contact as well as IEEE iMeet contact information should be provided in case members need additional help.

## **7.0 New Business**

- **NRC Public Meeting July 20, 2020**

Shelia Ray has assumed the NRC industry standards coordinator role. She is hosting an NRC public meeting on July 20, 2020 to discuss the NRC staff's draft approach for achieving a simpler and more effective regulatory guidance framework for the endorsement of IEEE NPEC electrical Standards. The meeting announcement, including the NRC slides ADAMS accession number, is provided in Attachment 11.

## **8.0 Action Items**

The revised AI List is provided in Attachment 4.

## **9.0 Next Meeting**

The 21-2 meeting will be in Mystic, CT to honor our cancelled contact in 2020. Although not finalized, all expectations are that 21-1 will be a virtual WebEx due to COVID-19 and company travel restrictions. More information will be provided when available.

## **10.0 Adjournment**

Yvonne made motion for adjournment and Ed seconded. The motion was approved by voice vote and the meeting was adjourned at 11:14 AM EDT.

Prepared by Rebecca Steinman

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iMeet Central SC-3 Workspace:

<https://ieee-sa.imeetcentral.com/npecsc3/>

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SC-3 Website information:

<http://sites.ieee.org/npec-sc3/>

NPEC Standards Website information:

<http://sites.ieee.org/pes-npec/npec-standards/>

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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
Attachment 7 NRC Liaison Report	Attachment 8 SC-3 Standards Schedule	Attachment 9 IEEE Patent Slides
Attachment 10 IEEE Copyright Slides	Attachment 11 7-20-20 NRC Meeting Announcement	Attachment 12 NRC letter to SC-3

## Agenda – Meeting 20-2 – Virtual Webex Meeting

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

<b>Meeting Date/Time:</b>	Wednesday, 07/15/2020 0900-1230 (EDT -5R)	<b>Chairman:</b>	Tom Crawford
		<b>Vice Chair:</b>	Rebecca Steinman
		<b>Secretary:</b>	

<b>Desired Outcomes:</b>	<ol style="list-style-type: none"> <li>1. Review status/activities of each SC Working Group</li> <li>2. Review status of membership and officers succession</li> <li>3. Update SC3 standards master schedule</li> </ol>
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WHAT	WHO	WHEN
Welcome, Review Desired Outcomes <ul style="list-style-type: none"> <li>• Meeting logistics</li> <li>• Patent &amp; Copyright Slides</li> <li>• Introductions</li> </ul>	T. Crawford All	0900 - 0915
Chairman's Introduction <ul style="list-style-type: none"> <li>• Opening remarks</li> <li>• Review/approve Agenda</li> </ul>	T. Crawford	0915 - 0925
Secretary's Report <ul style="list-style-type: none"> <li>• Approval of SC3 20-1 Meeting Minutes</li> <li>• Action Item review/status</li> <li>• SC3 membership review</li> <li>• Alligator Fund report</li> <li>• iMeet &amp; Website update</li> </ul>	R. Steinman / T. Crawford	0925 - 0945
Chairman's Report <ul style="list-style-type: none"> <li>• SC3 Leadership – Officers and succession planning</li> <li>• Membership Status</li> <li>• NPEC meeting preparations &amp; agenda for tomorrow's meeting and future meetings</li> </ul>	T. Crawford	0945 - 1000
IEEE 336 Balloting Status / Ballot Comments	P. Ward / Y. Williams	1000 - 1015
IEEE 933 PAR	K. Nguyen	1015 - 1030
<b>BREAK</b>	All	1030 - 1045
IEEE 577 Preview Status	K. Nguyen	1045 - 1100
Working Group Reports <ul style="list-style-type: none"> <li>• WG-3.1 (Testing) – 336 expires in 2020, 338 in 2022, 1819 in 2026</li> <li>• WG-3.2 (Security) – 692 expires in 2023 [Still need new Chair]</li> <li>• WG-3.3 (Reliability) – 577 expires in 2022, 933 in 2023, 352 in 2026</li> <li>• WG-3.4 (Aging) – 1205 expires in 2024</li> </ul>	P. Ward ?? K. Nguyen R. Steinman	1100 - 1105 1105 - 1110 1110 - 1115 1115 - 1120
Liaison Reports <ul style="list-style-type: none"> <li>• NRC Report</li> <li>• Other Risk-Informed Activities</li> </ul>	K. Nguyen K. Zee	1120 - 1130 1130 - 1140
Old Business <ul style="list-style-type: none"> <li>• Master schedule for Std review/updates</li> <li>• SC-3 website and iMeet Central accounts</li> </ul>	T. Crawford R. Steinman	1140- 1150 1150 - 1200
New Business/Rumor Mill/Drumbeats <ul style="list-style-type: none"> <li>• (TBD)</li> </ul>	T. Crawford	1200 - 1215
Review of Action Items	R. Steinman	1215 - 1225
Next meeting	T. Crawford	1225 - 1230
Meeting closeout/adjournment	T. Crawford	1230

**NPEC Subcommittee SC-3**  
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**Attendance**

Last	First	SC-3 Member	2018-2	2019-1	2019-2	2020-1	2020-2
<b>Ballassi</b>	<b>George</b>	X	X	X			T
<b>Beatty</b>	<b>John</b>	X	X	X	X	X	T
<b>Channarasappa</b>	<b>Suresh</b>	X	X	X	X	X	T
<b>Crawford</b>	<b>Tom</b>	X	X	X	X	X	T
Heidarisafa	Hamid	C					
<b>Kulangara</b>	<b>Jacob</b>	X	T	X	X	X	T
Liming	Jim	C	T				N
<b>Melson</b>	<b>Kirk</b>	X	X	X	X		T
<b>Mohtashemi</b>	<b>Ed</b>	X					T
Napper	Joe	C					
<b>Nguyen</b>	<b>Khoi</b>	X		O	Appointed	X	T
Parello	Jim	C				O	N
<b>Pierce</b>	<b>Clint</b>	X	X	X	X	X	T
Riccio	Ted	H	X	X		Honorary	
Sellers	Craig	C					
<b>Steinman</b>	<b>Rebecca</b>	X	X		X		T
<b>Ward</b>	<b>Phil</b>	X		X	X	X	T
<b>West</b>	<b>Khadija</b>	x				X	Appt'd
<b>Williams</b>	<b>Yvonne</b>	X	X	X	X	X	T
<b>Zee</b>	<b>Kiang</b>	X		X	X	X	T

Members are shown in **bold** and colored yellow as of end of most recent meeting.  
 Corresponding and Alternate members are shown in green.

TOTAL VOTING ATTENDEES			10	12	12	10	0
TOTAL NON-VOTING ATTENDEES			0	2	0	1	0
TOTAL VOTING TELECON PARTICIPANTS			3	0	0	0	14
TOTAL NON-VOTING TELECON PARTICIPANTS			3	0	0	0	2
TOTAL ATTENDEES			16	14	12	11	16
TOTAL SC-3 MEMBERS		14					



**Attachment 3**

**NPEC Subcommittee SC-3**

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**Alligator Fund**

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

<b>Meeting</b>	<b>Beginning Balance</b>	<b>Meeting Contributions</b>	<b>Expenses</b>	<b>Ending Balance</b>
S11-1	\$483.86	\$200.00	\$14.00	\$669.86
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
S14-1	\$906.36	\$0.00	\$0.00	\$906.36
S14-2	\$906.36	\$0.00	\$0.00	\$906.36
S15-1	\$906.36	\$0.00	\$0.00	\$906.36
S15-2	\$906.36	\$0.00	\$0.00	\$906.36
S16-1	\$906.36	\$0.00	\$0.00	\$906.36
S16-2	\$906.36	\$0.00	\$0.00	\$906.36
S17-1	\$906.36	\$0.00	\$65.19	\$841.17
S17-2	\$841.17	\$0.00	\$51.08	\$790.09
S18-1	\$790.09	\$0.00	\$52.16	\$737.93
S18-2	\$737.93	\$0.00	\$0.00	\$737.93
S19-1	\$737.93	\$0.00	\$0.00	\$737.93
S19-2	\$737.93	\$50.00	\$50.00	\$737.93
S20-1	\$737.93	\$50.00	\$107.21	\$680.72
S20-2	\$680.72	\$0.00	\$0.00	\$680.72

## Attachment 4

**NPEC Subcommittee SC-3**  
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**Action Items List**

Item No.	Subcommittee 3.0 Actions	Owner	Due Date	Closure Comments
17-2-B	Submit at least one topic to the SC-3 chair that you as a SC member would like to see presented as a 1-hr SC-3 training/technical session at a future mtg.	All Members	Ongoing	S18-2: Keep this item open and reminder all members to contribute ideas. S19-2: Kiang Zee suggested generating a list of training topics based on the Q&A of the 19-02 NPEC presentation on integrating IEEE 1819 into other NPEC standards. All members encouraged to submit technical presentation topics. Hold item open. S20-2: Action remains open. Rebeca suggests starting a discussion thread on iMeet Central to capture training topic suggestions.
19-2-C	Working Group 3.3 to review P577 bibliography. Consider breaking it into two parts – one for historical and one for current documents.	TBD	20-2 mtg	Complete as of 14 July 2020.
19-2-D	Create a mini-tutorial/wikki on iMeet Central usage.	Steinman	Dec 2020	S20-2: In-progress. Rebecca to distribute to other NPEC SC when complete.
19-2-E	Contact IEEE about developing social media content to solicit standards development volunteers.	Steinman	Oct 2020	Complete as of 18 Nov 2020.
20-1-A	Members review current IEEE 933 revision and assess the magnitude of changes needed, in preparation for generating a PAR and planning future work activities.	Nguyen / all	20-2 mtg	S20-2: Review completed on 14 July 2020. PAR to be drafted on 15 July 2020 and distributed for approval via iMeet Central.
20-2-A	Rebecca to remove templates from iMeet Central and add link to wiki being developed for WG chairs.	Steinman	Dec 2020	
20-2-B	Rebecca to reach out to Exelon colleagues to attempt to find new WG members and email Dave Horvath (past chair of WG-3.2) for suggestions for members.	Steinman	21-1 mtg	
20-2-C	Tom will bring up need for WG-3.2 leadership and support at the ADCOM meeting and NPEC 20-2. He will follow-up with a message to all NPEC members via iMeet Central.	Crawford	21-1 mtg	
20-2-D	Rebecca to create a social media request for volunteers that SC-3 members can post to their personal social media feeds.	Steinman	Dec 2020	
20-2-E	Tom and/or Yvonne to send preview PowerPoint template to Khoi for use in developing WG 3.3 preview slides.	Crawford / Williams	21-1 mtg	

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

Chair: Tom Crawford

PROJECT	Standard Expiration	PAR Expiration	TITLE	Working Group	Chair	Cycle Year	Status/Comments
336	2020	Dec-2020	IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities	1	P. Ward	10	Ballot Closed:20200303-Comment Resolution 7/14/2020-ReCirc in process Expect to submit to Revcom by Oct 2020 for Approval
338	2022	Dec-2022	IEEE Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems	1	P. Ward	8	PAR Approved 9/27/2018
352	2026	N/A	IEEE Guide for General Principles of Reliability Analysis of Nuclear Power Generating Stations and Other Nuclear Facilities	3	K. Nguyen	4	
577	2022	Dec-2022	IEEE Standard Requirements for Reliability Analysis in the Design and Operation of Safety Systems for Nuclear Power Generating Stations	3	K. Nguyen	8	PAR approved by Std Brd 3/8/2018 Preview planned for N21-1 meeting.
692	2023	Dec-2022	IEEE Standard Criteria for Security Systems for Nuclear Power Generating Stations	2	Vacant	7	PAR approved 9/27/2018
933	2023	N/A	IEEE Guide for Definition of Reliability Program Plans for Nuclear Generating Stations and Other Nuclear Facilities	3	K. Nguyen	7	New PAR planned 7/14/20
1205	2024	N/A	IEEE Guide for Assessing, Monitoring, and Mitigating Aging Effects on Class 1E Equipment used in Nuclear Power Generating Stations	4	R. Steinman	6	Published 16 May 2014
1819	2026	N/A	Standard for Risk-Informed Categorization and Treatment of Electrical Equipment in Nuclear Facilities	1	P. Ward	4	Approved by SB Sept 22, 2016

Attachment 6

ASME Liaison Report  
July 2020

The only thing to report is that the 2020 Edition of the OM Code has been published and it contains the latest revision to Subsection ISTE, Risk-Informed IST.

Craig Sellers  
Chair Subcommittee Risk-Informed Activities

U.S. Nuclear Regulatory Commission (NRC) Liaison Report  
IEEE PES NPEC Meeting – July 2020

1. General

- a. NRC Commissioner Wright was sworn in for a second term in June 2020.
- b. In June 2020, Christopher T. Hanson was sworn in today as the fifth NRC Commissioner.
- c. In June 2020, the NRC held a virtual workshop on vendor oversight issues. (<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/vendor-oversight.html>)
- d. The staff is holding a public meeting on July 20, 2020 at 2p, to discuss the NRC staff's draft approach for achieving a simpler and more effective regulatory guidance framework for the endorsement of IEEE NPEC electrical Standards and obtain feedback. The public meeting notice and slides can be found at <https://www.nrc.gov/pmns/mtg?do=details&Code=20200743>.

2. Operating Reactors

- a. Open Phase Condition (OPC) – On June 6, 2019, Nuclear Energy Institute (NEI) submitted Revision 3 to the voluntary industry initiative (VII) (ADAMS Accession No. ML19163A176), and subsequently submitted the accompanying guidance document, NEI 19-02 “Guidance for Assessing Open Phase Condition Implementation Using Risk Insights,” (ADAMS Accession No. ML19172A086) on June 20, 2019. Revision 3 of VII includes an option for not enabling the Open Phase Isolation System (OPIS) automatic functions based on assessing the change in risk between operating with automatic functions versus reliance on operator manual action to isolate a power supply affected by an OPC. The staff performed audits at Ginna and Nine Mile Point power stations to gather data and insights on how these two licensees are implementing the guidance contained in NEI 19-02. The staff revised Temporary Instruction (TI) 194 to incorporate insights and lessons learned from these two audits. Revision 1 of TI-194 was issued in April 2020 (ADAMS Accession No. ML19339D067). This revision will be used to verify the adequacy of the VII Revision 3 implementation, which is expected to continue through 2020 and 2021.
- b. In May 2020, NRC staff began a special inspection at River Bend to review circumstances related to the failure of five FLEX portable emergency diesel generators during testing. Inspection report will be publicly available 45 days from the end of the inspection.
- c. The NRC issued subsequent renewed licenses for Peach Bottom in March 2020. NRC is continuing its review of the Surry subsequent license renewal application.
- d. NRC, in April 2020, has approved the license transfer for the Crystal River 3 nuclear power plant from Duke Energy Florida to ADP CR3, enabling active decommissioning of the former nuclear power plant.
- e. Instrumentation and Control (I&C)
  - 1) The NRC staff is in the process of revising the current version of Branch Technical Position (BTP) 7-19 (Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control

Systems review responsibilities). The staff has reviewed and dispositioned all public comments submitted during the public comment period on BTP 7-19, Revision 8. The revised BTP was presented at an Advisory Committee on Reactor Safeguards (ACRS) Subcommittee meeting on June 2<sup>nd</sup>, 2020.

- 2) The NRC staff continues to work on the endorsement of Appendix D (Supplemental Guidance for Application of 10 CFR 50.59 to Digital Modifications) to NEI 96-07 (Guidelines for 10 CFR 50.59 Evaluations) via an update to RG 1.187 (Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments). An ACRS Full Committee meeting was held in June 2020. The NRC staff is assessing whether additional changes to RG 1.187 are warranted based on stakeholder feedback received during the ACRS meeting.
- 3) The NRC staff is preparing for anticipated license amendment requests using the revised ISG-06 (Licensing Process), including pre-application activities with potential applicants. For example, several pre-application meetings have been held with Entergy in anticipation of an application to be submitted later in 2020 for Waterford Steam Electric Station, Unit 3.

### 3. New & Advanced Reactors

- a. NRC has issued an Early Site Permit for Tennessee Valley Authority's Clinch River site near Oak Ridge, TN. The NRC staff's technical review of TVA's application also covered issues such as how the site's characteristics could affect plant safety and environmental protection considerations.
- b. Regulatory Guide (RG) 1.233 entitled "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light Water Reactors," was issued in June 2020.
- c. NRC issued a safety evaluation report (ML20111A118) for the Kairos Topical Report, "Principal Design Criteria for the Kairos Power Fluoride Salt-Cooled, High Temperature Reactor Topical Report."
- d. The NRC is evaluating technical reports from multiple advanced reactor designs (i.e., pre-application stage).
- e. On June 2020, the NRC issued the Oklo's acceptance letter (ML20149K604).
- f. The NRC staff have drafted an I&C Design Review Guide (DRG) for non-Light Water Reactors. The DRG has been aligned with the overall Licensing Modernization Project discussed in NEI 18-04 (Risk-Informed Performance-Based Technology Guidance for Non-Light Water Reactors), which is endorsed via RG 1.233. The DRG was presented at an ACRS Subcommittee meeting on June 2<sup>nd</sup>, 2020.

### 5. Rulemaking

- a. The NRC is seeking comments on a proposed rule and associated draft regulatory guide on risk-informed, performance-based emergency preparedness

requirements for small modular reactors and other new technologies. Comments will be accepted until July 27, through the federal rulemaking website Regulations.gov by using Docket ID NRC-2015-0225.

## 6. Research

- a. NRC's Office of Research is in the process of developing a Draft Regulatory Guide (RG) to endorse IEEE 741 (Appendix A related to Degraded Voltage and Loss-of-Voltage Relays). The staff expects to issue the draft RG for public comments during the third quarter of CY2020.
- b. RG 1.89 – ongoing periodic review was published December 2018. According to the periodic review, a revised Draft Guide (DG) was supposed to be issued for internal review by the end of the second quarter of FY2019 (April 2019). However, there has been an internal delay due to unexpected circumstances involving Office of Research staff. NRR has taken over ownership for this revision. A proposed DG was distributed to internal technical stakeholders for comment on September 30, 2019. The current plan is to release a DG for public comment by Spring of 2020.
- c. A proposed revision to RG 1.9, Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants, is under staff review. The NRC staff is considering endorsement of IEEE 387 in this revision. The staff is currently evaluating the feasibility of expanding the scope of RG 1.9 and expects to finalize the path forward during the first quarter of CY2020.
- d. DG 1328 was published in February 2019 (Proposed Revision 4 of RG 1.100, 'Seismic Qualification of Electrical Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants'). The final RG 1.100, Revision 4 is expected to be published during the second quarter of CY2020.
- e. RG 1.180, Revision 2 "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems" was published in December 2019.
- f. Regarding IEEE Std 1819-2016 "Standard for Risk-Informed Categorization and Treatment of Electrical Equipment in Nuclear Facilities," the staff is considering meeting internally during the first quarter of CY2020 to assess the feasibility for endorsing this standard.
- g. The NRC staff is planning to perform the following I&C-related infrastructure work over the next year or so:
  - 1) Update Reg Guide 1.152 (Use of Computers in Safety Systems) to endorse the 2016 version of IEEE 7-4.3.2 (Criteria for Programmable Digital Devices in Safety Systems of Nuclear Power Generating Stations) and retire ISG-04 (Highly Integrated Control Rooms & Digital Communication Systems);

- 2) Update Reg Guide 1.153 (Criteria for Safety Systems) to endorse the 2018 version of IEEE 603 (Criteria for Safety Systems for Nuclear Power Generating Stations); and,
- 3) Assess the following areas associated with RG 1.168 (Verification, Validation, Release & Audit for Digital Systems) in support of updating it to endorse the 2016 version of IEEE-1012 (Standard for System, Software, and Hardware Verification and Validation) or a newer version, as appropriate:
  - i. Graded-approach alternatives for the software integrity guidance for all software used in nuclear power plant safety systems to be Safety Integrity Level (SIL) 4 as specified in RG 1.168 Section C.1.
  - ii. The feasibility of consolidating, as appropriate, the existing regulatory guidance related to the topic of "Software Development and Digital Reliability" (i.e., RGs 1.168 through 1.173 (Developing Software Life Cycle Processes for Digital Computer Software Used in Safety Systems of Nuclear Power Plants) for a more efficient demonstration of software quality.

#### 7. Part 21 Reports

a. The following Part 21 Reports were issued in the past 6 months (more information available on the NRC website under the Part 21 Reports webpage):

- i. 2020-07-00 - 10 CFR 21.21(d)(3)(ii) Notification, Unknown Tightness of Opposed Piston Diesel Engine Cam Thrust Lock Nut Assembly
- ii. 2020-08-00 - Notification Regarding Barton Model 763 or 763A or 764 Electronic Transmitter Qualified Life Update
- iii. 2020-09-00 - 10 CFR Part 21 Evaluation Regarding Container Failure in KCR-07 Batteries
- iv. 2020-10-00 - Notification of Potential Defect Regarding AMETEK Power Supply, Series 85-RPXXX
- v. 2020-15-00 - 10 CFR Part 21 Report Notification for certain Curtiss-Wright Scientech RTL500 and RTL851 Modules
- vi. 2020-16-01 - Inadequate Commercial Grade Dedication of Replacement Marsh Bellofram Engine Thermocouples
- vii. 2020-17-00 - Part 21 Initial Report- Failures of Size 1 and 2 Freedom Series Auxiliary Contacts

#### 8. Generic Communications - None



**Attachment 8**

**NPEC Subcommittee SC-3**

*Operations, Maintenance, Aging, Testing, and Reliability*

**SC-3 Standards Schedule**

	WG 3.1	WG 3.2	WG 3.3	WG 3.4
2017-1	336		352	
2017-2	336		577	
2018-1	336		577	
2018-2	336		577	
2019-1	336		577	
2019-2	338		577	
2020-1	338	692	577	
2020-2	338	692	577	
2021-1	338	692	933	1205
2021-2	338	692	933	1205
2022-1	338	692	933	1205
2022-2	338	692	933	1205
2023-1	1819	692	933	1205
2023-2	1819		352	
2024-1	1819		352	
2024-2	1819		352	
2025-1	1819		352	
2025-2	1819		352	
2026-1	336		352	
2026-2	336		352	
2027-1	336			
2027-2	336			
2028-1	336			
2028-2	336		577	
2028-1	338		577	
2028-2	338		577	
2028-1	338		577	
2028-2	338		577	
2029-1	338		577	
2029-2	338		577	

STD	Standard		Age as of: 07/31/2020	Time left (yrs)	PAR Expires
	Approved	Expires			
336	06/17/2010	06/17/2020	10.1	-0.1	12/2020
338	02/06/2012	02/06/2022	8.5	1.5	12/2022
352	12/07/2016	12/07/2026	3.7	6.4	-
577	08/30/2012	08/30/2022	7.9	2.1	12/2022
692	08/23/2013	08/23/2023	6.9	3.1	12/2022
933	12/11/2013	12/11/2023	6.6	3.4	-
1205	03/27/2014	03/27/2024	6.3	3.7	-
1819	09/22/2016	09/22/2026	3.9	6.1	-

Balloting  
and  
Approval

Includes:

- 1 Preview, ballot pool, ballot, receive comments
- 2 Resolve comments, recirc
- 3 Submit to/ revcom approval/publish

## The IEEE-SA strongly recommends that at each WG meeting the chair or a designee:

- **Show slides #1 through #4 of this presentation**
- **Advise the WG attendees that:**
  - IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
  - Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
  - There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- **Instruct the WG Secretary to record in the minutes of the relevant WG meeting:**
  - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
  - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard
  - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.
- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG Chair review the guidance in *IEEE-SA Standards Board Operations Manual* 6.3.5 and in FAQs 14 and 15 on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: **WG** includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.

# Participants have a duty to inform the IEEE

- Participants shall inform the IEEE (or cause the IEEE to be informed) of the identity of each holder of any potential Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
- Participants should inform the IEEE (or cause the IEEE to be informed) of the identity of any other holders of potential Essential Patent Claims

**Early identification of holders of potential  
Essential Patent Claims is encouraged**

# Ways to inform IEEE

- **Cause an LOA to be submitted to the IEEE-SA (patcom@ieee.org); or**
- **Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or**
- **Speak up now and respond to this Call for Potentially Essential Patents**

If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to the WG Chair

# Other guidelines for IEEE WG meetings

- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
  - **Don't discuss the interpretation, validity, or essentiality of patents/patent claims.**
  - **Don't discuss specific license rates, terms, or conditions.**
    - Relative costs of different technical approaches that include relative costs of patent licensing terms may be discussed in standards development meetings.
      - **Technical considerations remain the primary focus**
  - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
  - **Don't discuss the status or substance of ongoing or threatened litigation.**
  - **Don't be silent if inappropriate topics are discussed ... do formally object.**

-----  
For more details, see *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and *Antitrust and Competition Policy: What You Need to Know* at <http://standards.ieee.org/develop/policies/antitrust.pdf>

# Patent-related information

The patent policy and the procedures used to execute that policy are documented in the:

- ***IEEE-SA Standards Board Bylaws***  
(<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>)
- ***IEEE-SA Standards Board Operations Manual***  
(<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>)

Material about the patent policy is available at  
<http://standards.ieee.org/about/sasb/patcom/materials.html>

**If you have questions, contact the IEEE-SA  
Standards Board Patent Committee  
Administrator at [patcom@ieee.org](mailto:patcom@ieee.org)**

**IEEE SA**  
STANDARDS  
ASSOCIATION



## IEEE SA COPYRIGHT POLICY



NOVEMBER 2019



## INSTRUCTIONS FOR CHAIRS OF STANDARDS DEVELOPMENT ACTIVITIES

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At the beginning of each standards development meeting the chair or a designee is to:

- Show the following slides (or provide them beforehand)
- Advise the standards development group participants that:
  - IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
  - Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy;
- Instruct the Secretary to record in the minutes of the relevant meeting:
  - That the foregoing information was provided and that the copyright slides were shown (or provided beforehand).



## IEEE SA COPYRIGHT POLICY

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By participating in this activity, you agree to comply with the IEEE Code of Ethics, all applicable laws, and all IEEE policies and procedures including, but not limited to, the IEEE SA Copyright Policy.

- Previously Published material (copyright assertion indicated) shall not be presented/submitted to the Working Group nor incorporated into a Working Group draft unless permission is granted.
- Prior to presentation or submission, you shall notify the Working Group Chair of previously Published material and should assist the Chair in obtaining copyright permission acceptable to IEEE SA.
- For material that is not previously Published, IEEE is automatically granted a license to use any material that is presented or submitted.

## IEEE SA COPYRIGHT POLICY

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- The IEEE SA Copyright Policy is described in the IEEE SA Standards Board Bylaws and IEEE SA Standards Board Operations Manual
  - IEEE SA Copyright Policy, see
    - Clause 7 of the IEEE SA Standards Board Bylaws  
<https://standards.ieee.org/about/policies/bylaws/sect6-7.html#7>
    - Clause 6.1 of the IEEE SA Standards Board Operations Manual  
<https://standards.ieee.org/about/policies/opman/sect6.html>
- IEEE SA Copyright Permission
  - <https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/permissionltrs.zip>
- IEEE SA Copyright FAQs
  - <http://standards.ieee.org/faqs/copyrights.html/>
- IEEE SA Best Practices for IEEE Standards Development
  - [http://standards.ieee.org/develop/policies/best\\_practices\\_for\\_ieee\\_standards\\_development\\_051215.pdf](http://standards.ieee.org/develop/policies/best_practices_for_ieee_standards_development_051215.pdf)
- Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
  - <https://standards.ieee.org/about/policies/opman/sect6.html>

## Attachment 11

### **Purpose**

The purpose of this meeting is to discuss with the Nuclear Energy Institute (NEI) and the Institute of Electrical and Electronics Engineers' (IEEE) Nuclear Power Engineering Committee (NPEC), the NRC staff's draft approach for achieving a simpler and more effective regulatory guidance framework for the endorsement of IEEE NPEC electrical Standards and get feedback.

### **Meeting Feedback**

#### **Meeting Dates and Times**

07/20/20  
2:00PM - 4:00PM

#### **Webinar**

Webinar Link: <https://skype.nrc.gov/meet/robert.roche/HWWM9WN3>  
Webinar Meeting Number:-  
Webinar Password:-

#### **Contact**

Sheila Ray  
301-415-3653

#### **Participation Level**

Category 2

#### **NRC Participants**

Office of Nuclear Reactor Regulation  
Office of Nuclear Regulatory Research

#### **External Participants**

Institute of Electrical and Electronics Engineers  
Nuclear Energy Institute (NEI)

#### **Docket Numbers - Facility Names**

#### **Related Documents**

**ML20190A012** - 07/20/2020 Notice of Meeting to discuss a new Regulatory Guidance Framework for IEEE Electrical Standards

**ML20189A599** - Regulatory Guidance Framework for IEEE Electrical.pdf

<https://www.nrc.gov/pmns/mtg?do=details&Code=20200743>



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

July 10, 2020

Tom Crawford, Chair  
Nuclear Power Engineering Committee Subcommittee 3  
Institute of Electrical and Electronics Engineers  
103 Crocus Street  
Lake Jackson, TX 77566

**SUBJECT: LETTER NOMINATING NUCLEAR REGULATORY COMMISSION STAFF TO  
NUCLEAR POWER ENGINEERING COMMITTEE SUBCOMMITTEE 3 FOR  
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS**

Dear Mr. Crawford:

I would like to nominate Mr. Khoi Nguyen as the authorized Nuclear Regulatory Commission (NRC) representative and Mrs. Khadijah West as the alternate representative on the Institute of Electrical and Electronics Engineers Nuclear Power Engineering Committee, Subcommittee 3 on Operations, Maintenance, Aging, Testing, and Reliability. Mr. Nguyen, Electrical Engineer, and Mrs. West, Electronics Engineer, are responsible for NRC activities related to risk-informed activities, aging, operations, and maintenance of electrical equipment in nuclear power plants and bring necessary experience and education to support the development and maintenance of standards in Subcommittee 3. Mr. Nguyen and Mrs. West are replacing Mr. Ngola Otto and Mr. Jorge Cintron-Rivera, who have taken on other duties within the NRC.

In accordance with the Office of Management and Budget Circular No. A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," January 26, 2016, the participation on a committee of an NRC-authorized representative does not connote agency agreement with, or endorsement of, decisions reached by the committee, or of standards approved and published as a result of the committee's efforts. Agency representatives participating on consensus standards developing groups will, to the extent possible, ascertain the views of the agency on matters of interest and will express views that are consistent with established agency views.

However, the NRC's endorsement of these standards, if desired by the NRC, would be part of a separate activity, such as incorporation by reference into rulemaking or endorsement in an NRC regulatory guide.

Correspondence should be addressed to:

U.S. Nuclear Regulatory Commission ATTN: Mr. Khoi Nguyen M/S: O9E3 Washington, D.C. 20555  Telephone: 301-415-6839 E-mail: khoi.nguyen@nrc.gov	U.S. Nuclear Regulatory Commission ATTN: Mrs. Khadijah West M/S: O9H6 Washington, D.C. 20555  Telephone: 301-415-3220 E-mail: khadijah.west@nrc.gov
--	---

T. Crawford

- 2 -

Thank you very much for providing NRC with the opportunity to participate in the work of your committee.

Sincerely,



Louise Lund, NRC Standards Executive  
Office of Nuclear Regulatory Research

cc: Tom Crawford ([thcrawford3@gmail.com](mailto:thcrawford3@gmail.com))  
Daryl Harmon, ([harmond1@westinghouse.com](mailto:harmond1@westinghouse.com))