

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 21-1 Minutes



Wednesday Morning, 13 Jan 2021
WebEx Virtual Meeting

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

1.0 Introduction

- **Opening Remarks and Meeting Agenda**

Meeting was called to order at 8:09 AM Central by Tom Crawford, Chair. The meeting has met the quorum requirements to conduct business with 13 of 14 members present, as shown in Attachment 2.

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

Tom presented the draft agenda; as we went through the agenda it was noted that the year in the header was incorrect. Suresh requested clarification regarding who was currently chair of SC-3. It was clarified that Tom is the chair through the end of 2021. Rebecca moved to approve the agenda as corrected; Jacob 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 12 January, Tom dispensed with the introductions.

2.0 Secretary's Report

- **SC-3 Approval of S20-2 Meeting Minutes**

The SC3 20-2 draft meeting minutes were reviewed, and one minor change was identified to correct the date for Action 19-2-E from 2019 to 2020 in Attachment 4.

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 21-1 Minutes

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

- **Action Item Status**

17-2-B – Action remains open. Rebecca started a discussion thread on iMeet Central to capture training topic suggestions. Only suggestion to date will be transferred to WG 3.1 for action. iMeet discussion thread remains open for members to submit topics for future meeting technical presentations.

19-2-D – In-progress. Initial draft posted to iMeet Central under on 1/14/21. SC members asked to review and comment. Due date revised to July 2021.

20-1-A –PAR presented to SC-3 and approved for submittal to AdCom. COMPLETE

20-2-A – COMPLETE

20-2-B - COMPLETE as of August 2020. Tom and Rebecca are leaning towards letting IEEE Standard 692 retire due to a lack of interest in maintaining it; however, it was indicated that there might be a draft Regulatory Guide that would endorse the standard.

20-2-C – COMPLETE. No volunteers.

20-2-D – COMPLETE

20-2-E – COMPLETE. Preview prepared 1/12/2021 and approved for presentation at NPEC 21-1.

The updated action item list is provided in Attachment 4.

- **SC-3 Membership**

The membership roster has been updated and the information has been validated. Kirk Melson has requested removal from the roster effective this meeting. He was offered corresponding membership and declined.

Action 21-1-A: Rebecca to see if any WG 3.4 members are interested in becoming members of SC-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.

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 21-1 Minutes

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 will step down as SC-3 Chair at the end of 2021. Rebecca agreed to move up to the Chair position in 2022. We still have no volunteers for Secretary.

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

- **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 (EST). There is no meeting fee, but both members and guests need to register to obtain the WebEx link and password.

Khoi is scheduled to present the P577 preview during NPEC 21-1.

Tom asked if anyone knew what happened to the Standards Library available on the only NPEC web server. Rebecca stated that the entire server was taken down in 2019 due to security issues. The content relevant to SC-3 was moved into iMeet and/or our public web page. The Standards Library is no longer available. Rebecca suggested creating of an iMeet folder that could be shared to each SC and WG workspace as a replacement alternative. Tom will bring this issue up at AdCom.

4.0 Working Group Reports

- **WG-3.1**

IEEE 336 was published in September 2020. It will expire in 2030.

IEEE 338 PAR expires in 2022. The WG is currently working on updating this standard.

IEEE 1819 was published in 2016 and will expire in 2026. We will start working on 1819 after 338 work is complete.

- **WG-3.2**

The PAR for P692 expires in 2022. All efforts to recruit a chair for this WG have failed. Tom and Rebecca plan to allow this standard to expire in 2023.

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 21-1 Minutes

- **WG-3.3**

IEEE P577 is ready for ballot. Khoi presented the NPEC preview to SC-3 at the S21-1 meeting. Rebecca asked a question regarding the number of producers compared to other sectors making up the WG (Slide 7). Yvonne indicated that producers are a large percentage of the WG because this is a system-level standard and producers tend to be most knowledgeable. No changes made to Slide 7. Jacob requested that Slide 10 bullet #1 be revised to clarify that NUREG-1150, NUREG/CR-6997, and NUREG/CR-6928 were added to the bibliography. Khoi will put the final presentation on the WG iMeet workspace.

Jacob made a motion to approve the preview, as revised, for presentation to NPEC 21-1. George provided the second. The motion was approved by unanimous voice vote.

The P577 PAR expires in 2022.

IEEE 933 expires in 2023. WG finalized the PAR on 1/12/21 and presented it to SC-3. George made a motion to approve the P933 PAR for submission to AdCom. Jacob provided a second. The motion was approved unanimously by voice vote.

IEEE 352 expires in 2026. No actions at this time.

- **WG-3.4**

WG 3.4 is dormant. IEEE 1205 expires in 2024. Rebecca will reconstitute the WG in mid-2021 and submit a 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 had nothing to report. There was a mix up in emails, but he is getting reconnected and hopes to have more to report out in July.

6.0 Old Business

- **Standards Status**

We are scheduled to preview P577 during the 21-1 meeting. IEEE 933 PAR was approved for submittal to AdCom during 21-1 meeting. A copy of the updated SC-3 standards schedule is provided in Attachment 8. The current NPEC SC-3 standards schedule is provided in Attachment 5.

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 21-1 Minutes

- **SC Review of WG Chair Guideline and Action 19-2-D Documents**

Rebecca reviewed an initial draft of a SC-3 WG Chair guidance document. Suggested additions included:

- adding a section on how to run a meeting (announcement, WebEx, patent/copywrite slides, Roberts Rules of Order, etc.)
- adding bullets to "use IEEE Word template" and a "form ballot pool" to the milestone checklist
- adding a table of contents

Rebecca posted her draft to iMeet under *Files & Discussions/Standards Development/SC3WG Chair Guidance.docx* and asked all SC-3 members to review and provide additional feedback. The idea of sharing this document with other NPEC SC was discussed. SC-3 does not want to own document maintenance for any other SC, so it will only be shared if asked (Jim Parello asked for a copy during S20-2.)

Action 21-1-B: SC-3 members to review the draft SC-3 WG Chair Guideline document on iMeet by June 30, 2021. Rebecca to resolve comments by S21-2.

Rebecca also reviewed an initial draft of her iMeet Central tutorial document (*iMeet how to.docx*). This document is focused on the main WG activities that occur on iMeet – maintaining the WG member list to distribute information to WG members via iMeet, using iMeet to store and collaborate on documents, and using discussion threads. A revised document will be reviewed at S21-2.

Action 21-1-C: Rebecca to schedule a WebEx meeting with WG chairs to teach them how to update their WG membership lists in iMeet Central.

7.0 New Business

None.

8.0 Action Items

The revised AI List is provided in Attachment 4.

9.0 Next Meeting

The N21-2 meeting is being planned as a face-to-face meeting in Mystic, CT July 13-15, 2021 to honor our COVID-19 cancelled contact in 2020. More information will be provided when available.

The N22-1 meeting is planned as a joint meeting with the IEEE Joint Technical Committee Meeting (JTCM) in Orange County, CA from January 9-12, 2022.

IEEE NPEC Subcommittee SC-3
Operations, Maintenance, Aging, Testing, & Reliability
Meeting 21-1 Minutes

10.0 Adjournment

Yvonne made motion for adjournment and George seconded. The motion was approved by voice vote and the meeting was adjourned at 11:25 AM CST.

Prepared by Rebecca Steinman

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iMeet Central SC-3 Workspace:

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

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 N21-1 P577 Preview Slides	Attachment 12 Approved P933 PAR

Agenda – Meeting 21-1 – Virtual Webex Meeting

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

Meeting Date/Time:	Wednesday, 01/13/2021 0900-1230 EST	Chairman:	Tom Crawford
		Vice Chair:	Rebecca Steinman
		Secretary:	

Desired Outcomes:	<ol style="list-style-type: none"> 1. Review status/activities of each SC Working Group 2. Review status of membership and officers succession 3. Update SC3 standards master schedule
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WHAT	WHO	WHEN
Welcome, Review Desired Outcomes <ul style="list-style-type: none"> • Meeting logistics • Patent Slides • Introductions 	T. Crawford All	0900 - 0915
Chairman's Introduction <ul style="list-style-type: none"> • Opening remarks • Review/approve agenda 	T. Crawford	0915 - 0925
Secretary's Report <ul style="list-style-type: none"> • Approval of SC3 20-2 Meeting Minutes • Action Item review/status • SC3 membership review • Alligator fund report • iMeet & Website update 	R. Steinman / T. Crawford	0925 - 0945
Chairman's Report <ul style="list-style-type: none"> • SC3 Leadership – Officers and succession planning • Membership Status • NPEC meeting preparations & agenda for tomorrow's meeting and future meetings 	T. Crawford	0945 - 1000
IEEE 577 Preview	K. Nguyen	1000 - 1030
BREAK	All	1030 - 1045
Old Business Master schedule for Std review/updates	T. Crawford	1045 - 1100
New Business/Rumor Mill/Drumbeats (TBD)	T. Crawford	1100 - 1115
Working Group Reports <ul style="list-style-type: none"> • WG-3.1 (Testing) – 336 expires in 2030, 338 expires in 2022, 1819 in 2026 • WG-3.2 (Security) – 692 expires in 2023 [Still need new Chair] • WG-3.3 (Reliability) – 577 expires in 2022, 933 in 2023, 352 in 2026 • WG-3.4 (Aging) – 1205 expires in 2024 	P. Ward ?? K. Nguyen R. Steinman	1115 - 1120 1120 - 1125 1125 - 1130 1130 - 1135
Liaison Reports <ul style="list-style-type: none"> • NRC Report • Other Risk-Informed Activities 	K. Nguyen K. Zee	1135 - 1145 1145 - 1155
Review of Action Items	R. Steinman	1155 - 1215
Wrap-up & Next meeting Schedule	R. Steinman / T. Crawford	1215 - 1225
Meeting closeout/adjournment	R. Steinman / T. Crawford	1230

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

Last	First	SC-3 Member	2019-1	2019-2	2020-1	2020-2	2021-1
Ballassi	George	X	X			T	T
Beatty	John	X	X	X	X	T	T
Channarasappa	Suresh	X	X	X	X	T	T
Crawford	Tom	X	X	X	X	T	T
Heidarisaafa	Hamid	C					
Kulangara	Jacob	X	X	X	X	T	T
Liming	Jim	C				N	N
Melson	Kirk		X	X		T	Resigned
Mohtashemi	Ed	X				T	
Napper	Joe	C					
Nguyen	Khoi	X	O	Appointed	X	T	T
Parello	Jim	C			O	N	
Pierce	Clint	X	X	X	X	T	T
Riccio	Ted	H	X		Honorary		
Sellers	Craig	C					N
Singh	Gurshan	X					T
Steinman	Rebecca	X		X		T	T
Ward	Phil	X	X	X	X	T	T
West	Khadijah	x			X	Appointed	T
Williams	Yvonne	X	X	X	X	T	T
Zee	Kiang	X	X	X	X	T	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	X		12	12	10	1	0
TOTAL NON-VOTING ATTENDEES	0		2	0	1	0	0
TOTAL VOTING TELECON PARTICIPANTS	T		0	0	0	13	13
TOTAL NON-VOTING TELECON PARTICIPANTS	N		0	0	0	2	2
TOTAL ATTENDEES			14	12	11	16	15
TOTAL SC-3 MEMBERS		14					

Attachment 3

NPEC Subcommittee SC-3

Operations, 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
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
S21-1	\$680.72	\$0.00	\$0.00	\$680.72

Attachment 4

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

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. Rebecca suggests starting a discussion thread on iMeet Central to capture training topic suggestions. S21-1: Action remains open. Only suggestion to date transferred to WG 3.1 for action. Members are encouraged to submit ideas for future meeting technical presentation topics.
19-2-D	Create a mini-tutorial/wikki on iMeet Central usage.	Steinman	July 2021	S20-2: In-progress. Rebecca to distribute to other NPEC SC when complete S21-1: Rebecca posted initial draft to iMeet workspace in Jan 2021. SC members asked to review and commenry. Due date revised to July 2021.
21-1-A	Confirm whether any WG 3.4 members are interested in becoming Subcommittee 3 members.	Steinman	21-2 mtg	
21-1-B	SC-3 members to review the draft SC-3 WG Chair Guideline document on iMeet Central.	All Members	June 2021	
21-1-C	Schedule WebEx for WG chairs to learn how to update iMeet WG membership lists.	Steinman	Mar-2021	

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

Chair: Tom Crawford

PROJECT	Standard Expiration	PAR Expiration	TITLE	Working Group	Chair	Vice Chair	Cycle Year	21-01	Status/Comments
336	2030	N/A	IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities	1	P. Ward		1		Standard Published
338	2022	Dec-2022	IEEE Standard Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems	1	P. Ward		9		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		5		
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		9	Preview	PAR approved by Std Brd 3/8/2018 Preview Planned 21-01
692	2023	Dec-2022	IEEE Standard Criteria for Security Systems for Nuclear Power Generating Stations	2	Vacant		8		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		8		New PAR planned
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	S. Channarasappa	7		Standard Published 16 May 2014
1819	2026	N/A	Standard for Risk-Informed Categorization and Treatment of Electrical Equipment in Nuclear Facilities	1	P. Ward		5		Standard Published

Attachment 6

ASME Liaison Report
January 2021

Subsection ISTE, *Risk-Informed Inservice Testing of Components in Water-Cooled Reactor Nuclear Power Plants*, was published in the 2020 edition of the OM Code. The NRC has stated in their liaison report to the ASME OM Committee that they will endorse ISTE with no conditions in R.G. 1.192.

SC-RIA is not meeting until active work for the subcommittee is identified.

Craig Sellers
Chair Subcommittee Risk-Informed Activities

U.S. Nuclear Regulatory Commission (NRC) Liaison Report
IEEE NPEC & PSRC – Jan 2021

1. General

- a. Chairman Kristine L. Svinicki announced that she intends to leave the NRC on Jan. 20, 2021.

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 revised Temporary Instruction (TI) 194 to verify adequacy of licensees’ implementation of VII Rev. 3. When all inspections are completed, the staff will perform technical evaluations to determine the adequacy of VII as implemented by licensees to address the OPC concerns and communicate the results to the Commission.
- b. Environmental Qualification (EQ) Inspections have been completed.
 - The Power Operated Valve (POV) inspections started at the beginning of 2020 and no major or generic EQ issues have been identified to date. There was a public meeting on December 8, 2020 to share with Industry and the Public the findings and lessons learned while implementing IP 71111.21N.02, "Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements," inspections in 2020. The inspectors will continue to look at EQ as part of the design basis and licensing conditions of components they inspect.
- c. Subsequent License Renewal (Turkey Point issued. Surry and Peach Bottom nearing completion. North Anna and Point Beach reviews currently underway and others to be submitted this year)
- d. Vendor Inspections
 - Rosemount (ML20024G416)
 - Fisher Controls (ML19339F625)
 - Westinghouse (ML20086N781)

3. New Reactors

- a. NuScale Design Certification Review is completed. NRC issued the Final Safety Evaluation Report (FSER) for NuScale in August 2020.

4. Advanced Reactors

- a. The NRC is evaluating technical reports from multiple advanced reactor designs (i.e., pre-application stage).

5. Rulemaking

- a. The NRC staff is developing 10 CFR Part 53 rulemaking, which will establish a new framework for licensing and regulating advanced nuclear reactors. Public meetings with stakeholders are ongoing.

6. Research

- a. The NRC Standards Forum was held on October 13 to discuss the status of the Regulatory Guides (RGs) and the NRC plan for the joint IEC/IEEE standards on condition monitoring (July 20, 2020 Presentation on 'Regulatory Guidance Framework for IEEE Electrical Standards' (ML20189A599)). Below are the status of some of the RGs as well as additional updates:
 - i. RG 1.89 (60780-323) – the draft is out for public comment and comments are due by Feb. 16, 2020.
<https://www.federalregister.gov/documents/2020/12/17/2020-27717/environmental-qualification-of-certain-electrical-equipment-important-to-safety-for-nuclear-power>
 - ii. Status of RG to endorse IEEE Std. 741 – reevaluating to endorse the revision that will be published in 2021 or 2022
 - iii. RG 1.9 (IEEE Stds. 387 & 2420) – expected to have draft for public comments published shortly
 - iv. RG to endorse IEEE 1205 – expected to have draft out for public comment by the end of FY2021
 - v. RG to endorse IEEE Std. 1819 – expected to have draft out for public comment by the end of FY2021
 - vi. RG to endorse IEEE 352 & 577 on reliability – expected to have draft out for public comment FY2021
 - vii. Revise existing RG 1.218 (Condition Monitoring Techniques for Electric Cables Used in Nuclear Power Plants) to endorse IEC 62582 series on condition monitoring methods (Parts 1-6) & 1186 (evaluation of installed cable systems)
- b. In 2014, NRR submitted user need requests (UNR 2011-014 and UNR 2016-014) to RES to perform research on aging cables and methods of condition monitoring.
 - A research project contract was awarded to NIST to perform the following tasks: confirm the adequacy of the condition-monitoring methods, including: (a) mechanical conditions of tensile test (elongation at break), and compressive modulus (indenter method); (b) dielectric condition indicators (insulation resistance, and frequency domain reflectometry) (c) chemical indicators (oxidation time/temperature, Fourier transform infrared spectroscopy, mass loss Thermogravimetric analysis).
 - The objectives of this research are: 1) to confirm the adequacy of condition monitoring methods, 2) confirm the condition-based qualification methodology, 3) confirm acceleration factors for the accelerated aging process, and (4) validate service life prediction.

- c. The NIST project is supposed to be completed September 2021 and the ORNL LOCA testing should be complete early 2022 including a NUREG that will cover both the NIST results as well as ORNL conclusions.
- d. The submerged cable tan delta test criteria research has been completed. The Research Information Letter should be published soon.

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. 2020-21-00 - Interim Notification per 10 CFR Part 21, Degraded Snubber SF1154 Hydraulic Fluid Batch No. 17BLVS293
 - ii. 2020-21-01 - Second Interim Notification per 10 CFR Part 21, Degraded Snubber SF1154 Hydraulic Fluid Batch No. 17BLVS293
 - iii. 2020-21-02 - Third Interim Notification per 10 CFR Part 21, Degraded Snubber SF1154 Hydraulic Fluid Batch No. 17BLVS293
 - iv. 2020-22-00 - 10CFR21 Notification for ABB/Thomas & Betts/Cyberex P/N: 93-41-119385 Time Delay Oscillator Printed Circuit Boards
 - v. 2020-23-00 - Failures of Size 1 and 2 Freedom Series Auxiliary Contacts
 - vi. 2020-23-01 - Failures of Size 1 and 2 Freedom Series Auxiliary Contacts
 - vii. 2020-24-00 - Parts Manufactured Using Source Material Without a Specific License
 - viii. 2020-25-00 - 10 CFR Part 21 Notification for SF-1154 Hydraulic Fluid Batch Number 16DLVS852
 - ix. 2020-26-00 - Initial 10 CFR Part 21 Notification – Continuously Energized Eaton D26 Relays Could Fail to Deenergize Because of an Organic C3 Insulating Material
 - x. 2020-26-01 - 30-Day 10 CFR Part 21 Notification – Continuously Energized Eaton D26 Relays Could Fail to Deenergize Because of an Organic C3 Insulating Material
 - xi. 2020-27-01 - Defect of Masoneilan 8012N-3C Electropneumatic Positioner
 - xii. 2020-28-00 - Failure to Meet Technical Specification MSIV Stroke Times (a 50.73 LER Supplement and Part 21 Report)
 - xiii. 2020-29-00 - Part 21 Notification – Continuously Energized Eaton D26 Relays
 - xiv. 2020-30-00 - 10 CFR Part 21 Notification for a Curtiss-Wright supplied Royce Compressor

8. Generic Communications

- a. Information Notice (IN)-20-01- Increased Electronic Equipment Issues After Electrostatic Cleaning.
- b. IN-20-02 - Flex Diesel Generator Operational Challenges
- c. IN-20-03 - Recall of Mechanical Rate of Rise and Fixed-Temperature Heat Detectors
- d. RIS-20-01 - Preparation and Scheduling of Operator Licensing Examinations.
- e. RIS-20-02 - Review of New Licensing Applications for Light-Water Reactors and Non-Light Water Reactors

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	09/24/2020	09/24/2030	0.2	9.9	-
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	Pending
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

Instructions for the WG Chair

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**



IEEE SA COPYRIGHT POLICY

NOVEMBER 2019



INSTRUCTIONS FOR CHAIRS OF STANDARDS DEVELOPMENT ACTIVITIES

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

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

- 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
- Distribution of Draft Standards (see 6.1.3 of the SASB Operations Manual)
 - <https://standards.ieee.org/about/policies/opman/sect6.html>

Ballot Preview Presentation - P577

*“Draft Standard Requirements for Reliability
Analysis in the Design and Operation of Safety
Systems for Nuclear Power Generating Stations
and Other Nuclear Facilities”*

January 14, 2021 (NPEC Meeting 21-01)
By Khoi Nguyen (WG-3.3 Chair)

SC-3 Preview - P577

Presentation Contents

1. Introduction
2. Working Group Membership
3. Summary of Changes
4. Schedule
5. Conclusion

SC-3 Preview - P577

1. Introduction

History of IEEE Std 577

- First issued in 1976
- Last updated (revised) in 2012
- New PAR approved March 2018

SC-3 Preview - P577

1. Introduction (Continued)

Scope:

This standard sets forth the minimum, acceptable requirements for the performance of reliability analyses for safety systems when used to address the reliability considerations discussed in industry standards and guidelines. The methods of this standard may also be applied to other systems, including the interactions, if any, between safety and non-safety systems. The requirements should be applied during the phases of design, fabrication, testing, maintenance, and repair of systems and components in nuclear power generating stations **and other nuclear facilities**. The timing of the analysis depends upon the purpose for which the analysis is performed. This standard applies to the facility owner and other organizations responsible for the activities previously stated.

SC-3 Preview - P577

1. Introduction (Continued)

Purpose:

The purpose of this standard is to provide uniform, minimum, acceptable requirements for the performance of reliability analyses for safety systems found in nuclear facilities, but not to define the need for an analysis. The need for reliability analysis has been identified in other standards that expand the requirements (e.g., IEEE Std 379-~~2000~~ which describes the application of the single-failure criterion). IEEE Std 352 provides guidance in the application and use of reliability techniques referred to in this standard.

SC-3 Preview - P577

1. Introduction (Continued)

Need for the Revision Project

The objective of this project is to:

- comply with the IEEE 10-year review plan,
- conform to the revised style manual and formatting for standards, and
- update the standard to current references and practices within the nuclear industry.

SC-3 Preview - P577

2. Working Group Membership

17 members

Khoi Nguyen (Gov) - Chair

George Ballassi (Manufacturer) - Vice Chair

Clint Pierce (Producer) - Secretary

John Beatty (Producer)	James Parello (Retired) – Corresponding Member
Suresh Channarasappa (Producer)	Ted Riccio (Retired)
Tom Crawford (Retired)	Phil Ward (Producer)
Jacob Kulangara (Consultant)	Khadijah West (Gov)
James Liming (Producer) – Corresponding Member	Yvonne Williams (Producer)
Kirklyn Melson (Producer)	Craig Sellers (Consultant)
Ed Mohtashemi (Producer)	Kiang Zee (Producer)

SC-3 Preview - P577

3. Summary of Changes

The following changes are included in the draft revision to IEEE 577:

- Title change to be consistent with approved PAR.
*“~~IEEE~~ Standard Requirements for Reliability Analysis in the Design and Operation of Safety Systems for Nuclear Power Generating Stations **and Other Nuclear Facilities**”*
- Scope change to be consistent with the new title.
- Purpose change to remove the date of the cited IEEE standard.

SC-3 Preview - P577

3. Summary of Changes

This revision also includes the following:

- Updates to normative references to reflect their current titles.
- Updates to clause numbers of normative reference standards that were recently revised.
- Minor editorial changes for clarity.
- Updates to Annex A (Bibliography) to provide only informative references that are directly related to IEEE 577.

SC-3 Preview - P577

3. Summary of Changes (Continued)

- Review of comments on the draft
 - NUREG-1150, NUREG/CR-6997, NUREG/CR-6928, and NUREG/CR-7233 will be added into Annex A, “Bibliography,” of the draft before balloting.
 - RGs 1.175, 1.177, and 1.178 were determined by the WG as not needed in Annex A of the standard since they are already referenced in RG 1.174.

SC-3 Preview - P577

4. Schedule

- 01/2021: Preview at NPEC; request permission to ballot.
- 03/2021: Complete ballot pool, submit to MEC.
- 04/2021: Complete ballot.
- 07/2021: Resolve ballot comments.
- 10/2021: Implement recirculation ballot, if needed.
- 07/2022: Submit to RevCom.
- 12/2022: Publish

SC-3 Preview - P577

5. Conclusion

- SC-3/WG-3.3 has developed a draft revision to IEEE Std 577-2012, which meets the requirements of the approved PAR.
- SC-3/WG-3.3 requests permission to Ballot.

P933

Submitter Email:
Type of Project: Revision to IEEE Standard 933-2013

Project Request Type: Initiation / Revision

PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft

Root Project: 933-2013

1.1 Project Number: P933

1.2 Type of Document: Guide

1.3 Life Cycle: Full Use

2.1 Project Title: Guide for the Definition of Reliability Program Plans for Nuclear Generating Stations and Other Nuclear Facilities

Change to Title: ~~IEEE~~ Guide for the Definition of Reliability Program Plans for Nuclear Generating Stations and Other Nuclear Facilities

3.1 Working Group: Reliability(PE/NPE/WG_3.3)

3.1.1 Contact Information for Working Group Chair:

None

3.1.2 Contact Information for Working Group Vice Chair:

None

3.2 Society and Committee: IEEE Power and Energy Society/Nuclear Power Engineering(PE/NPE)

3.2.1 Contact Information for Standards Committee Chair:
Name: Daryl Harmon

Email Address:
3.2.2 Contact Information for Standards Committee Vice Chair:
Name: Daryl Harmon

Email Address:
3.2.3 Contact Information for Standards Representative:
Name: Suresh Channarasappa

Email Address:

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Dec 2022

4.3 Projected Completion Date for Submittal to RevCom: Jul 2023

5.1 Approximate number of people expected to be actively involved in the development of this project: 12

5.2 Scope of proposed standard: This document provides guidelines for the definition of a reliability program at nuclear generating stations and other nuclear facilities. The document emphasizes reliability programs during the operating phase of such facilities; however, the general approach applies to all phases (e.g., design, construction, start-up, operating, and decommissioning) of the facility.

5.3 Is the completion of this standard contingent upon the completion of another standard? No

5.4 Purpose: The purpose of this guide is to describe a basic framework (i.e., the program elements, guidelines on implementation, element interaction, and their scope of application) directed at improving nuclear generating station and other nuclear facility performance through the effective implementation of reliability programs. It is oriented toward facility availability, encompassing balance-of-plant and safety equipment. Effective implementation of these guidelines should also improve facility safety by reducing challenges to safety systems in addition to enhancing reliable operation of the components of those safety systems.

5.5 Need for the Project: This revision is needed to update the current revision of the Standard to reflect Industry changes in reliability approaches since 2013. This will align the Standard with the most recent practices being used by the Nuclear Power Generating Stations. In addition, this revision will:

- a. Comply with the IEEE 10-year review plan
- b. Investigate and incorporate changes to reflect new approaches

- c. Investigate and incorporate changes to coordinate with revised and new IEEE nuclear standards
- d. Provide general update
- e. Update bibliography
- f. Update to latest template and Style Manual

Change to Need for the Project: ~~The~~ This revision is needed to update the objective current revision of this the project is Standard to support reflect licensing Industry activities changes for in nuclear reliability generating approaches stations since and 2013. other nuclear This facilities will and align to the comply Standard with the most recent practices being used by the Nuclear Power Generating Stations. In addition, this revision will: a. Comply with the IEEE-5-10 -year review plan b. Investigate and incorporate changes to reflect new approaches c. Investigate and incorporate changes to coordinate with revised and new IEEE nuclear standards d. Provide general update e. Update bibliography f. Update to latest template and Style Manual

5.6 Stakeholders for the Standard: The stakeholders are nuclear generating stations, other nuclear facilities owners, utilities, vendors, A/E, and suppliers.

Change to Stakeholders for the Standard: ~~Nuclear~~ The stakeholders are nuclear generating stations, other nuclear facilities owners, utilities, vendors, A/E, industry and worldwide suppliers.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? No

7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: IEEE Std 933 was last updated in 2013. This guide will be revised to comply with the IEEE 10-year review plan, update references, and reflect current Industry practices.

Normative references listed in this guide:

- IEEE Std 338, "IEEE Standard for Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems"
- IEEE Std 352, "IEEE Guide for General Principles of Reliability Analysis of Nuclear Power Generating Station Systems and Other Nuclear Facilities"