

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

Minutes for Meeting S01-2 Wednesday August 29, 2001 Annapolis, MD

Members Present:	George Ballassi Paul Colaianni Wally Colvin Mansoor Sanwarwalla	Surin Dureja Dave Horvath John Taylor Jit Vora
Members Absent:	Brij Bharteey Preston Dougherty Lamis Fleischer	Sonny Kasturi Steve Parsons Henry Leung
Other Attendees:	Jacob Kulangara	Burl Williams Paul Shemanski

1. Introduction

Dave Horvath welcomed everyone in attendance and introduced Jacob Kulangara who had previously been a member of SC-8 and who was now joining WG 3.1. Dave commented on the current high caliber and activity level of SC-3 and all the working groups. He questioned whether we should consider merging with the Reliability parts of SC-5, considering our current heavy activity on risk informed basis for periodic testing. From follow-on discussions, it was noted that the NRC has merged its human factors and reliability departments. Therefore, it is logical for IEEE NPEC to also merge its Reliability (SC-7) and Human Factors (SC-5) subcommittees rather than SC-5 and SC-3.

Dave also presented the agenda, which was approved without alteration; the agenda is included as [Attachment 1](#).

2. Secretary's Report

2.1 Meeting S01-1 Minutes

The minutes from S01-1 were approved, without modification, by acclamation.

2.2 Action Item Status

Jit Vora has provided an NRC member for WG 3.2; his name is Roman Shafer. Jit is also looking for an NRC representative for WG 3.1. This has been identified as AI-01-2-1. Dave Horvath needs to inquire about the current availability of the IEEE Stds status spreadsheet from Jim Thomas, NPEC's IEEE Standards Coordinator.

Item No.	Description	Status
AI-01-2-1	Jit Vora to solicit an NRC representative.	Open

AI-01-2-2	Arrange Meeting S02-1. [J. Taylor]	Open
AI-01-1-4	Send out update of IEEE Stds Status spreadsheet. [D. Horvath will provide to J. Taylor for distribution to SC-3 members.]	Due 12-1-01
AI-01-1-5	Check status of IEEE 1205 complimentary copies for WG-3.4 members. [D. Horvath]	Complete
AI-01-2-3	WG-3.4 to obtain review / comments from SC-3 and provide report to NPEC	3-1-02

Note (repeated from prior minutes): It is expected that P323 (Equipment Qualification) will be up for a ballot within the next year. Any IEEE and SA member can request consideration for addition to the NPEC ballot group by completing the form at <http://standards.ieee.org/db/balloting/ballotform.html>. It may be advantageous to add a comment at the bottom of the form that the request is for IEEE 323 only if appropriate. One can then confirm the success of this approach (if so inclined) by contacting IEEE staff: Carol Buonfiglio [REDACTED].

2.3 Alligator Fund

The Alligator Fund is made up of voluntary contributions from SC-3 members to defray the cost of meeting rooms, refreshments, etc. The balance after S01-2 is \$305.00.

2.4 Membership Table

Mansoor Sanwarwalla was voted in as an SC-3 member by the subcommittee members that were present. It was further agreed that the working groups would continue to meet in conjunction with the subcommittee, to allow more working group members to attend the subcommittee meeting.

An update of the membership roster is to be transmitted by email in advance of the minutes and changes/corrections from members not present will be elicited (AI-1). The final update will be included as an attachment to the minutes (See [Attachment 2](#)). The current SC-3 and working group rosters are also on the IEEE/NPEC website at URL: <http://grouper.ieee.org/groups/npec/private/sc3/sc-3.html>; user name: [REDACTED] password: [REDACTED].

The current breakdown of members by category is as follows:

<u>Utility</u>	<u>AE/Consultant</u>	<u>Gov't/National Labs</u>	<u>Other</u>	<u>Total</u>
6	5	2	1	14

3. SC-3 Chair's Report

3.1 NPEC Activities

Dave thanked Surin Dureja for attending the NPEC Meeting N01-1. Surin presented a summary of the NPEC meeting, which is included as [Attachment 3](#).

3.2 Future Meeting Locations

It was decided that the next SC-3 and working group meetings would be held the week of 3/12/02 in Las Vegas, Nevada to take advantage of an NPEC-sponsored tour of the Yucca Mountain Waste Repository. This is the same week as the Spring NPEC Meeting. The dates of the Subcommittee and Working Group meetings will be probably be Monday and Tuesday 3/13 and 3/13, a notice will be sent when the arrangements are finalized. The second meeting of 2002 is tentatively scheduled during August in Chicago, Illinois. John Taylor will arrange the meetings with the assistance of

Mansoor Sanwarwalla and advise the membership [AI-01-2-2].

Dave Horvath noted that ANS was sponsoring a PRA/PSA Conference in Detroit in Fall of 2003. WG-3.1 should consider submitting a paper for this conference and this location was a good option for an SC-3 meeting in conjunction with the conference.

4.0 Working Group 3.1 (Testing) Report

George Ballassi reported that the PARs for both standards have received NPEC approval in March 2001 and the Standards Board approval on June 14, 2001. George thanked Surin Dureja for presenting the PARs to NPEC saving George a long journey for a short meeting! The WG met and discussed IEEE Std 336 on 8/28 and made good progress on reorganizing the Table of Contents (TOC). Surin and Burl Williams will provide a new strawman TOC via e-mail to the WG around the end of October 2001. John Taylor reviewed the integrated schedule for IEEE Stds 336 and 338 and received comments that will be incorporated. The WG will be working towards a submittal for preview to NPEC by November 2003 in order to meet a submittal to IEEE RevCom by 3/31/05 for both Standards. On 8/29, the WG received a thorough briefing from Wally Colvin regarding PSA and its incorporation into IEEE Std 338. The WG agreed that the existing TOC for 338 lends itself to more easily add a new section on PSA as it relates to periodic testing frequency. The WG also agreed that a tutorial annex be added to the Standard in order to illustrate the principles and details of PSA in its application to a practical situation. Wally will approach EPRI to obtain their concurrence to use the work from one of their recently completed reports within IEEE Std 338.

5.0 Working Group 3.2 (Security) Report

The PAR for IEEE Standard was approved and has the same schedule as that mentioned above for IEEE 336/338. The Standard will be updated to consistently provide clear performance oriented design basis requirements in each clause and because IEEE Std 692 is a technology oriented standard, new technologies need to be addressed. The working group is also coordinating closely with NEI to assure consistency with NRC efforts to revise 10 CFR 73 and make this rule more performance oriented and less prescriptive. Dave mentioned that WG 3.2 now has an NRC member, Roman Schaffer. The working group intends to have a meeting in 2002 at the office and manufacturing facility of Holophane, a major manufacturer of security lighting. John Green of Holophane is an active member of WG-3.2. SC-3 and other working groups are welcome to attend this meeting.

6.0 Working Group 3.4 (Aging) Report

Wally Colvin, member of WG 3.1, attended the WG 3.4 meeting and made it known that he would like to join the working group. Wally was made a Proposed Member at the meeting and a vote will be taken at the next meeting for full membership. The bulk of the WG 3.4 meeting concerned the review of NPEC standards as part of NPEC Goal 6. As per the schedule, the review of applicable standards was performed before the meeting and the results were provided at the meeting in a summary review table included as [Attachment 4](#). The standards on this sheet were reviewed for recommendations of text to incorporate regarding references to IEEE Std. 1205. The recommendations from this meeting will be consolidated into a draft report for SC-3 review as part of these meeting minutes. Any comments from SC-3 members should be provided to Paul Colaianni prior to the end of 2001. A report will be provided to NPEC prior to its Spring 2002 meeting in Las Vegas.

7.0 Liaison Report

Jit Vora provided the NRC Liason Report, which is included as [Attachment 5](#).

8.0 New Business

- a. WG 3.4 sponsored a meeting on 8/28/01 at the NRC's Rockville Offices that reviewed a License Renewal Handbook prepared by Paul Colaianni for EPRI.

- b. Topics for informative presentations at future meetings were discussed. The subject was postponed because the next meeting will include a tour of Yucca Mountain.

The meeting was adjourned.

Prepared by John Taylor

List of Attachments

1. [Agenda](#)
2. [Combined SC-3 and Working Group Roster](#)
3. [Summary for NPEC Meeting 01-1](#)
4. [NPEC Goal Summary Table](#)
5. [NRC Liaison Report](#)

Attachment 1

IEEE Subcommittee 3 Meeting S01-2 Agenda Wednesday, August 29, 2001 1:00 pm Annapolis, MD

1. Introduction

- Opening remarks - D. Horvath
- Meeting Agenda - D. Horvath

2. Secretary's Report - J. Taylor

- S01-1 Minutes
- Action Item Status
- Alligator fund
- SC-3 Membership

3. SC-3 Chair's Report - D. Horvath

- NPEC Activities - **Surin Dureja**
- Future Meeting (Note: Spring 02 NPEC will include Yucca Mtn Tour)

4. WG 3.1 Report - G. Ballassi

- P336 Update
- P338 Update

5. WG 3.2 Report - D. Horvath

- P692 Update

6. WG 3.4 Report - P. Colaianni

- NPEC Goal 6 Update
- Draft EPRI License Renewal Document





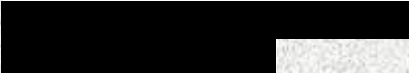
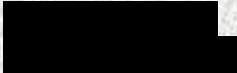









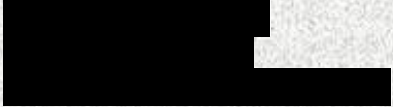
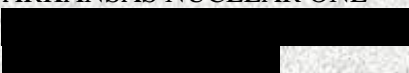

7. Liaison Reports

- NRC - J. Vora

8. New Business (Open for Input)**Attachment 2**

**IEEE - Nuclear Power Engineering Committee
Subcommittee SC-3 Membership List
Operations, Maintenance, Aging, And Testing**

Name/Company	Address	Assignment
BALLASSI, G. (GEORGE) GENERAL DYNAMICS/ ELECTRIC BOAT CORP. [REDACTED]	[REDACTED]	SC-3 (M) WG 3.1 (C) WG-3.4 (M)
BHARTEY, B.M. (BRIJ) SPECTRUM TECHNOLOGIES USA INC. [REDACTED]	[REDACTED]	SC-3 (M) WG-3.1 (M) WG-3.4 (M)
COLAIANNI, R.P. (PAUL) DUKE ENERGY [REDACTED]	[REDACTED]	SC-3 (M) WG-3.4 (C)
COLVIN, W. J. (WALLY) FIRST ENERGY CORP. [REDACTED]	Perry Nuclear Power Plant [REDACTED]	SC-3 (M) WG-3.1 (M) WG-3.4 (M)
FLEISCHER, L.Q. (LAMIS) EXELON CORP. [REDACTED]	Peach Bottom Nuclear Station [REDACTED]	SC-3 (M) WG-3.4 (M)
DOUGHERTY P. (PRESTON) DOMINION GENERATION [REDACTED]	Innsbrook Technical Center [REDACTED]	SC-3 (M) WG-3.4 (M)

DUREJA, S.K. (SURIN) CONSTELLATION NUCLEAR 	Calvert Cliffs Nuclear Power Plant 	SC-3 (M) WG-3.3 (C) WG-3.1 (M)
HORVATH, D.A. (DAVE) ADVENT ENGINEERING SERVICES, INC. 		SC-3 (C) WG-3.1 (M) WG-3.2 (C) WG-3.4 (PC)
KASTURI, S. (SONNY) MOS 		SC-3 (PC)
LEUNG, C.W. (HENRY) ATOMIC ENERGY OF CANADA LIMITED 		SC-3 (M) WG-3.4 (M)
PARSONS, S.Z. (STEVE) AMERICAN ELECTRIC POWER 	DC Cook Nuclear Power Station 	SC-3 (M)
SANWARWALLA, M.H. (MANSOOR) SARGENT & LUNDY 		SC-3 (M) WG-3.4 (M)
TAYLOR, J.H. (JOHN) BROOKHAVEN NATIONAL LAB 		SC-3 (S) WG-3.1 (M)
VORA, J.P. (JIT) US NUCLEAR REGULATORY COMMISSION 	Office Of Nuclear Regulatory Research 	SC-3 (M) WG-3.1 (M)
WILLIAMS, B. (BURL) ARKANSAS NUCLEAR ONE 		SC-3 (proposed) WG-3.1 (M) WG-3.2 (M)

Testing
Standard IEEE Std 336 and 338

Name/Company	Address	Assignment
BALLASSI, G. (GEORGE) GENERAL DYNAMICS/ ELECTRIC BOAT CORP. [REDACTED]	[REDACTED]	SC-3 (M) WG 3.1 (C) WG-3.4 (M)
BHARTEY, B.M. (BRIJ) SPECTRUM TECHNOLOGIES USA INC. [REDACTED]	[REDACTED]	SC-3 (M) WG-3.1 (M) WG-3.4 (M)
COLVIN, W. (WALLY) FIRST ENERGY CORP. [REDACTED]	Perry Nuclear Power Plant [REDACTED]	SC-3 (M) WG-3.1 (M) WG-3.4 (M)
DUREJA, S.K. (SURIN) CONSTELLATION NUCLEAR [REDACTED]	Calvert Cliffs Nuclear Power Plant [REDACTED]	SC-3 (M) WG-3.3 (C) WG-3.1 (M)
HORVATH, D.A. (DAVE) ADVENT ENGINEERING SERVICES, INC. [REDACTED]	[REDACTED]	SC-3 (C) WG-3.1 (M) WG-3.2 (C) WG-3.4 (PC)
KULANGARA, J.A. (JACOB) SARGENT & LUNDY [REDACTED]	[REDACTED]	WG-3.1 (M)
TAYLOR, J.H. (JOHN) BROOKHAVEN NATIONAL LAB [REDACTED]	[REDACTED]	SC-3 (S) WG-3.1 (M)
VORA, J.P. (JIT) US NUCLEAR REGULATORY COMMISSION [REDACTED]	Office Of Nuclear Regulatory Research [REDACTED]	SC-3 (M) WG-3.1 (M)
WILLIAMS, B.E. (Burl) ENTERGY [REDACTED]	Arkansas Nuclear One [REDACTED]	WG-3.1 (M) WG-3.2 (M)

**IEEE - Nuclear Power Engineering Committee
Working Group WG-3.2 Membership List
Security Systems
Standard IEEE Std 692**

Name/Company	Address	Assignment
BOTTOM, PhD, N.R. (NORMAN) PRIVATE CONSULTANT [REDACTED]	[REDACTED]	WG-3.2 (M)
GREEN, J (JOHN) HOLOPHANE LIGHTING [REDACTED]	[REDACTED]	WG-3.2 (M)
HORVATH, D.A. (DAVE) ADVENT ENGINEERING [REDACTED]	[REDACTED]	SC-3 (C) WG-3.1 (M) WG-3.2 (C) WG-3.4 (M)
PEARSON, EINAR W. (BILL) NIAGARA MOHAWK [REDACTED]	Nine Mile Point Nuclear Station [REDACTED]	WG-3.2 (M)
PHELPS, P.A. (PAUL) DOMINION GENERATION [REDACTED]	Surry Power Station [REDACTED]	WG-3.2 (M)
SIMS, J (JERRY) SOUTHERN NUCLEAR OPERATING CO. [REDACTED]	[REDACTED]	WG-3.2 (M)
WORRELL, T. M. (TOM) DOMINION GENERATION [REDACTED]	Surry Power Station [REDACTED]	WG-3.2 (S)
WILLIAMS, B.E. (BURL) ENTERGY [REDACTED]	Arkansas Nuclear One [REDACTED]	WG-3.1 (M) WG-3.2 (M)

**IEEE - Nuclear Power Engineering Committee
Working Group WG-3.4 Membership List
Assessing, Monitoring, And Mitigating Aging Effects on NPGS Equipment**

Standards: IEEE Std 1205

Name/Company	Address	Assignment
BALLASSI, G. (GEORGE) GENERAL DYNAMICS/ ELECTRIC BOAT CORP. [REDACTED]	[REDACTED]	SC-3 (M) WG 3.1 (C) WG-3.4 (M)
BHARTEY, B.M. (BRIJ) SPECTRUM TECHNOLOGIES USA INC. [REDACTED]	[REDACTED]	SC-3 (M) WG-3.4 (M)
COLAIANNI, R.P. (PAUL) DUKE ENERGY [REDACTED]	[REDACTED]	SC-3 (M) WG-3.4 (C)
DOUGHERTY P. (PRESTON) DOMINION GENERATION [REDACTED]	Innsbrook Technical Center [REDACTED]	SC-3 (M) WG-3.4 (M)
FLEISCHER, L.Q. (LAMIS) EXELON CORP. [REDACTED]	Peach Bottom Nuclear Station [REDACTED]	SC-3 (M) WG-3.4 (M)
HORVATH, D.A. (DAVE) ADVENT ENGINEERING SERVICES, INC. [REDACTED]	[REDACTED]	SC-3 (C) WG-3.1 (M) WG-3.2 (C) WG-3.4 (PC)
LEUNG, C.W. (HENRY) ATOMIC ENERGY OF CANADA LIMITED [REDACTED]	[REDACTED]	SC-3 (M) WG-3.4 (M)
LOFARO, R.J. (ROBERT) BROOKHAVEN NATIONAL LAB [REDACTED]	[REDACTED]	WG-3.4 (M)
SANWARWALLA, M.H. (MANSOOR) SARGENT & LUNDY [REDACTED]	[REDACTED]	SC-3 (M) WG-3.4 (M)

SHEMANSKI, P.C. (PAUL)
US NUCLEAR REGULATORY COMMISSION

WG-3.4 (S)

Attachment 3

**NPEC MEETING REPORT
PRESENTED AT SC3-MEETING
August 29, 2001**

The last NPEC/ ADCOM meeting was held in State Line, NV on March 6-7, 2001.

SC3, getting more recognition in NPEC. Working Group 3.4 members along with David Horvath were recognized for their work on IEEE Std. 1205. Plaques were also awarded other NPEC members including past chair, Brit Grim. There was a discussion regarding NPEC's timely responsiveness to operational needs of the industry. It was recognized that while NPEC's strength was in design, it did not respond quickly enough to operational concerns. People were turning to other organizations like EPRI and NEI for resolutions.

Neil Smith and Brit Grim were given action to identify opportunities for NPEC to expand their role.

NPEC discussed that if members could make presentations on ongoing subcommittee work at technical meetings. It was determined that presentations could be made with a disclaimer that the work is in progress.

Next NPEC meeting will be held in San Diego, CA, on Nov. 5-6, 2001. The location for 02-01 was meeting was changed from Hilton Head, NC to Las Vegas, NV on March 12-13, 2002. Las Vegas meeting would include a trip to Yucca Mountain. Alex Marion will coordinate the meeting. The 02-02 meeting will be held in Monterrey, CA at the dates to be decided later.

Chart for hierarchy for standards was presented (given out earlier in SC-3 , 00-02 meeting in Orlando, FL). Comments can be sent to Brit Grim for further refinement.

Attachment 4

NPEC Goal Summary Table

[Click here to view PDF version of table.](#)

Attachment 5

Liaison Report
J. P. Vora and P. C. Shemanski
U. S. Nuclear Regulatory Commission
August 29, 2001

The following US NRC activities and relevant information would be of interest:

GSI-168, EQ of Low-Voltage I&C Cables

The NRC staff met with industry representatives on April 12, 2001. The purpose of the meeting was to discuss four technical issues concerning EQ of low-voltage I&C cables. The four issues discussed were:

1. Need for monitoring plant environment and condition monitoring
2. Testing of single prototype vs. multiple samples
3. Post-LOCA submerged voltage withstand test
4. Testing of I&C cable for 60 years of service life

Research Related to Power Cables and Splices

The objectives of this research program at BNL are (1) to characterize the effects of aging on power cables and how these aging effect can have an impact on performance and accident survivability, (2) evaluate the adequacy of current qualification practices for safety-related power cables in terms of how well they address the aging effects identified, and (3) evaluate the feasibility of in situ condition monitoring of power cables in terms of what techniques are currently available and how effective they might be at determining the current condition of the cable and predicting future performance under accident conditions.

International Conference on Wire System Aging

The Office of Nuclear Regulatory Research is planning to organize a three-day international conference, during the spring of 2002, to focus on significant technical issues and programs related to wire system aging. The focus of the conference will be on the following four topics:

1. Reliability Physics Modeling of Piece Parts and Behavior of Materials
2. Prognostics and Diagnostics of Installed Wire Systems
3. Risk Significance of Wire System Aging
4. Fire-Risk Assessment of Wire System Aging

Nuclear Safety Research Conference (NSRC)

During October 22-24, 2001, the Office of Nuclear Regulatory Research is organizing Nuclear Safety Research Conference. On Tuesday October 23 a technical session has been organized on Aging Related Issues and Research.

License Renewal

Calvert Cliffs and Oconee have received their renewed licenses. Renewal applications for ANO-1, Hatch, and Turkey Point have been reviewed by the staff. Renewal applications for Surrey/North Anna, Catawba/McGuire, and Peach Bottom are currently under staff review. Renewal applications for Fort Calhoun and Robinson are scheduled for 1/02 and 6/02, respectively. Renewal applications are expected for approximately 75% of the 103 operating reactors during the next 10 years.

The Standard Review Plan (SRP) for License Renewal (NUREG-1800) and the Generic Aging Lessons Learned (GALL) report (NUREG-1801) were issued July, 2001. IEEE Std. P1205-2000 is referenced in NUREG-1801.

Station Blackout Event at Maanshan, Taiwan

The incident leading to the loss of essential AC power (Station blackout for 2 hrs. and 8 minutes) at Maanshan ONPP unit 1 in Taiwan on March 18, 2001 would be of interest. The attached one page summary describes the event and the resulting challenges.

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