ANS 3.5 Working Group Meeting Minutes
American Nuclear Society
Cooper Sheridan Training Facility, Auburn, NE
2013 November 05-08

1. Visitors

Visitor	Date	Affiliation	Email, Phone Fax
Mr. Tim Dennis Proxy for Chang	2013nov05	645 Lehigh Gap St. P. O. Box 119 Walnutport, PA 18088-0119	**Email**: a243@yahoo.com **Phone**:610-767-0979 **Fax**: 610-767-7095
Dennis Spielman Proxy for McCullough	2013nov05	Vogtle 3 & 4 9034 River Rd Waynesboro, GA 30830	**Email**: despielm@southernco.com **Phone**:706-848-7863 **Cell:** 706-945-8687

2. Membership and Attendance

Present	Member	Address	Notes-Proxy	Email-Phone-Fax
Present	Jim Florence **Chair**	Nebraska Public Power District P. O. Box 98 Brownville, Nebraska 68321		**Email**: jbflore@nppd.com **Phone**: 402-825-5700 **Fax**: 402-825-5584
Absent	Robert Felker **Vice Chair**	Western Services Corporation 7196 Crestwood Blvd Suite 300 Frederick, MD 21703	No Proxy	**Email**: felker@ws-corp.com **Phone**: 301-644-2520 **Fax**: 301-682-8104 **Cell**: 240-344-5889
Present	Keith Welchel **Secretary**	Duke Power Company Oconee Training Center- MC:ON04OT 7800 Rochester Hwy Seneca, SC 29672		**Email**: keith.welchel@duke-energy.com **Phone**: 864-885-3349 **Fax**: 864-885-3432
Present	F.J. (Butch) Colby **Editor**	L-3 MAPPS 8565 Cote-de-Liesse Quebec, Canada H4T 1G5		**Email**: butchcolby@comcast.net **Email**: butch.colby@l-3com.com **Phone**: (410) 961-7535 **Fax**: (410) 756-1954
Present	Lawrence (Larry) Vick **Parliamentarian**	US NRC, Office of Nuclear Reactor Regulation 07-G13 Washington, DC 20555		**Email**: lawrence.vick@nrc.gov **Phone**: 301-415-3181 **Fax**: 301-415-3061
Absent	George McCullough	GSE Systems, Inc. 2300 St. Marys Road Suite D St. Marys, GA 31558	Dennis Spielman	**Email**: gsmccullough@gses.com **Phone**: 912-576-6730 **Cell**: 410-707-6946
Absent	Bill Hendy	INPO 700 Galleria Parkway, NW Atlanta, GA 30339-5957	No Proxy	**Email**: koutouzisjd@inpo.org **Phone**: 770-644-8838 **Fax**: 770-644-8120
Present	Frank Tarselli	129 Abbey Rd Sugarloaf, PA 18249		**Email**: frankt64@ptd.net **Phone**: 570.542.3717 **Cell**: 570-956-0303 **Fax**: 570.542.3855
Absent	SK Chang	Dominion Nuclear Connecticut, Inc. Millstone Power Station L. F. Sillin, Jr. Nuclear Training Ctr. Rope Ferry Road Waterford, CT 06385	Tim Dennis	**Email**: Shih-Kao.Chang@dom.com **Phone**: 860-437-2521 **Fax**: 860-437-2671
Present	Robert Goldman	Entergy 1340 Echelon Parkway Jackson, MS 39213-8298		**Email**: rgoldma@entergy.com **Phone**: 601-368-5582 **Fax**:
Present	David Goodman	Luminant PO Box 1003 Glen Rose, TX 76043		**Email**: david.goodman@luminant.com **Phone**: 254-897-5636 **Fax**: 254-897-5714

Absent	Jody Lawter	VC Summer Nuclear Station PO Box 88 Jenkinsville, SC 29065	No Proxy	**Email**: jody.lawter@scana.com **Phone**: 803-345-4854 **Fax**: 803-931-5616
Absent	Mac McDade	Progress Energy – Harris Nuclear Plant 3932 New Hill–Holleman Rd New Hill, NC 27562	No Proxy	**Email**: mac.mcdade@pgnmail.com **Phone**: 919-362-3319 **Fax**: 919-362-3346
Present	Michael Petersen	Xcel Energy – Prairie island – Monticello 1660 Wakonade Drive West Welch, MN 55089		**Email**: Michael.petersen@xenuclear.com **Phone**: 651-388-1121 x 7253 **Cell**: 715-410-8783 **Fax**: 651-330-6282
Present	Pablo Rey	Tecnatom, s.a. Avda. Montes de Oca, 1 San Sebastian de los Reyes, 28703 - Madrid		**Email**: prey@tecnatom.es **Phone**: +346-079-99218 **Fax**: +349-165-98677
Present	James Sale	North Anna Power Station 11022 Haley Drive, PO Box 402 Mineral, Virginia 23117-0402		**Email**: jim.sale@dom.com **Phone**: 540-894-2464 **Fax**: 540-894-2931
Present	William Fraser	Westinghouse Electric Company Nuclear Services I-70 Madison Exit 54, MB #20 Madison, PA 15663, USA		**Email**: fraserwa@westinghouse.com **Cell**: 717-304-6225 **Work**: 724-722-5777 **Work**: 724-722-5665

3. Action Items

3.1 Action Item Quick-look Table

Open	Complete	Carried to Next Standard

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67			

3.2 Action Items

No.	Status	Date	Assigned To:	Work Assignment
1		2010oct05	**Florence Lawter Sale**	Appoint new members for officer development (job shadow for position development). Parliamentarian Assist Lawter, Sale
2	2011nov17: Closed	2010oct06	**Koutouzis** McCullough	2009 AI-60 Define the Term **Training Needs Assessment** in such a manner that it is clear in intent to both Training and Simulator staff 2011nov17: The WG agreed the definition of "Training Needs Assessment" is adequate
3	2012Aug30: Closed	2010oct06	**Vick** Tarselli (BWR) Petersen (BWR) Rey (BWR) Goodman (PWR) McDade (PWR) Sale (PWR)	2009 AI-126 Consider adding Performance Test Program in next standard. New Appendix that gives example Performance Testing Program. 2012aug30: AI-3 is closed with the creation of AI-43 A draft Appendix was presented. AI-43 was created for additional consideration.

4	2011jun08: Closed items - 1, 3, 4 2011nov16: Closed Item 2	2010oct06	**Tarselli** Vick Chang Fraser Felker	2009 AI-132 ~~1. Review Malfunction Testing~~. 2011jun08 Closed 2. Are all list required? ~~3. What constitutes Malfunction testing is unclear~~ 2011jun08 Closed ~~4. Better define Malfunction causes~~. 2011jun08 Closed 2011jun08 2. AI-4 remains open pending review of Section 3.1.4 List. The remaining issue is relevance of the Malfunction list in Section 3.1.4 to the 201x standard. Additional consideration is if the malfunction list in section 3.1.4 should remain, be deleted or moved. 2011nov16 Closed by Motion
5	2011jun08: Closed 2011nov16: Wording change.	2010oct06	**McCullough** Florence Tarselli Colby	2009 AI-134 Minimum testing Periodicity Build Periodicity into the standard 2011jun09 Closed with Motions Realtime/Repeatability testing periodicity moved to AI-10 2011nov16: Added the word capability: An instructor station capability test shall be conducted

6	2012aug30: Closed	2010oct06	**Welchel** Lawter Petersen McDade Goodman	2009 AI-147 2009 AI-180 Non-fully integrated mode performance testing Where applicable run performance test off-line 2011jun08 Discussion 2011nov18 Welchel New Definition and Sec. 3.4.3 change proposed for consideration. Discussion tabled 2012aug29 Motion Not Carried. AI-6 is not closed and will consider additional input based on the discussions and member feedback. 2012aug30 Motion Carried New AI-44: AI-6 Motion Carried Simple Majority: Consult ANS-21 (Maintenance Operations Testing & Training) subcommittee for determination if this change is a Substantive Change. 2012sep21: The following reply was received from Carl Mazzola: **This is a substantive change. Another sentence was added with a shall statement.** AI-6 passed with a 8-For and 7-Against. Substantative change requires Consensus requiring a 75% approval. Therefore AI-6 status is **Not Carried**. AI-6 minutes status has been updated to: **Not Carried**. 2012dec05: AI-6 is Closed

7	2012aug30: Closed	2010oct06	**Vick** Goldman	2009 AI-150 Review the term Power Range for consistency Confusion about the term Power Range. 2012aug30 AI-7 is closed. Power range has been removed in 3 of 5 instances in the present draft standard. The remaining two instances are consistent.
8	2011jun09: Closed	2010oct06	**Chang** Tarselli Felker	2009 AI-162 Review Appendix B parameters against the standard body MANTG comments App. B parameters and std body are not consistent. 2011jun09 – A parliamentary issue regarding motion results. See AI-26 2011nov16: AI-8 was reviewed and changed to "Carried". See Summer minutes Section 5.4.

9	2012aug29: Closed	2010oct06	**Felker** Lawter McCullough Fraser Colby Goodman McDade Koutouzis Rey Sale	2009 AI-163 Next generation simulators New builds. Public review comments that the WG did not considered new builds. Examine unique issues with new builds. Review will ask if 3.5-2009 provides sufficient guidance for new builds. Focus: Transients (AI-9 Closed Granbury Resort) Malfunctions (Closed AI-4 VC Summer) Configuration management DCS Appendix D Review (Limited Scope applications) Lawter 2011jun10 – Info presented. Next meeting will propose the first of several anticipated standard changes. 2012Mar14 – Motion Rewrites Sections 3.4.3.1/4.4.3.1 and deleted Appendix B 2012aug29 – Working Group discussed Appendix D and agreed to no changes. The Working Group agreed to closed AI-9.
10	2011nov16: Closed	2010oct06	**McCullough** Felker McDade Goldman	2009 AI-179 Real-time and Repeatability testing Periodicity 2009 Public review comments. Methodology to demonstrate real-time. 2011jun10 Carried from AI-5 Realtime/Repeatability -Establish Realtime/Repeatability Periodicity Testing Requirement 2011nov16 Closed by Motion.

11	2012Mar16: Closed	2010oct06	**Goodman** Vick Petersen Chang	2009 AI-181 Section 5 rewrite 2009 Westrain Comment #60 Configuration Management expectations needs strengthening Performance based. V&V is part of configuration mgt. (Section 4) possible a better fit in Section 5 2011nov15 – Section 5.4 references Section 4.4 and should reference 4.2 2012Mar16: Closed with three AI motions
12	2010oct22: Closed	2010oct06	**Florence**	Invite ANS-21 Chair to WG meeting ANS-21 Chair Gene Carpenter Two White Flint North Washington, DC 20555-0001 **Mobile Ph**: 202-579-5155 **Work Ph**: 301-415-7333 **Email**: gene.carpenter@nrc.gov
13	2011jan28: Closed	2010oct06	**Florence**	Send letters of appointment to new working group members and their respective facility management Letter to new working group member and manager.
14	2011jan28: Closed	2010oct06	**Florence**	Coordinate next ANS-3.5 Meeting at the Crystal River Nuclear Power Plant in January 2011
15	2011jan28: Closed	2010oct06	**Florence**	2009 AI-185 Send a letter to the NEI in an effort to promote NEI participation in the ANS-3.5 Working Group and to develop a more collaborative relationship.

16	2012aug29: Closed	2011jan28	**Sale** Rey McCullough Tarselli Chang Koutouzis	Consider the option to include other uses of the simulator in footnote 1 on Page 1 of the Standard (e.g. - technical support). This was a consideration during the development of the scope statement in lieu of explicitly mentioning other uses of the simulator in the scope statement. 2012aug29 – Presentation and discussion. WG agreed to close AI-16 with no action.
17	2012Mar14: Closed	2011jan28	**McDade** Tarselli Koutouzis Petersen	Consider placing language in Section 1.2 Background to insert "experience requirements": `It is intended that in meeting the criteria of this standard, the simulator will be sufficiently complete and accurate to meet the training needs of the industry as well as the requirements of the NRC, as described in *Code of Federal Regulations*, Title 10, "Energy," Part 55, "Operators' Licenses" (10CFR55) **and station mandated experience requirements** Consider language in Section 1.2 Background to add clarification regarding control manipulations allowed by 10CFR55.46 and how this standard supports it. 2012mar14 – team recommended closure. Standard is sufficient.

18	2013nov06: Closed	2011jan28	**Florence** Rey Holl Fraser	1) Contact ANS to determine international opportunities in Standard development. 2) Consider language in Section 1.2 Background to mention use of this standard by the international community. 3) Additional consideration in the Standard body for the international community. Acknowledge international regulatory authorities. 2012aug29: The recommended wording will be considered during the final read of the standard. The wording is to be inserted in the Foreword and its location will be determined at that time. 2013nov06 Language was inserted in Foreword to mention use of this standard by the international community and to acknowledge international regulatory authorities; "The working group acknowledges the use of this Standard by international users and owners of nuclear power plant simulators that may be subject to international nuclear regulatory authorities; the degree of application of this Standard to their respective nuclear power plant simulators is the responsibility of international authorities."

19	2012nov18: Closed	2011jan28	**Tarselli** McCullough Goodman Chang Rey	Review the list below for inclusion into ANS 3.5 or other standards and basis for the recommendation: • Engineering Assist • Simulation Assisted Engineering • EP • DCS Logic Control Validation • HFE – Human Factors Engineering • Tech Training – I&C / Mechanical • PR Tours • Process Flow Diagrams • Spec. Operating Parameters • PRA • SAMG
20	2012aug30: Closed	2011jan28	**McCullough** Colby Tarselli Lawter Fraser	Identify areas in the standard that can be improved to address DCS 2012aug30: Closed by Motion
21	2011jun10: Closed	2011jan28	**McCullough** Felker Koutouzis Lawter Goodman	Evaluate the need for inclusion into the standard other simulation devices derived directly from the full scope control room simulator. 2011jun10 – Presentation and discussion. No additional discussion and action will be taken. This AI is closed.
22	2012aug30: Closed	2011jan28	**Lawter** Sale Welchel Vick Felker	Review the recent regulatory cyber security guidance and OE to determine if cyber security should be included in the standard. 2012aug30: Power Point presentation. Recommendation to close AI-22. AI-22 is closed

23	2012aug28: Closed	2011jan28	**Vick** Tarselli Rey Sale Florence Chang	Evaluate the need for including into Section 3.3.1 a set of IC criteria for ICs that are to be used when conducting the performance tests required by this standard. 2011jun10 – Proposal made. Additional consideration required. 2012aug28: present requirements are sufficient.
24	2011feb01: Closed	2011jan28	**Florence**	Submit PINS Form to ANS Administrator 2011feb01 PINS has been submitted.
25	2012mar13: Closed	2011jun10	**Chang**	The following Appendix B Steady State parameters were considered in AI-8. BWR - control rod drive hydraulic system flow and temperature - secondary plant heat balance data PWR - containment pressure - boron concentration - pressurizer temperature - control rod positions - secondary plant heat balance These parameters should be reviewed for inclusion into the standard body Steady State parameter list. 2012mar13: Closed by Motion

26	2012dec05: Closed	2011jun10	**Florence**	Review and recommend modifications to the Rule of the Chair related to quorum in session. Interim Voting (Motions – Substantive Changes) shall be by Consensus (75% [rounded up] of quorum in session); Rule of the Chair for the remainder of the meeting: Interim Voting (Motions – Substantive Changes) shall be by Consensus (75% [rounded up] of voting membership present); 2011nov15: Additional consideration is needed to determine if previously "Not-carried" Motions are affected by the revised Rule of the Chair. 2012dec05: At the Granbury Resort Conference meeting, the Vick report (Section 5.10) concluded there are no Motions affected by the revised Rule of the Chair. AI-26 is Closed.
27	2011nov15: Closed	2011jun10	**Florence**	Define Substantive Change with regards to Motion "Carried" threshold. 2011nov15: Closed with AI-26 discussion.
28	2012aug30: Closed	2011jun10	**Felker** Chang Sale	Review and report to the WG the usage of the terms: **If available** versus **As applicable**. 2012aug30: Closed with AI-28 discussion.

29	2011nov17: Closed	2011jun10	**Rey** Tarselli	Review Normal Operating procedures Surveillance testing with regards to periodicity testing. It should be clarified what Normal Evolutions defined in 3.1.2.2 shall be tested with the frequency established in 4.1.3.2 2011nov17: Closed by Motion: Carried Text substitution in section 4.1.3.2 Normal evolutions
30	2012Mar14: Closed	2011jun10	**Sale**	Review Appendix B Steady State section for deletion. 2012mar14 – AI-9 deleted Appendix. This AI is closed.
31	2011nov18: Closed	2011jun10	**Petersen** Chang	Review list nomenclature for consistency 2011nov18: Closed by Motion Carried.
32	2012dec11: Closed	2011nov17	**McCullough**	Verify testing periodicity terminology consistency across section 4. 2012dec11 McCullough lead a discussion reviewing the sections and consistency. There is consistency across Section 4.0. AI-32 is closed.
33	2012aug30: Closed	2011nov18	**Welchel**	Review use and consistency of term Fully Integrated, partially-integrated and Non-integrated, and Standalone with regards to Sections 3 and 4. 2012aug30 – Review indicates the Section 5 rewrite consolidated these terms. AI-33 Closed.

34	2012Mar16: Closed	2012Mar14	**Colby**	AI-9 deleted Appendix B, this AI is to review/cleanup remaining references to Appendix B 2012mar16: Closed Two Column Document Rev 4 updated.
35	2012Mar15: Closed	2012Mar15	**Felker** Colby	AI-5 Review the usage of "preference" and "shall" in Section 5.1.2 2012mar15: Closed - The working group reviewed the definitions of "preference" and "precedence". The list may be a precedence list but preference is adequate.
36	2012aug30: Closed	2012Mar15	**McCullough** Goodman	Consider replacing the opening paragraph in Section 5. With the following: A configuration management program shall be established to provide a means for demonstrating compliance with Sec. 3, "General Requirements." Section 5.1 is for initial simulator construction or for re-baselining the simulator design, else use Section 5.2. 2012aug30: Closed with AI-36 discussion.
37	2012dec11: Closed	2012Mar15	**Chang** Fraser Goodman	Consider definitions for "benchmark" and "baseline". 2012dec11 Recommendation is to close AI-37 with no action.
38	2012aug30: Closed	2012Mar15	**Rey** Goodman	With the new Section 5 (AI-11 2012mar15), Section 5.3 Assessment of Deviations, review the assessment parameters for adequacy as they apply to operational performance. Previously, the items only applied to physical fidelity. 2012aug30: Closed with AI-38 discussion.
39	2012aug28: Closed	2012Mar15	**Goodman** Chang	Consider revising Section 5.1 to include verification and validation as it applies to initial simulator construction. 2012aug28 – Closed by agreement

40	2012Mar15: Closed	2012Mar15	**Goodman**	Section D.2 cleanup references to 3.2.1.4 and in Section D.3 cleanup references to 4.2.1.4. Closed by Motion
41	2012aug28: Closed		**Goodman** Welchel Dennis Felker	Additional review of Section 3.4.1/3.4.2/4.4.1/4.4.2 - Previous sections 3.4.1/3.4.2/4.4.1/4.4.2 use the word "Demonstrate". The new words in Section 5 do not include the word "Demonstrate" - The new Background section no longer refers to V&V, and includes no reference to CM - Review IEEE and ANS 3.5 for alignment of V&V requirements - Review the redefined intent of testing. Is the purpose of testing to "ensure no noticeable differences exist" or is it to "indentify noticeable differences that need to be resolved". (responsibility Dennis) 2012aug28 – Closed by agreement
42	2012aug30: Closed		**Chang**	Review the use of "Because" in the first paragraph of section 5.1.2 Simulator Performance Benchmark. Consider "If" or "When". Multiple baseline data are not always available and sometimes no data is available. 2012aug30: Editorial Change. AI-42 is Closed.

43	2013apr02: Closed by Motion	2012aug30 Avila Beach	**Vick** Lawter Rey Sale Tarselli Cupp Florence	Review the AI-3 proposed Appendix for possible integration into the draft standard. Also, explore ANS Guidelines as a means to distribute the Performance Testing guidance. 2012dec13 Several versions were presented and discussed. WG agreed to continue additional discussion. 2013apr02: Proposal #1 occupied the majority time of discussion. After several hours of discussion a straw poll indicated lack of support.
44	2012sep21: Closed by Email from Carl Mazzola.	2012aug30	**Florence**	AI-6 Motion Carried Simple Majority: Consult ANS-21 (Maintenance Operations Testing & Training) subcommittee for possible Substantive Change. 2012sep21: The following reply was received from Carl Mazzola: **This is a substantive change. Another sentence was added with a shall statement.** AI-6 passed with a 8-For and 7-Against. Substantative change requires Consensus requiring a 75% approval. Therefore AI-6 status is Not Carried. AI-6 minutes status has been updated to: Not Carried. 2012dec05: AI-44 is Closed
45	2012dec11: Closed	2012aug31	**Chang** Rey Colby Vick	New definition for human-machine interface. 2012dec11 No definition is needed for human machine interface (HMI). New AI-49 changes HMI to HSI. AI-45 is closed.

46	2012dec11: Closed	2012aug31	**Petersen** Goldman Fraser Rey	Review evolution limitations and Limit of simulation for continued applicability. 2012dec11 A straw poll indicated no additional changes are required. AI-46 is closed.
47	2012dec12: Closed	2012aug31	**Mcdade** Florence Felker	Review Scope statement to include additional exclusions. 2012dec12 Closed by Motion. Revised Section 1.2 Background
48	2012dec12: Closed	2012aug31	**Chang** Rey Gagnon	Review the standard for extended length scenarios and possible guidance. 2012dec12 Closed. New AI-50
49	2012dec11: Closed	2012dec11	**McCullough**	2012dec11 Reference AI-45 Update the standard changing all references of human machine interface to human system interface. Closed by Motion.

50	2013nov06: Closed	2012dec12	**Florence** Petersen Gagnon Rey Chang	2012dec12 Update the Foreword to assure the industry that consideration of events such as the Fukushima event, extended length scenarios, EP Drills, etc. i.e. non standard scope scenarios were discussed and determined not to be within the scope of the standard. 2013nov06 Language was inserted in Foreword to assure the industry that consideration of events such as the Fukushima event, extended length scenarios, EP Drills, etc. i.e. non-standard scope scenarios were discussed and determined not to be within the scope of the standard; "The working group diligently considered events such as the Fukushima Daiichi Nuclear Power Plant accident and uses of the simulator for both extended duration scenarios and emergency preparedness drills/exercises for inclusion in the scope of this Standard. The working group ultimately determined that these types of simulator applications are not within scope of this standard; however, the standard does not preclude the use of simulators for activities other than operator training and examination."
51	Closed: 2013apr03 by Motion	2012dec13	**Goodman** Rey Vick Cupp	2012dec13 New AI-51 – Possible revision to Section 4.4.3 Simulator reactor core performance testing. Closed: 2013apr03 by Motion. Replaced Section 4.4.3

52	2013jul25: Closed		**Felker** Colby	2013apr05 Strengthen the comments: Appendix B deletion Section 3.1.4 Malfunction List deletion 2013jul25 WG agreed to closed AI-52. See 2013jul25 minutes for closure description.
53	2013jul25: Closed		**Colby**	2013apr05 Blank Appendix Allowed? 2013jul25 Final Read Item Appendices have been adjusted. ANS input is that blank Appendices are not allowed.
54	2013jul25: Closed		**Goodman**	2013apr05 Section 3.4 and 3.4.4 review for PEST testing requirement. Evaluate the requirement to perform PEST testing in section 3.4.4 in a fully integrated mode of operation. 2013jul24 – Parking lot item: 4.2.2/4.1.3 No periodicity needs to be addressed when this AI is resolved. 4.2.2 – No change 4.1.3 – AI-54 Steady-state is listed in two section 4.1.3and 4.4.1 and periodicity is defined only in Section 4.4.1. This item is left open pending AI-54 discussion 2013jul25 Goodman discussion. Closed by Motion.

55	2013nov05: Closed		**Florence**	2013jul23 Contact Pat Schroeder is Section 6. Is boilerplate. What is the purpose of Section 6.0 Is Appendix Header boilerplate. Determine standard language for Section 6; currently, we identify one reference; lead in paragraph suggests more than one paragraph. IN addition, this section paragraph is difficult to understand 2013nov05 Email from Don Spellman to Jim Florence dated Sunday, September 08, 2013 1:16 PM. Section tech edits will be removed. Colby will update Section 6
56	2013jul26: Closed		**Florence**	2013jul23 In the "American National Standard" front section of the standard; send the technical edits to ANS (Pat Schroeder) as information only… (Chang & Florence) 2013jul26 Email sent to ANS Pat Schroeder
57	2013jul26: Closed		**Chang**	2013jul23 Verify all uses of "by this section" for change consideration to "in this section" for consistency throughout standard 2013jul26 Review with recommendation to make no change

58	2013jul25: Closed		**Chang**	2013jul23 Line 199 in tech edit spreadsheet – delete "steady-state test" in Section 4.4.1 2013jul25 Closed by Motion: Motion (Carried): Operability to Transient Term Update
59	2013jul25: Closed		**Chang**	2013jul23 Lines 221 & 222 in tech edit spreadsheet; identify the role that procedures have in Section 4.4.4 2013jul25: Closed Motion (Carried): AI-59 PEST use of Unit procedure
60	2013jul25: Closed		**Florence**	2013jul23 2013jul25: Closed to AI-55
61	2013jul25: Closed		**Felker** Mirshah Tarselli	2013jul24 Review Two-column document technical edit reviews for correctness. 2013jul25: Closed Review completed with no comment.
62	2013nov05: Closed		**Colby**	2013jul24 Review Footnotes and Footnote numbering in the final document before sending for comment/approval. Review the standard references to Appendices to ensure correct reference/tie 2013nov05: Document: ANS-3.5-2014 draft Read Nov-2013.docx Appendices have been reordered. Footnote references have been corrected in the body and Appendix B.

63	Closed: 2013jul24		**Colby**	2013jul24 Parking lot Item: A.1 – should “evaluation” be “examination”? Section A.1 Change “evaluation” to “examination” and “tool” to “device”.
64	2013jul26: Closed		**Chang**	2013jul25 Review uses of "by this section" 2013jul26 Review with recommendation to make no change
65			**Colby**	2013jul25 Tech Edit Items List in Sections 4.1.3.2 2013jul26 Two column document updated. Completed
66			**Colby**	2013jul25 AI-66 Tech Edit Items List in Sections 4.1.4, 4.4.1, 4.4.2 Remove list capitalization 2013jul26 Two column document updated. Completed

67	2013nov06: Closed		**Rey** Tarselli Goodman McCullough	2013jul25 Include Steady-state and normal evolutions as Performance test. Possibly separate Steady-state and Normal evolutions without creating additional burden. Reference AI-54 for consideration. 2013nov06: Motion - Normal Evolutions testing requirements Motion - Move Steady-State to Section 4.4 Simulator performance testing

4. Working Group Procedural Rules

4.1 Rules of the Chair

- Interim Voting (Motions – Substantive Changes) shall be by Consensus (75% [rounded up] of quorum in session);
- The Chair rules that no Motions will be accepted when not in session;
- Administrative issues by simple majority (quorum in session);
- The Chair shall be informed of absences;
- The absent member is encouraged to send a proxy;
- A Proxy shall have voting privileges;
- Members shall attend the full length of the meeting;
- Word 7.0 shall be the document format;
- The Host shall collect and send all handout material for absent members without proxy;
- Robert's Rules of Order shall be used as a general guide;
- Guest Individual Contributors may receive working copy of the draft standard based on need;
- Chair approval shall be required for distribution of working copies of the draft standard;
- Members shall not Vote against their own non-amended Motion;
- The WG will through the course of normal business, generate confidential documentation applicable to the WG charter. As a result of this business, documentation could be released to the public through approved minutes posted on the ANS 3.5 WEB site. Other information may be released to the public as deemed appropriate by the WG Chair or Vice-Chair. In addition, information may be supplied to non-working group members on a need-to-know basis for the purpose of review and comment;
- When Abstention Votes are present the Majority (> 50%), Super Majority (2/3), Consensus (75%) levels are recalculated by subtracting the Abstention Votes count from the Members Present count;
- Non-substantive change requires Majority Vote;
- Appendices changes are non-substantives;
- Substantive requires Consensus Vote;
- Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
  - "shall" to "should" or "should" to "shall";
  - addition, deletion or revision of requirements, regardless of the number of changes;
  - Addition of mandatory compliance with referenced standards.

4.2 Rules Enacted by the Working Group

Missing two consecutive meetings in a row without representation could result in loss of membership on the committee.

5. Tuesday 2013 November 05 (0800)

5.1 Introduction (0800)

5.2 Roll Call

Members Present:

Jim Florence
Keith Welchel
F.J. (Butch) Colby
Lawrence (Larry) Vick
George McCullough -Proxy
Frank Tarselli
SK Chang - Proxy
Robert Goldman
David Goodman
Michael Petersen
Pablo Rey
Jim Sale
William Fraser

Proxy/Visitors:

Tim Dennis for Chang
Dennis Spielman for McCullough

5.3 Consensus Level

17 - Voting members
13 - Voting members Present (2 Proxy Vote)
7 - Quorum (Majority Total Membership)
10 - Consensus (≥ 75% votes)
9 – Super Majority (≥ 2/3 Votes)
7 – Majority (> 50% votes)

5.4 Motion (Carried): Agenda Rev 0 Approval

Motion: **Carried** • 13 – For • 0 – Against • 0 – Abstained
Date 2013Nov05 **Motion**: Approve Agenda Rev 0

5.5 Officers reports

Florence (Chair)	No Report
Welchel (Secretary)	No report
Colby (Editor)	No report
Chang (Style Editor)	No report
Vick (Parliamentarian)	No report

5.6 Industry Update

INPO	No Update
USUG - Florence	No Update
Dennis	NFSC divided into smaller groups. Reduce the size of NFSC presently with ~70 standards. Broken up into two groups: At the 18june2013 Atlanta, Georgia, meeting of the ANS Standards Board, the Nuclear Facilites Standards Commitee (NFSC) consensus committee has been dissolved and integrated into six newly named consensus committees formed with their respective chairs also appointed. The reallocation of Standards into the consensus committees has been delegated by the ANS Standards Board to the new chairs of the consensus committees. Standards transition Update: ANS-3.5-1985 - 16 (23%) ANS-3.5-1998 - 11 (16%) ANS-3.5-2009 – 42 (61%)
WESTRAIN - Goodman	No Update
NEI - Petersen	No Update
SSNTA	No Update

5.7 AI-62 Review footnotes and footnote numbering in the final document

Document: ANS-3.5-2014 draft Read Nov-2013.docx
Appendices have been reordered.
Footnote references have been reviewed and corrected in the body and Appendix B.

AI-62 is closed.

5.8 Foreward Review

Visitor attendance and meeting hosts for all meetings to date (10) was reviewed.
Some discussion centered on the 2009 malfunction list and new builds.

Additional review based on the discussion.
This item will be discussed again tomorrow, Wednesday.

5.9 AI-55 Section 6 ANS Standards Guidance

Based on feedback from Don Spellman, Chair ANS Standards Board, all Section 6 tech editing changes made at the Pilgrim meeting will be removed.

Email from Don Spellman to Jim Florence dated Sunday, September 08, 2013 1:16 PM:

> Jim, I admit that the current wording may be a little confusing for a reference section that has only one reference, but since the ANS Standards Committee Policies are reviewed only ever 4 or 5 years when there are significant changes to be made in the underlying committee policies, it would not be worthwhile to make a policy change at this time. However, your comment will be held for discussion during the next scheduled review. For now, you will need to use the introductory statement as it is written in the policy. However, you may refer to the actual reference in any way you desire, as long the title and designations are verbatim.
>
> Thanks you for your diligence and comments on the standards process. Please feel free to ask other questions as they come up. Pat can field most of them and I am happy to interject whenever she feels it is necessary.
>
> Regards, Don
>
> Donald J. Spellman, Chair
> ANS Standards Board
> American Nuclear Society

Colby to update Section 6 removing the Pilgrim meeting tech edits .

AI-55 is closed.

5.10 AI-67 Steady-State and Normal Evolutions as Performance Test

The following was presented for discussion:

AI-67. "Include Steady-state and normal evolutions as Performance test"

During the formal reading of the draft standard during our meeting at Palo Verde, and by analyzing the testing periodicity, it was identified a duplicity in the Steady State testing, which was listed in two sections (4.1.3 and 4.4.1).

During our meeting in Pilgrim, with **AI-54** resolution (originally created for PEST vs. Fully integrated or stand-alone mode discussion), Steady State was removed from the performance test section, eliminating the duplicity problem.

Later discussion about where Steady State should be included, and after an overview of the standard index, leads to the group to the agreement that Steady State and Normal evolutions should be included as a performance test, instead of a Capability test as currently is.

The suggested modification of the standard structure was as follows:

A first motion to move Steady-State and Normal Evolutions to performance testing in section 4.4 was discussed and voted, and it failed with 11 for and 5 against. (12 for and 4 against were needed)

Even the feeling of the majority of the group was that Steady-State and Normal Evolution belong to performance Testing, there was a concern about adding unnecessary burden to the testing process for Normal Evolutions.

A second motion was tried with the aim only to move only Steady-State into performance tests, and it failed with 7 for and 7 against. The main reason argued was that Normal Evolution and Steady State need to be moved together, but without adding unnecessary burden to the testing process

In order to move the Steady State and Normal Evolutions into the performance test section, which would provide a more consistent structure to the standard, but without adding unnecessary burden, we can consider the following options:

Option 1: Discuss again about the first motion and vote it as is, considering that it does not add any explicit additional

burden. (We are not changing the wording at all).

Option 2: Specifically remark in section **4.4** that a record of the execution of plant procedures shall be enough to document the Normal evolutions testing. As a suggestion, we can add in section 4.4 a sentence like:

"A record of the plant procedures execution shall be enough to demonstrate that the acceptance criteria are meet".

Option 3: Replace "Performance Testing" with "Functional Testing" and move Steady State and Normal Evolutions into the Functional Testing category.

From 10CFR55.4 definition: "Performance testing means testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance." This is a broad definition that encompasses other ANS test categories including steady-state, normal evolutions, malfunctions, etc. In many cases, validation testing could also meet this definition of "performance test". It is not appropriate to single out the tests in section 4.4 to meet a "fully integrated" requirement. We must look at the purpose, test methods, and acceptance criteria of each test.

Instead of using the phrase "fully integrated, partially integrated, or stand-alone mode of system operation", we should consider something more general in section 3.4, such as:

"The purpose, method, and acceptance criteria differ for each type of functional test. Functional tests shall be conducted in a manner consistent with the test purpose and in a manner sufficient to ensure that acceptance criteria are met.

Successful completion of simulator functional testing and other tests described in Sec. 4 demonstrate that the simulator is sufficient in scope and fidelity to be used in operator training and examination."

Reason for this discussion was an initial confusion with Operability Test and Steady-state test. Operability term has been removed so what kind of test is Steady-state and Normal Evolutions. Possible confusion between a capability and performance test.

Florence – SECY document defines a simulator's ability to be used for experience based on it ability to prove Steady-state capability.

Rey – Moving steady-state and Normal Evolution into 4.4 Simulator performance testing is better organization.

Rey - Moving Normal Evolutions into performance testing may increase the documentation burden.

Normal evolutions testing comparing against unit reference data would require significant data comparisons i.e. burdensome.

10 CFR 55.4 performance testing is the same as defined in the simulator.

Previously steady-state and Normal Evolutions were Operability test. They were not brought forward into Performance testing and left as capabilities. The question is should they be moved back in the Performance testing section.

Concern was expressed that moving Normal Evolutions into Performance testing will change the test from a capabilities test (procedure based) to a reference unit performance/data comparison.

The Chair requested the team present an adjustment to the present draft standard to create equivalence to the 2009 standard for Steady-state and Normal Evolutions.

5.11 Review Final Draft Purple items

Document: ANS-3.5-2014 draft Read Nov-2013-rev 1.docx

5.12 Items to be discussed Wednesday

AI 18 and 50 (Florence) - Foreward

AI-67 (Rey) – Steady-State and Normal Evolutions

AI 55 (Colby) - Section 6 (Colby)

(Colby) – Appendix C capitalization

5.13 Recessed: 1605

6. Wednesday 2013 November 06 (0800)

6.1 Roll Call

Jim Florence
Keith Welchel
F.J. (Butch) Colby
Lawrence (Larry) Vick
George McCullough -Proxy
Frank Tarselli
SK Chang - Proxy
Robert Goldman
David Goodman
Michael Petersen
Pablo Rey
Jim Sale
William Fraser

Proxy/Visitors:

Tim Dennis for Chang
Dennis Spielman for McCullough

6.2 Consensus Level

17 - Voting members
13 - Voting members Present (2 Proxy Vote)
7 - Quorum (Majority Total Membership)
10 - Consensus (≥ 75% votes)
9 – Super Majority (≥ 2/3 Votes)
7 – Majority (> 50% votes)

6.3 Foreward

The following Foreward was reviewed:

Foreword

(This Foreword is not a part of the American National Standard "Nuclear Power Plant Simulators for Use in Operator Training and Examination," ANSI/ANS-3.5-2014.)

The nuclear power industry is currently in a mature phase of operation with encouraging successes in operating license extensions and extended power uprates. In addition to life extension activity, new construction of nuclear power plants is in progress. This sixth revision of the 1979 original standard continues in the philosophy of further addressing issues related to maintaining simulators throughout the life of commercial nuclear power plants. This revision of the standard supports the functional requirements and criteria of this standard to next-generation ("new build") reactors.

The first ANS-3.5 standard, published in January 1979, provided essential requirements for the acquisition of full-scope simulators to support operator training programs. The second ANS-3.5 standard, published in April 1981, further delineated specification requirements. Improvements in testing methods and overall consistency were subsequently included in the third ANS-3.5 standard, published in October 1985. The fourth ANS-3.5 standard, published in March 1993, introduced a new testing methodology and processes that effectively integrated training processes with simulator testing and configuration management processes. The fifth ANS-3.5 standard, published in April 1998, further refined the integration of the training scenario validation process with the simulator testing process; this integration effort introduced simulator scenario-based testing. The sixth ANS-3.5 standard, published in September 2009, clarified the functional and testing requirements associated with simulator scenario-based testing; in addition, this standard introduced post-event simulator testing and reactor core performance testing, the latter of which provides assurance that applicants for an operator license may meet reactivity experience requirements on a reference unit simulator.

Many nuclear power plants have realized routine steady-state operation throughout the fuel cycle as operational performance improves; while this level of maturity is excellent, it provides fewer operational experience opportunities previously afforded to licensed operators. Excellent plant performance demands a more vital role for the simulator in providing operators with experience previously obtained in the actual plant. The importance of a thoroughly tested simulator as high quality training device cannot be overemphasized.

The development of the ANS-3.5-2014 Standard was possible through the cooperation of nuclear professionals from the domestic and international communities. Anticipating a larger user base of the ANS-3.5 Standard with the construction of new build commercial nuclear power plants, assistance from nuclear professionals associated with new build nuclear power plant simulators was also obtained. The working group acknowledges the use of this Standard by international users and owners of nuclear power plant simulators that may be subject to international nuclear regulatory authority; the degree of application of this Standard to their respective nuclear power plant simulators is the responsibility of international authorities.

The Section 3.1.4 malfunction list and the Appendix B of the ANS-3.5-2009 Standard are removed from this standard. To address new build commercial nuclear power plants and the applicability of this standard to new build simulators, the working group considered several different design certifications already submitted and expected to be submitted for regulatory approval during the development of this standard. Priority was afforded to those designs actually under construction in the United States with near term issuance of commercial operating licenses (five-year look ahead). It became apparent to the working group that various malfunctions listed in Section 3.1.4 and various transients in Appendix B of the ANS-3.5-2009 Standard were not applicable to new build commercial nuclear power plant design. The working group considered multiple malfunction and transient lists based on reactor design and determined such effort unwieldy to include in this revision of the Standard; efforts were therefore focused to identify generic guidance that could be applied regardless of reactor type and reactor design. The working group realized the value of existing and new nuclear power plant simulator owners to utilize a proven and regulated systematic approach to training process to identify and include appropriate malfunctions and transients for simulators unique to each plant design.

The working group diligently considered events such as the Fukushima Daiichi Nuclear Power Plant accident and uses of the simulator for both extended length scenarios and emergency preparedness drills/exercises for inclusion in the scope of this Standard. The working group ultimately determined that these types of simulator uses are not within scope of this standard; however, the scope does not preclude the use of this standard to enhance simulator performance for activities other than operator training and examination. The use of this standard in whole or in part to help define, develop and test simulator facilities for activities beyond the current scope is encouraged.

When a simulator is used for operator training and examination, it is expected to meet the requirements set forth in this standard.

Acknowledgements:

This review and revision cycle was fortunate to receive substantial support from a diverse and dedicated group of nuclear simulator experienced professionals representing many utilities and interested parties. A wide range of representation from

utilities, independent contributors, industry oversight organizations, and simulator suppliers, including individuals with significant military and commercial reactor experience, contributed to the efforts of the ANS-3.5-2014 working group. Input to the development of the standard was received through various means, including feedback from training and simulator associations. Working group meetings were also attended and supported regularly by non-member participants. All aspects of power reactor and simulator design, construction, and operation, in addition to extensive operator training and evaluation experience, were available throughout this review cycle. Representation at working group meetings was diverse with approximately 602 of collective years experience in the nuclear industry, including 417 years of simulation related experience, and approximately 217 years of operator training experience. Working group continuity was preserved by members with a range of 1 to 25 years of working group participation experience. The significant experience available and dedicated participation of each member were effectively used to prioritize and address each important issue.

This standard might reference documents and other standards that have been superseded or withdrawn at the time the standard is applied. A statement has been included in the references section that provides guidance on the use of references.

This standard does not incorporate the concepts of generating risk-informed insights or a graded approach to quality assurance. The user is advised that one or both of these techniques could enhance the application of this standard.

This standard was prepared by Working Group 3.5 of the Standards Committee of the American Nuclear Society, which had the following membership:

J. B. Florence (Chair), *Nebraska Public Power District, Cooper*
R. A. Felker (Vice Chair), *Western Services Corporation*
K. P. Welchel (Secretary), *Duke Energy, Oconee*
F. J. Colby (Editor), *L-3 Communications MAPPS, Inc.*
S. K. Chang (Style Editor), *Dominion, Millstone*
L. Vick (Parliamentarian), *U.S. Nuclear Regulatory Commission*
W. A. Fraser, *Westinghouse Electric Co.*
R. E. Goldman, *Entergy, Grand Gulf*
D. P. Goodman, *Luminant, Comanche Peak*
W. R. Hendy, *Institute of Nuclear Power Operations*
J. Lawter, *SCE&G, VC Summer*
G. S. McCullough, *GSE Systems, Inc.*
D. D. "Mac" McDade, *Duke Energy, Shearon Harris*

P. Rey, *Tecnatom, Spain*
J. C. Sale, *Dominion, North Anna*
F. A. Tarselli, *Individual Silver Fox Synergies LLC.*
M. M. Petersen, *Xcel Energy, Prairie Island/Monticello*
Certain highly technically qualified individuals provided additional expert assistance and advice to the working group during the development of this standard. They were as follows:

J. Cross, *Westinghouse Electric Co.*
S. Cupp, *Entergy, Arkansas Nuclear One*
G. Degraw, *Entergy, River Bend*
T. Dennis, *individual*
V. Gagnon, *L-3 MAPPS*
W. Hendricsen, *Arizona Public Service Co., Palo Verde*
Dr. B. Holl, *KSG Kraftwerks, Germany*
R. Jones, *Entergy Corporate*
M. Mirashah, , *Western Services Corporation*

The following organizations are recognized for hosting working group meetings over the course of development of the Standard:
American Nuclear Society, LaGrange, Ill.
Arizona Public Service Co., Palo Verde
Duke Energy, Crystal River
Duke Energy, Shearon Harris
Entergy Nuclear, Pilgrim
Luminant, Comanche Peak
Nebraska Public Power District, Cooper
PG&E, Diablo Canyon
SCE&G, VC Summer
Westinghouse Electric Co., Cranberry, PA
Subcommittee ANS-21, Maintenance, Operations, Testing and Training, had the following membership during its review of this standard:

(ANS to provide list) The Nuclear Facility Standards Committee had the following membership at the time of its approval of this standard: (ANS to provide list) NFSC Liaison: (ANS to provide list)

6.4 AI-67 Steady-State and Normal Evolutions as Performance Testing – Continued

AI-67 discussion continued…

6.5 Motion (Carried): AI-67 Normal Evolutions testing requirements

Substantive requires Consensus Vote; 10 - Consensus (>= 75% votes)
Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
"shall" to "should" or "should" to "shall";
addition, deletion or revision of requirements, regardless of the number of changes;
Addition of mandatory compliance with referenced standards

The One Abstention Vote required a Consensus recalculation: 75% of 12 for Consensus requirement of 9. Motion Carries.

Motion: **Carried** • 9 – For • 3 – Against • 1 – Abstained
Date

2013Nov06

Motion:

Replace Sec. 4.1.3.2 Normal Evolutions with:

Normal evolutions shall be conducted:

(1) upon completion of simulator initial construction;

(2) once per reference unit fuel cycle for items (1) through (3) listed in Sec. 3.1.3.2.

It shall be demonstrated that the normal evolutions identified in Sec. 3.1.3.2 are conducted using reference unit procedures. The conduct of reference unit procedures on the simulator shall demonstrate that systems within the scope of simulation correctly represent the response of the reference unit. Noticeable differences shall be assessed in accordance with Sec. 5.

Reason:

The proposed language reflects current industry practice.

Provides the user testing scope clarity

Normal evolutions test is a capability test and not a performance test, because performance testing implies data comparison.

The original acceptance criteria (items (1) to (6)) is implied in reference unit procedures execution.

By definition, the use of the term “Noticeable differences” includes physical attributes and dynamic response.

Reason Against:

Changes detract from the acceptance criteria

Agrees with the concept but do not agree with removing the performance acceptance criteria i.e. numbers.

Current standard is sufficient. The 6 criteria are no longer implied with the new language.

Reason Abstained:

Agree in concept but prefer to add language clarifying the purpose of Normal Evolutions and stating it is not a Performance Test.

6.6 Motion (Carried): AI-67 Move Steady-State to Section 4.4 Simulator performance testing

Substantive requires Consensus Vote; 10 - Consensus (>= 75% votes)
Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
"shall" to "should" or "should" to "shall";
addition, deletion or revision of requirements, regardless of the number of changes;
Addition of mandatory compliance with referenced standards

The One Abstention Vote required a Consensus recalculation: 75% of 12 for Consensus requirement of 9. Motion Carries.

Motion: **Carried** • 9 – For • 3 – Against • 1 – Abstained
Date 2013Nov06 **Motion**: Move Section 3.1.3.1 to Section 3.4.1. Move Section 4.1.3.1 to Section 4.4.1. Rename Section 3.1.3 and 4.1.3 to Normal Evolutions

Delete titles 3.1.3.2 and 4.1.3.2

Rename Section 3.4.1 and 4.4.1 to Steady-state operation testing

Complete the following editorial changes:

renumber contents of Section 3.1.3 as necessary
renumber contents of Section 4.1.3 as necessary
renumber contents of Section 3.4.1 as necessary
renumber contents of Section 4.4.1 as necessary
renumber contents of Section 3.4 as necessary
renumber contents of Section 4.4 as necessary
review and update corresponding references associated with these changes.

Change second paragraph in Section 3.4 from:

Simulator performance testing comprises transient testing, scenario-based testing, reactor core performance testing, and post-event simulator testing. Transient testing and scenario-based testing shall be performed in a fully integrated mode of operation. Reactor core performance testing and post-event simulator testing may be conducted in a fully integrated, partially integrated, or stand-alone mode of system operation.

To:

Simulator performance testing comprises steady-state testing, transient testing, scenario-based testing, reactor core performance testing, and post-event simulator testing. Steady-state testing, Transient testing and scenario-based testing shall be performed in a fully integrated mode of operation. Reactor core performance testing and Post-event simulator testing may be conducted in a fully integrated, partially integrated, or stand-alone mode of system operation.

Reason: Steady-State are performance based related. This update does not modify the scope of simulation required in section 3.2. Follow up to AI-54 (Motion) to eliminate duplicity.

Reason Against:

Is not a performance test. Unnecessarily adds testing requirements
May not meet regulatory scrutiny
Second Paragraph in Section 3.4 is unnecessary.

Reason Abstain:

Preferred placing Steady-state in non-integrated mode testing.

AI-67 is Closed.

6.7 Recessed: 1645

7. Thursday 2013 Nov 07 (0800)

7.1 Roll Call

Jim Florence
Keith Welchel
F.J. (Butch) Colby
Lawrence (Larry) Vick
George McCullough -Proxy
Frank Tarselli
SK Chang - Proxy
Robert Goldman
David Goodman
Michael Petersen
Pablo Rey (Unavailable)
Jim Sale
William Fraser

Proxy/Visitors:

Tim Dennis for Chang
Dennis Spielman for McCullough

7.2 Consensus Level

17 - Voting members
12 - Voting members Present (2 Proxy Vote)
7 - Quorum (Majority Total Membership)
9 - Consensus (≥ 75% votes)
8 – Super Majority (≥ 2/3 Votes)
7 – Majority (> 50% votes)

7.3 Industry Update (Dennis)

ANS-3.5-1985	16 (23%)
ANS-3.5-1998	11 (16%)
ANSI/ANS-3.5-2009	42 (61%)

Vogtle 3/4 and Summer 2/3 simulators are not yet Plant Referenced Simulators (PRS).
San Onofre, Kewaunee, and Crystal River simulators removed from service

7.1 New Consensus Level

Rey joined the working group.

17 - Voting members
13 - Voting members Present (2 Proxy Vote)
7 - Quorum (Majority Total Membership)
10 - Consensus (≥ 75% votes)
9 – Super Majority (≥ 2/3 Votes)
7 – Majority (> 50% votes)

7.2 Final Read

Changes during Final Read

- Section 2
  - malfunctions changed to malfunction – changed because definition is singular.
  - change "stimulated component" to: A hardware/software component that is integrated with the simulator process via simulator inputs/outputs that performs its function parallel to, and either independently of or synchronized with, the simulation process.
- Section 3
  - section 3 - Motion to change Section 3 last sentence

  - change section titles "Steady-state operation testing" to "Steady-state testing" (Sections 3.4.1, 4.4.1 and Appendix C)
  - section 3.4.3 tech edit to remove the word Additional – New sentence: Scenario-based testing should be considered for other operator training scenarios.
- Section 4
  - Section 4.1.1 – Realtime repeatability language change
  - Tech edit 4.2.1.1 - consoles, operating stations, and other
  - Replace section 4.3.3 removing stimulated components.

7.3 Final Read Motions

7.3.1 Final Read Motion (): Section 3 (Goodman)

Motion: • xx – For • x – Against • x – Abstained
Date 2013Nov07 **Motion**: Change the last sentence in Section 3 lead paragraph from: In addition, the process shall provide for simulator verification and validation testing, performance testing, and configuration management capabilities. To: In addition, the process shall provide for simulator verification and validation, performance testing, and configuration management capabilities as described in Sec. 5, "Simulator configuration management."

Reason:

7.3.2 Final Read Amended Motion (): Section 3 (Goodman)

Motion: • xx – For • x – Against • x – Abstained
Date 2013Nov07 **Motion**: Change the last sentence of the second paragraph in Section 3: From: In addition, the process shall provide for simulator verification and validation testing, performance testing, and configuration management capabilities. To: In addition, the process shall provide for simulator verification and validation, performance testing, and configuration management capabilities as described in Sec. 5, “Simulator configuration management.” Reason:

7.3.3 Final Read Amended Motion (Carried): Section 3 (Goodman)

Motion: **Carried** • 13 – For • 0 – Against • 0 – Abstained
Date 2013Nov07 **Motion**: Change the last sentence of the second paragraph in Section 3: From: In addition, the process shall provide for simulator verification and validation testing, performance testing, and configuration management capabilities. To: In addition, the process shall provide for simulator performance testing, verification and validation, and configuration management capabilities. Reason: Verification and validation is no longer a test.

7.3.4 Final Read Motion (Not Carried): Section 3.3.1 (Petersen)

- Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:

— "shall" to "should" or "should" to "shall";
— addition, deletion or revision of requirements, regardless of the number of changes;
— Addition of mandatory compliance with referenced standards.

The Two Abstention Vote required a Consensus recalculation: 75% of 11 for Consensus requirement of 9. Motion Not Carried.

Motion: **Not Carried** • 6 – For • 5 – Against • 2 – Abstained
Date 2013Nov07 **Motion**: Change the following sentence in Section 3.3.1 from: This set shall provide a variety of the reference unit operating conditions that encompass various power operating conditions, major evolutions during startup and shutdown, effects of different times during the core life cycle, and fission product poison concentrations. To: This set shall provide a variety of the reference unit operating conditions that encompass various power operating conditions, major evolutions during startup and shutdown, effects of different times during the core life cycle, and various fission product poison concentrations. Reason: Clarify incorrect grammar.

Against:

Same wording since 2009 standard. No issues before. Has withstood industry scrutiny
No need to change the wording
Adds burden
Provide regulator uncertainty
No need

Abstain:

Not needed.
Adds confusion

7.3.5 Final Read Motion (Carried): Section 4.1.1 Real-time repeatability

- Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
  - — "shall" to "should" or "should" to "shall";
  - — addition, deletion or revision of requirements, regardless of the number of changes;
  - — Addition of mandatory compliance with referenced standards.

The One Abstention Vote required a Consensus recalculation: 75% of 12 for Consensus requirement of 9. Motion Carried.

Motion: **Carried** • 10 – For • 2 – Against • 1 – Abstained
Date 2013Nov07 **Motion**: Change the following sentence in Section 4.1.1 from:

Real time and repeatability testing shall be conducted:

To

A real time and repeatability test shall be conducted:

Reason:

Clarity: Real-time repeatability is a one-time test

Against:

Clear before that it is one test
Every transient should have a real-time test completed

Abstain:

Some people do it continuously; Do retest for every mod that affects real-time; test does not cover worst case.

7.3.6 Final Read Motion (Not Carried): Section 4.2.2.1/4.2.2.2 Replace "deviations" with "noticeable difference"

- Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
  - "shall" to "should" or "should" to "shall";
  - addition, deletion or revision of requirements, regardless of the number of changes;
  - Addition of mandatory compliance with referenced standards.

The One Abstention Vote required a Consensus recalculation: 75% of 12 for Consensus requirement of 9. Motion Not Carried.

Motion: **Not Carried**

- 5 – For
- 7 – Against

• 1 – Abstained
Date 2013Nov07 **Motion**: In Sections 4.2.2.1 and 4.2.2.2, replace the word “deviations” with “noticeable differences”: Reason: Deviations in this context is isolated and alone and noticeable differences is a defined term in the standard.

Against:

Noticeable difference is not a substitute for deviation
No appropriate for scope testing
Significant change not warranted
Refer to (2009 standard) AI-16, Jackson meeting for the use of deviation
Unnecessary change
Good as is

Abstain:

Need more time but noticeable difference and deviation are not the same

7.3.7 Final Read Motion (Carried): Section 4.3.3 Stimulated components

- Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
  - — “shall” to “should” or “should” to “shall”;
  - — addition, deletion or revision of requirements, regardless of the number of changes;
  - — Addition of mandatory compliance with referenced standards.

The One Abstention Vote required a Consensus recalculation: 75% of 12 for Consensus requirement of 9. Motion Carried.

Motion: **Carried**
- 9 – For
- 3 – Against
- 1 – Abstained

Date
2013Nov07

Motion:

Replace Section 4.3.3:

It shall be demonstrated that the simulator includes the features specified in Sec. 3.3.3. The implementation of simulator control features shall not alert the operator to pending events other than those features that cause departure from real time execution of the models or notification of reaching a limit of simulation.

For a stimulated component it shall be documented that noticeable differences have been identified and that a training needs assessment has been performed in accordance with Sec. 5.

With the following:

It shall be demonstrated that the simulator includes the features specified in Sec. 3.3.3. The implementation of simulator control features shall not alert the operator to pending events other than those features that cause departure from real time execution of the models or notification of reaching a limit of simulation. It shall be demonstrated that deviations are corrected or that a training needs assessment has been conducted in accordance with the criteria provided by Sec. 5.

Reason:

Language is more consistent with other sections e.g. 4.2.2.1 and 4.2.2.2. Stimulated component was removed from 3.3.3, this better aligns 4.3.3 with 3.3.3.

Against:

Original language is satisfactory and no need to reference sec 5.
Not need to reference sec 5; Only place Stimulated Components was compared to the reference unit
Significant change not warranted and original language address stimulated components. Now no mention os stimulated components

Abstain:

Needs more discussion. Not ready to make decision

7.4 Recessed: 1650

8. Friday 2013 Nov08 (0800)

8.1 Roll Call

Members Present:

Jim Florence
Keith Welchel
F.J. (Butch) Colby
Lawrence (Larry) Vick
George McCullough -Proxy
Frank Tarselli
SK Chang - Proxy
Robert Goldman
David Goodman
Michael Petersen
Pablo Rey
Jim Sale
William Fraser

Proxy/Visitors:

Tim Dennis for Chang
Dennis Spielman for McCullough

8.2 Consensus Level

17 - Voting members
13 - Voting members Present (2 Proxy Vote)
7 - Quorum (Majority Total Membership)
10 - Consensus (≥ 75% votes)
9 – Super Majority (≥ 2/3 Votes)
7 – Majority (> 50% votes)

8.3 Final Read – Continued

Continue with Section 4.4. Changes during Thursday Final Read brought forward

- Section 2
  - malfunctions changed to malfunction – changed because definition is singular.
  - change "stimulated component" to: A hardware/software component that is integrated with the simulator process via simulator inputs/outputs that performs its function parallel to, and either independently of or synchronized with, the simulation process.
- Section 3
  - Motion section 3 - change Section 3 last sentence
  - change section titles "Steady-state operation testing" to "Steady-state testing" (Sections 3.4.1, 4.4.1 and Appendix C)
  - section 3.4.3 tech edit to remove the word Additional – New sentence: Scenario-based testing should be considered for other operator training scenarios.
- Section 4
  - Section 4.1.1 – Real time repeatability language change
  - Tech edit 4.2.1.1 - consoles, operating stations, and other
  - Replace section 4.3.3 removing stimulated components.
- Section 5
  - Motion Section 5.1.2 - change baseline to benchmark
- Foreward
  - Members are to send comments to the Chair.
- Appendix A
  - None
- Appendix B
  - Tech edit: Replace Appendix B with the following

Example 1 Parameter has a 1% tolerance as defined by the standard; Reactor coolant system pressure [instrument range of 1500 psia to 2500 psia (10.3 MPa to 17.2 MPa)][1)];

[1)] 1 Pa = 1 N/m^2 = 1 m^{-1}·kg·s^{-2} and 1 bar = 0.1 MPa = 100 kPa.

Loop range 2500 psia – 1500 psia = 1000 psia (17.2 MPa − 10.3 MPa = 6.9 MPa);
Loop accuracy ½% (from master calibration data sheet);
At all power levels the pressure reads 2250 psia (15.5 MPa).

Therefore, the tolerance applied to the simulator would be:

The range of 1000 psia (6.9 MPa) × (1% per the tolerance in Sec. 4.4.1 of the standard + ½% loop accuracy) = 15 psia (0.1 MPa);
The maximum reading is 2250 psia + 15 psia = 2265 psia (15.5 MPa + 0.1 MPa = 15.6 MPa);
The minimum reading is 2250 psia – 15 psia = 2235 psia (15.5 MPa − 0.1 MPa = 15.4 MPa).

Example 2

Parameter has a 1% tolerance as defined by the standard;
Reactor coolant system hot leg temperature [instrument range of 515°F to 615°F (268.3°C to 323.9°C)];
Loop range 615°F − 515°F = 100°F (323.9°C − 268.3°C = 55.6°C);
Loop accuracy ½% (from master calibration data sheet).

Therefore, the tolerance applied to the simulator would be as follows:

The range of 100°F (55.6°C) × (1% per the tolerance in Sec. 4.4.1 of the standard + ½% loop accuracy) = 1.5°F (0.8°C).

Table B1
Temperature Ranges for Simulator Tolerance

Percent Power	Reference Unit Data	Low	High
25	572°F (300.0°C)	570.5°F (299.2°C)	573.5°F (300.8°C)
50	584°F (306.7°C)	582.5°F (305.9°C)	585.5°F (307.5°C)
75	596°F (313.3°C)	594.5°F (312.5°C)	597.5°F (314.1°C)
100	610°F (321.1°C)	608.5°F (320.3°C)	611.5°F (321.9°C)

- Appendix C
  - Tech edit: Re-ordered the last list i.e. 4.2.1.1, 4.2.1.2, 4.2.1.3, 4.4.1

8.4 Parking Lot Items

- None

8.4.1 Final Read Motion (Carried): Section 5.1.2 Replace baseline with benchmark

- Substantive Change: A substantive change in a proposed American National Standard is one that directly and materially affects the use of the standard. Examples of substantive changes are below:
  - "shall" to "should" or "should" to "shall";
  - addition, deletion or revision of requirements, regardless of the number of changes;
  - Addition of mandatory compliance with referenced standards.

Motion: **Carried** • 12 – For • 1 – Against • 0 – Abstained
Date 2013Nov08 **Motion**: In Section 5.1.2 replace the sentence: When multiple sources of baseline data are available, the order of preference to ensure simulator fidelity shall be as follows: With the following: When multiple sources of benchmark data are available, the order of preference to ensure simulator fidelity shall be as follows: Reason: Original language oversight during AI-11 discussions.

Against:

Change is not necessary. This is a significant change.

8.5 New Consensus Level

Rey – Left early.

17 - Voting members
12 - Voting members Present (2 Proxy Vote)
7 - Quorum (Majority Total Membership)
9 - Consensus (≥ 75% votes)
8 – Super Majority (≥ 2/3 Votes)
7 – Majority (> 50% votes)

8.6 New Consensus Level

Sale – Left early.

17 - Voting members
11 - Voting members Present (2 Proxy Vote)
6 - Quorum (Majority Total Membership)
9 - Consensus (≥ 75% votes)
8 – Super Majority (≥ 2/3 Votes)
6 – Majority (> 50% votes)

8.7 Motion (Carried): Pilgrim Minutes Approval

Motion: **Carried** • 11 – For • 0 – Against • 0 – Abstained
Date 2013nov08

2013Nov08

Motion:
Approve Pilgrim Minutes Approved version 10
File: Approval: rev10_draft_2013jul23_ANS35Minutes.docx

8.8 Next Meeting Tentative

Locations:

Vogtle

8.9 Adjourned: 1115

9. Attachment 1 - Style Guide Review (SK Change)

201x Standard - Style Guide

1. **ANSI Style Guide-sheet – 2003**

   Available at http://www.ansi.org/

   A. General guide-lines
   - **Heavy emphasis on technical integrity (accurate, complete, consistent), a spelling error would only be a minor issue.**
   - **Consistency throughout the document: format, capitalization, etc..**

   B. Strong recommendations:
   - **No requirements in foreword, scope, background, definitions, footnotes.**
   - **Use of "shall" to indicate a requirement; use "should" to indicate a recommendation. Avoid use of "must".**
   - **References: full and complete. Annex is a preferred term to Appendix.**
   - **Number the footnotes sequentially.**

   C. Completeness and consistency of document:
   Pagination, indentation, punctuation, numbering of sections, footnotes, etc.: follow 2009 Standard.

2. **ANSI Style manual, 8th edition, version 1.0, 3/1/91. [historical]**

   http://www.new.ans.org/standards/resources/downloads/docs/ansi-stylemanual.pdf

This has been replaced by the 2003 guide, but ANS keeps it for reference.

3. ANS NFSC Policy and Procedures Manual

http://www.ans.org/standards/resources/downloads/docs/nfscpolicies.pdf
Section 7.3 Specifying Requirements in a Standard (Shall, Should, and May) (approved Jan 2010).
Directions given in the standard shall use "shall", "should", and "may":
Shall, to designate a mandatory action.
Should, to delineate a recommended action. "Should also indicates that the issue must be addressed and that either the recommended action shall be taken or an equivalent action shall be taken and a basis given for equivalency. "
May, to designate a permissive action.
Avoid "shall consider", "shall, if possible" and equivalent phrases
Note: Three occurrences of "shall consider" or equivalent are found in the 2009 Standard. These may deviate from NFSC rules.

Section 3.2.1.2, end of 1st paragraph: "The following items shall be considered:"

Section 3.2.1.3, end of 1st paragraph: "The following items shall be considered:"

Section 4.4.3.2, end of 4th paragraph: "Evaluation of the test data shall consider:"

Section 7.4 Use of units SI units shall be used either parenthetically with English units or SI units exclusively (approved Nov 2004).

It refers to the NBS publication concerning SI units:

NBS Special Publication 330, "The International System of Units (SI)," U.S. Department of Commerce, 1977.

The current version is "NIST Special Publication 330. 2008 Edition; U.S. Department of Commerce, National Institute of Standards and Technology" available at

http://physics.nist.gov/Pubs/SP330/sp330.pdf

The 2008 edition has no impact on the SI units used in Appendix C of the Standard:
MPa and °C

4. **Other References:**

Google dictionary: http://www.google.com/dictionary
Merriam-Webster: http://www.merriam-webster.com/

The Chicago Manual of Style. Chicago: University of Chicago.

Webster's New International Dictionary of the English Language (Unabridged). Springfield, MA: Merriam-Webster, Inc.