

**American Nuclear Society  
Standards Committee Working Group 3.5  
Nuclear Power Plant Simulators for Use in Operator Training and Examination**

MEETING MINUTES

March 02-03, 1999

Oconee Nuclear Station  
Seneca, SC  
29679

**Recorded by Keith Welchel**

**Tuesday 02 March 1999**

Chairman, **Jeffrey J Cataudella** of Northeast Utilities opened the meeting on Tuesday 02 March 1999 at 8:30am. Guest were welcomed, Walt Shura. Roundtable included everyone giving a quick summary. New members also gave additional resume information.

**ACTION ITEMS:**

- **(JJC)** DOE Nuclear Facility .vs. Power Plant Simulators - Check with ANS 3. Inquire as to whether other simulator issues are addressed/referenced in other ANS 3 standards;
- **(KW)** Obtain a Master Copy of the ANS 3.5 standard in Dual Column format. The WordPerfect copy from Shawn does not port into WORD correctly;
- **(KW)** Get NUPPSCO comments to members;
- **(KW)** Send copy of meeting minutes 1998nov04 and 1999mar02-03 to Jim Florence;
- **(JBF)** Jim will look at creating a survey on the USUG WEB concerning the Action Items and for soliciting info from the industry;
- **(JJC)** Jeff will contact ANS about ANSI about Historical standards;
- **(JJC)** Talk to ANS about use of footnotes, asterisks, etc in standards;
- **(JJC)** Contact Mike Wright about the scope change;

**ROLL CALL**

The following members were absent:

- George McCullough
- Jim Stavely

- Allan Abramovitch (sent proxy)
- Jim Davis
- Kenneth Rach
- William Deluca
- Michael Shelley
- Bob Felker

Visitors:

- Igor Fifnja (INPO Temporary Assignment from )
- Walt Shura (Virginia Electric Power Company (North Anna))

#### APPROVAL OF 1998Nov04 MEETING MINUTES

Minutes were approved.

#### GROUND RULES

Miss two meeting the committee will consider membership status. We're looking for continuity;

#### GOING TO '98 STANDARD AND THE NRC

Frank stated that the NRC is giving the '98 standard much more consideration before giving approval and changing regulation.

Frank - The only basis for regulation is Safety.

Frank - Utilities can take an exception to the Regulation 10CFR2.206

Lengthy discussions of going to the ANS 3.5 and obstacles that are keeping the industry from moving forward.

#### EVOLUTION OF THE STANDARD - ANS 1985 to 1998

Jeff led the discussion reviewing the differences between the 1985 and the 1998 standard. The presentation developed by Keith Welch for the SCS 1999 conference was reviewed. Discussions included what's necessary to V&V the part-task simulator.

Frank - The simulation facility is the Simulator, or another device. Most utilities state the simulation facility is the Simulator. Now other devices may be considered as part of the simulation facility. The simulation facility is what is certified not the simulator. For part-task simulation, if the model loads are exactly the same then except for differences that do not influence the simulation, then Appendix D can be used as a checklist for certification. Additional testing will not be required as long as the owner of the

simulation facility can assure that the part-task simulator-testing program carries the same pedigree as the main simulator.

Scope Issues for 2003 standard:

- Stay with full-scope?
- Stay with Reference Unit?
- (Action Item-Jeff) Is ANS 3 considering the standard may address other simulators not specific to NRC Regulatory Commission licensing;

Remember - The standard is a minimum.

## ORGANIZATIONAL ISSUES

- Chairman's Expectations:
  - Members attend the full length of the meeting;
  - The two absent policy will be enforced;
- Word 7.0 will be the document format;
- STANDARDS ORGANIZATION
  - American National Standards Institute (ANSI)
  - *Nuclear Facility Standards Committee (NFSC)*
    - Formal Vote by Ballot
    - *American Nuclear Society Sub-committee 3 (Reactor Operations)*
      - Formally NUPPSCO and N48
      - Consensus
      - *American Nuclear Society Working Group 3.5*
        - Consensus

## PARKING-LOT ISSUES

- **(JFC/AAK)** Exam Security -
- **(RAF/JFC)** 3.14 - Add information notices and any others:
  - Frank - Concerns that a floor is needed on local considerations. Does this require addition requirements. Does this list really give substantial guidance.

- **(JBF/RAF)** 3.1.3(7) - Rated coolant Flow
  -
- **(HP/RAF/JBF)** Review guidance on stimulated devices. Combine stimulated hardware and stimulated devices;
- **(JFC/GM/AAK)** Numerous use of Training Need Assessment;
- **(KPW/TD)** Coordinate use of Discrepancy and Deviation;
- **(KPW)** Get feedback from industry on actually how the 1998 standard is actually used. Use USUG meetings;
- **(Stavelly/Abramovitch)** Part-Task - Is Part-Task going to become part of the standard or remain as an appendix. Possibly look at tying the Standard body to the Appendix; Application of Full Scope Simulators. Outside interest are asking for uses of simulators that are not related to Operator Training. Do we need to put some boundaries as to the limits simulator;
- **(JBF/BC)** Using the simulator for other than Operator Training. Uses in predictive analysis and design mods, SAMGS procedures changes;
- **(Abramovitch/HP/BC)** Exploiting technology changes and future industry trends. What's coming around the corner;
- **(JFC/BC/INPO)** Multi-Units. Application of reference unit simulators to non-referenced units. Butch has offered to survey the industry. INPO will assist by supplying information from their databases;
- **(JFC/KPW/JS)** Hybrid Simulators. Hybrid Simulator refers to a simulator that implements many different technologies, source code vendors, different operating systems, integration vendors, etc. Maybe we need to have words that stipulate that testing needs to cover all the other changes we make to the simulator that may affect the operation of the simulator: Instructor Console, Operating Systems, New I/O, etc.
- **(Voted to Dismiss-Consensus)** Comments on regulation - The Working Group will not comment regulation. The standards working group is working in working group space. Keith Welchel moved to dismiss this item. Jim Florence Seconded;
- **(No Action)** Facilitating clarifications/Interpretation (Reference: ANS - Standards Committee Procedures Manual for Standards Development):
  - Clarification - Original Intent. No extra requirements;
  - Interpretation - Submitted to the secretary. Requires balloted response;
- **(JBF/AAK/KR)** Workshops on Testing Philosophy

- USUG participation
- Look at the use of Simulator, Simulation Facility;
- Definitions change
  - **Simulation Facility** becomes **Simulator**;
  - **Simulation Facility** is now defined as the collection of **Simulators**;

### ***NEW ITEMS***

- **(RAF/JBF)** Review all List
  - Combined with the 3.1.3(7) item;
- **(TD/WD/JS)** Real-Time
  - Tim will give further consider and he will look at industry standards;
  - Measuring Real-Time;
- **(Chairman Dismissed - Consensus)** Testing Effectiveness
  - KPI - Numbers of students submitting DR's;
- **(TD)** Process Guidelines (Mods and Testing)
  - Institutionalizing Procedures;
- **(JJC)** 1985 ANS 3.5 Standard is Historical Standard
  - Jeff will follow up with Shawn and Mike about Historical/Active Standards and how the present process does not follow the five year;
  - How should we handle or should we comment that the 1985 ANS/ANSI 3.5 standard is now a Historical standard and is no longer in the ANSI catalog. Does the ANS 3.5 Working Group need to comment on this issue;
  - Utilities would need to take exception by treating the Certification as other;
  - Mark up the Form 474 and state the other that you are going to do
    - Scenario Based testing (> 25%/yr.);
    - Performance Based testing Plan;
- **(JFC/TD)** Possible cross pollinization with other standards. Frank ad Tim will contact others;

## USUG INTERFACE

- Jim Florence wants to place the USUG WEB the following information
  - Member list;
  - Approved minutes;
  - Schedules and agendas;

## 2003 - DIRECTION AND PHILOSOPHY

- Exploit new technologies (Alan Kozak);
- General discussion concerning additional items the Working Group should consider. Simulator economics plays a large part. The US simulator industry is not going forward with new modeling technology;
- Using the simulator as a predictive tool;
- 

ADJOURN 1999MAR02

## WEDNESDAY 03 March 1999

Chairman, **Jeffrey J Cataudella** of Northeast Utilities opened the meeting on Wednesday 03 March 1999 at 8:30am.

## 2003 SCOPE REVISION

This standard establishes the functional requirements for Simulation Facilities used in the Training and Examination of Nuclear Power Plant Operators. Criteria are established for the degree of simulation, performance, and functional capabilities of the replicated systems and components. The replication may encompass full-scope, part-task, or limited scope. This standard does not address simulators for test, mobile, research reactors, or reactors not subject to U.S. Nuclear Regulatory Commission licensing.

This standard does not establish criteria for application of simulators in training programs. Training criteria are established in American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plants, ANSI/ANS-3.1-1993 [1].

## DEFINITIONS

Revisited Frank Collins Draft (1995Mar28) of Part-Task and Limited Scope Simulator (Rev. 1)

Simulation Facility

A collection of unit referenced Full-Scope and Part-Task simulators.

## Simulator

Device or computer driven interactive equipment which replicates the operating characteristics of a component, system, or group of integrated systems of the reference unit; Enabling the performance of the operator to be evaluated under varying condition.

## Full Scope Simulator

**(1985 Definition)** A simulator incorporating detailed modeling of systems of the reference unit with which the operator interfaces in the control room environment. The control room operating consoles are included. Such a simulator demonstrates expected unit response to normal and off-normal conditions.

## Part-Task Simulator

**(1985 Definition)** A simulator incorporating detailed modeling of a limited number of specific reference unit components or subsystems. Such a simulator demonstrates expected response of those components or subsystems.

The committee agreed to use the 1985 ANSI 3.5 definitions for Full Scope and Part-task simulators.

## WORK ASSIGNMENTS

Refer to Parking-Lot List;

## NEXT MEETING

Date: September, 1999; Possible Weeks Sept. 13 or Sept. 20; Monday is travel day;

Location: Cooper Nuclear Station;

ADJOURN 1999MAR03

## SESSION TO CONSIDER ATTENDANCE

Send letter to Jim Stavely asking for commitment along with 02Mar1999 meeting minutes;

Send letter to NEI asking for commitment along with 02Mar1999 meeting minutes;

## MEMBER LIST

American Nuclear Society Standards Committee Working Group 3.5 Officers and members as of 02 March 1998:

- **Chairman** Jeffrey J Cataudella, Northeast Utilities (Millstone)
- **Vice-Chairman** Timothy Dennis, Consultant

- **Recording Secretary** James B Florence, Nebraska Public Power District (Cooper)
- **Editor** Keith P Welchel, Duke Power Company (Oconee)
- **Writing Style Editor** J Frank Collins, US Nuclear Regulatory Commission
- Allan Abramovitch CAE Electronics LTD
- Butch Colby General Physics
- James Davis Nuclear Energy Institute
- William A DeLuca Pennsylvania Power and Light Company (Susquehanna)
- Robert A Felker Exitech Corporation
- Alan Kozak Virginia Electric Power Company (North Anna)
- George McCullough American Electric Power (DC Cook)
- Hal Paris GSE Power Systems, Inc.
- Kenneth Rach Commonwealth Edison
- Michael Shelley Entergy (Grand Gulf)
- James Stavely Public Service Electric and Gas Company (Hope Creek)

Minutes Approved by the Working Group on \_\_\_\_\_ , 1999,

\_\_\_\_\_, Recording Secretary ANS-3.5