



Fall 2005
<http://ncsd.ans.org/>

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Maria LeTellier, Editor

American Nuclear Society

Nuclear Criticality Safety Division Newsletter

Message from Chair



Steve Bowman,
bowmansm@ornl.gov

The Nuclear Criticality Safety Division continues to thrive and grow, thanks to the dedicated and energetic efforts of many of our members. We most recently saw evidence of NCSD's vitality at the outstanding topical meeting that was conducted in Knoxville, Tennessee. The quality of the papers, posters, presentations, and participation was impressive. On behalf of the entire division, I express our thanks to the organizing committee, sponsors, and authors for an excellent meeting.

For those who may not be aware, our division traditionally hosts a topical meeting every four years. These meetings are significant to NCSD both technically and financially. The meetings attract nuclear criticality professionals from around the globe, as well as provide the

primary source of financial revenue for our division.

The ANS Winter Meeting in Washington, D.C., on Nov. 14 – 17 is fast approaching. A favorite tradition at the Washington meetings is the NCSD Awards Banquet at Maggiano's Little Italy. The food and the camaraderie are always outstanding. If you are coming to Washington for the meeting, please join us. You can find more information about the banquet and the NCSD technical sessions at the meeting elsewhere in this newsletter.

There is a growing groundswell of interest in using our surplus funds to sponsor a NCSD scholarship. Kevin Kimball has completed a study of our division financial history to determine the funding level needed to operate the division. This information will help us identify surplus funds in the NCSD treasury that could be used for scholarships. Dr. Ron Knief has proposed the formation of a NCS Pioneers Scholarship Fund. The concept is to honor the memory of pioneers in nuclear criticality safety by creating a "NCS Pioneer Hall of Fame" on the NCSD website and have a special scholarship account to which anyone can contribute to honor a particular "pioneer." This effort could eventually lead to the formalization of an

endowed ANS scholarship. Kevin and I will be working with Ron to present a proposal to the NCSD Executive Committee.

Finally, I want to encourage you to help us keep growing and improving. Most of us probably work with one or more colleagues who are not ANS members. Invite them to join. If you are not already involved as a volunteer in NCSD, please contact me and we will find a place where you can help. It will provide you with an opportunity to get to know others in our profession and have some fun at the same time.

Upcoming Meetings

Dates and locations of national ANS and NCSD topical meetings are listed below:

Nov 13-17, 2005, Washington, DC (*Winter ANS Meeting*)

June 4-8, 2006, Reno, NV (*Annual ANS meeting*)

Nov 12-16 2006, Albuquerque, NM (*Winter ANS Meeting*)

June 2007, St. Petersburg, Russia (*ICNC international meeting*)

June 24-28, 2007, Boston, MA (*Annual ANS meeting*)

Nov 11-15, 2007 Washington, DC (*Winter ANS Meeting*)

Executive Committee

The people who run our division:

2005-06 Officers

Chair

Stephen Bowman, 865-574-5263

Vice Chair/Chair Elect

Kevin Kimball, 770-497-8818

Treasurer/Finance Officer

David Hayes, 505-667-4523

Secretary

Davis Reed, 865-576-6359

Other Members

Term ending 2006

Nigel "Jim" Gulliford

Dennis Mennerdahl

Fitz Trumble

Term ending 2007

Adolf Garcia

Maria LeTellier

Randy Shackelford

Term ending 2008

Lawrence J. Berg

Thomas D. Burns, Jr.

Charles D. Harmon, II

Meeting Program Details

Robert L. Frost, Program Chair

Robert.Frost@nuclearassociates.com

(423) 610-0249

We need more representation on the NCSD Program Committee, particularly from institutions/sites that are currently under-represented, which includes: Idaho (both ICP and the INL), Livermore, Hanford, Savannah River, Westinghouse, and Framatome ANP. Diversity of representation is important to assure the decisions of the Committee reflect the opinions of the NCS community. If you would like to join the program committee or to become a

paper reviewer, please contact Robert Frost.

The **2005 ANS Winter Meeting** will be held June 13th – 17th at the Omni Shoreham Hotel in Washington, D.C.

There will be five NCSD sessions, all held in the same room (Congressional B). This room has a seating capacity of 90 and is larger and a better design than the room we had last winter at this hotel. The final program is now available on the ANS website:

<http://www.ans.org/meetings/docs/2005/wm2005-official.pdf>

The five NCSD sessions are:

- Data, Analysis, and Operations for Nuclear Criticality Safety – I & II
- Criticality Safety Emergency Planning
- Realism in Nuclear Criticality Safety
- Nuclear Criticality Safety Standards Forum

The **2006 ANS Summer Meeting** will be held June 4th – 8th at the Reno Hilton in Reno, Nevada. A total of six sessions have been proposed for the meeting. Summaries describing the sessions are shown below. The deadline for summary submission is January 6, and the Call for Papers for the meeting is available on the Internet at:

<http://www.ans.org/meetings/docs/2006/am2006-cfp.pdf>

Summer Meeting Session Summaries

1. Data, Analysis, and Operations for Nuclear Criticality Safety

The purpose of this session is to provide a forum for timely presentation of general issues in the area of nuclear criticality safety that are not covered in other special session topics.

Session Organizer: Robert Frost, (423)610-0249, Robert.frost@nuclearassociates.com

2. Nuclear Criticality Safety Standards Forum – Panel

Subcommittee ANS-8, Operations with Fissile Material Outside Reactors, meets to discuss various technical and administrative aspects of approximately 20 national consensus standards under its purview. In addition to status and progress updates by representatives of individual working groups, formal presentations on the technical bases of numerical values such as subcritical limits and experiences with applications of particular standards are solicited. Agenda topics such as new and expanded standards are also encouraged.

Session Organizer: Tom McLaughlin, (505)667-7628, tpm@lanl.gov

3. Validation of Nuclear Criticality Safety Computer Codes – tutorial (2 sessions)

Validation of computer codes used for the computation of the neutron multiplication factor is an important function. A variety of techniques for input data selection and output results processing have been developed and an American National Standard that addresses validation is in preparation. This

tutorial will show various validation techniques that are acceptable in practice.

Session Organizers:

Fitz Trumble, fitz.trumble@wxsms.com assisted by Bob Busch, (505)277-8027, busch@unm.edu

4. Nuclear Criticality Safety Related to TA-18 Relocation – Invited/Contributed

The Department of Energy's (DOE) National Nuclear Security Administration (NNSA) issued a Record of Decision on the proposed relocation of Technical Area 18 (TA-18) capabilities and materials at the Los Alamos National Laboratory in the State of New Mexico. NNSA has decided to implement the Preferred Alternative, which would relocate Security Category I/II missions and related materials to the Device Assembly Facility (DAF) at the Nevada Test Site. NNSA wishes to maintain the important capabilities currently provided at TA-18 in a manner that reduces the long-term costs for safeguards and security. As a part of the relocation project, work is in progress for packaging and transportation of various experimental parts and nuclear components.

This session will focus on criticality safety related topics related to disassembly and dismantling of existing critical facilities, packaging, and transportation of experimental parts and nuclear components at TA-18. The short term and long term storage of the parts and components and final restoration of the experimental setup at DAF will also be discussed. In addition, the session will focus on

the design and analysis of new shipping packages to carry out the mission. The session will also provide a forum for discussion of the nuclear criticality aspects of the major relocation of a nuclear facility and the lessons learned.

Session Organizer: Debdas Biswas, (803)502-9806, debdas.biswas@wsms.com

5. Integrating New Technology and Innovation Within Nuclear Criticality Safety - Contributed

Technical innovation in nuclear criticality safety has in the past been largely dominated by new or updated computer codes or analysis products. While the practice of nuclear criticality safety is largely computational, technical innovation outside this realm has been explored. This session will discuss examples of the integration of new technologies and innovation with direct application to the nuclear criticality safety discipline. Examples may include but are not limited to innovation in instrumentation and control such as wireless technology, advances in materials science, and engineered systems.

Session Organizer: Peter Angelo, (865)241-4559, angelopl@y12.doe.gov

6. Transport and Storage of Commercial Spent Nuclear Fuel

Safe, secure, and economic transport and interim storage of spent fuel from commercial nuclear reactors is one of the key considerations impacting resurgence of nuclear power in the United States. Papers in this session will focus on nuclear

criticality safety evaluations of transport and interim storage of commercial spent nuclear fuel and on the methods and computer software tools available to support such evaluations.

The potential contributors include:

- Utility personnel supporting on-site interim storage
- Cask vendors and other companies performing nuclear criticality safety evaluations of transport and interim storage
- Regulatory personnel involved with oversight of transport and interim storage
- National laboratories providing technical and software support

Session Organizer: Steve Bowman, (865)574-5263, bowmansm@ornl.gov

NCS D Topical Meeting – The NCS D topical meeting was held September 19 – 22 in Knoxville and was a great success. The division holds topical meetings once every four years; planning for the next topical meeting, scheduled for 2009, will begin soon.

ICNC – The International Conference on Nuclear Critical Safety will be held in St. Petersburg, Russia, in 2007. Specific dates have not yet been finalized, but it is anticipated that the meeting will be held sometime in June. Like the NCS D Topical, the ICNC meeting is held once

every four years. Watch for more details.

White Papers Finalized

*Fitz Trumble,
NCS D Board*

As mentioned in the last newsletter, the draft white papers from the Education Committee have been posted on the NCS D webpage for formal comment. That comment period closed on July 31st. The Education Committee has resolved the comments provided on those white papers and will submit the white papers to the Executive Committee in time for an approval vote to take place during the ANS Winter Meeting. The Education Committee would like to thank those that took the time to comment on the white papers. This process is designed to promote the discussion and interaction on these topics within the criticality community. Announcements will be made on the NCS D website as well as the next newsletter as soon as the white papers are approved.

NCS D 2005 Meeting

Overview

*Calvin Hopper,
NCS D2005 Chair*

The ANS Oak Ridge/Knoxville Section hosted the NCS D 2005 Topical Meeting, *Integrating Nuclear Criticality Safety into the Resurgence of Nuclear*

Power, at the Knoxville, Tennessee Marriott Hotel, 18 – 22 September 2005. The meeting format included an opening-plenary session with discussions by speakers about Electric Utility Projections for Future Nuclear Power Generation, International Initiatives, and the U.S. National Aeronautics and Space Administration Prometheus Project. Topics for the six one-half-day technical sessions included: Nuclear Criticality Safety Applications, Validation Studies and Software Development, Education/Training/Qualification, and Emerging Initiatives. Forty-nine oral presentations and twenty-six poster presentations were provided. The one-half day poster session was unusually successful. Approximately 170 domestic and international people attended the meeting.

Social events included a Monday-evening paddle-wheel boat ride and dinner, a Tuesday-evening dinner presentation about the East Tennessee “Heartland Series” video productions, and a Wednesday-evening banquet dinner that was visited by the American Museum of Science and Energy “Little Einstein” robot followed by the monologue play “Einstein the Man.”

The meeting content and program is available at <http://www.ncsd2005.org>.



NCSD 2005 Meeting Best Paper Awards

Trent Primm,
NCSD2005 Program Chair

Seven “Best Presentation” awards were given as follows:

- * *Criticality Assessment for PWR with Mistake on Fuel Reloading Sequence* - I. Ortiz de Echevarria Diez, C. Lavarenne, and C. Manuel
- * *Hand Calculations for Criticality Safety - A Primer* - Douglas Bowen and Robert Busch
- * *Neutronic Reflector Classifications for Moderated and Unmoderated Fissile Media* - E. Gagnier, N. Vedrenne, P. Giroud, E. Koxznaski, A. Fournier, D. Mijuin
- * *ARH600 - A Computerized Criticality Safety Handbook* - David Erickson and Hans Toffer

* *Range of Applicability Determination for Validation of LiCl-KCl Fissile Mixtures with Sparse Benchmark Data* - R. M. Lell, J. A. Morman, and C. L. Pope

* *Optimum Choice of Standard Deviation in Criticality Safety Monte Carlo Calculations* - R. E. Pevey

* *Alternate Eigenvalues for Use in Criticality Safety Analysis* - R. E. Pevey

Forty-nine oral presentations and twenty-six poster presentations were included in the Topical Meeting. My sincere thanks to all presenters. My feeling was that the quality of all the oral presentations was the highest of any meeting I have attended in recent years. Excellent visuals, well-organized, easy-to-read and easy to understand. My compliments to all.

Obituary: Vincent Lee “Vince” Risner



Vince Risner, 49, died 28 August 2005. After working at United Nuclear Corporation for three years manufacturing nuclear fuel, Vince devoted his career to criticality safety. He worked for various contractors at Rocky Flats for nine years as a criticality safety engineer/specialist and for two years as a criticality safety manager. While at Rocky Flats, Vince helped write the U.S. Department of Energy's 3007 Standard for criticality safety evaluations. Since 1993, Vince helped develop and maintain the criticality safety program at the Paducah Gaseous Diffusion Plant. Over these years, Vince has worked with many criticality safety people across the USA and with a few outside the USA. The Criticality Safety Community extends its sympathy to Vince's family.



Unique ballot box for best paper selections!



Much of the organizing committee: Calvin Hopper, Trent Primm, Maria LeTellier, Jeff Chapman, Chris Robinson, Sandi Larson, Sedat Goluoglu, Joe Thomas



Hanna Shapira ran website, paper review, registration



♥Heart of the Meeting: Fran Hopper, Social Director and Calvin Hopper, General Chair

Katherin Goluoglu



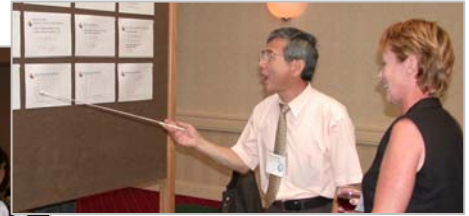
Julie Ezold



Lots of great technical sessions!



Stuffing backpacks



Food and Fun...



Riverboat cruise



LOVE!



Father and son Dodds



Nice Day for a Fire Drill!

