



AMERICAN NUCLEAR SOCIETY

NUCLEAR CRITICALITY SAFETY DIVISION NEWSLETTER

Spring 1998

Warner Blyckert, Editor
Cecil Parks, Associate Editor

MESSAGE FROM THE CHAIR

It has been an honor and a privilege serving this Division and this Society, and I thank you for having allowed me to do so. Since 1987, when I first became actively involved with NCSD, I have been allowed to participate in, coordinate, and organize activities within the Division and the Society, with the result that I have (hopefully) grown substantially faster than if I had not jumped in with both feet. The reputation of NCSD within the other divisions of the Society has blossomed (note I avoided the word "mushroomed") to the point where we are often held up as the standard that others should strive to meet.

Now, the bad news and what we can do about it. ANS, as a volunteer, professional society, is experiencing significant trouble. Membership has dropped from a high of about 17,000 to the current 12,000. National meeting attendance and participation are declining. Journals and other publications are suffering from lack of submissions and subscriptions. In other words, ANS is following the downward trend of the nuclear industry.

So how does this affect you? It is my deep-seated belief that nuclear power must play a significant role in the future of this country, as it is beginning to do in the rest of the world. When this resurgence occurs, we need the ANS to be there providing leadership, a technical exchange forum, and all the other services that

we have enjoyed over the years. Our biggest enemy is not the anti-nukes: it is apathy. If we do not participate in the revitalization of ANS now, there will be no organization later.

There are lots of other societies and organizations that dabble in nuclear, but ANS must become the first choice for nuclear related activities. Each division must stop putting the division's interests foremost at the expense of and to the detriment of the Society.

I ask each of you to: *let your opinion be known* to both the Division and to the Society through letters, email, etc., to the NCSD newsletter, Nuclear News, or journals; *vote* for both Division and National candidates; *get involved* in writing papers, organizing sessions, participating on NCSD committees, especially in-between national meetings; *get active* in local section activities, including dinner meetings; *get to know people* on the Board of Directors, National Program Committee, and Professional Divisions Committee; *help recruit* new members and re-recruit old members who have let their interest lapse; *get to know some of the ANS HQ staff* (they are truly wonderful people who work hard for our benefit); and, finally, *seek election or support someone* for election to an office - it may just prove to be a rewarding experience that is so difficult to put into words to explain to others.

NCSD Election policy. For several years it has been the practice of NCSD to elect a person to the position of Secretary, who would then **progress without election opposition, through** the positions of Treasurer, Vice-Chair, Chair, and then Division Representative. This has been effectively a 5-year commitment on the part of the candidates. The reasoning behind this practice includes the following logic: a person elected without having first served at least three years on the Executive Committee would have time (three years) to become familiar with all the duties of the Chair, including "corporate memory" of previous Executive Committee decisions, prior to assuming those responsibilities. However, support for such long-term commitment is shrinking. It is therefore **time to consider changing** how NCSD votes: if you want to begin contesting the Treasurer and Vice-Chair/Chair Elect positions, let me know. I propose to phase in the change: contest Secretary in 98-99, contest Secretary & Treasurer in 99-00, contest Secretary, Treasurer and Vice-Chair in 00-01 (phasing in period needed for fairness to last elected Secretary). However, I need to **hear from a majority of the Division** before I can recommend to the Executive Committee that we proceed with this change.

As Chair of the Nominating Committee for the 99-00 election year, I am also looking for candidates for the Executive Committee and the officers. Please contact me to volunteer either yourself or someone else. Thank you.

COMMUNICATIONS INFORMATION

Below is a list of the new division officers, executive committee members, and committee chairs along with their telephone number, facsimile number, and electronic mail address. If you have any questions about the division activities or wish to offer comments or suggestions, or offer to help, the persons on this list are the people to contact.

<u>Name</u>	<u>Telephone No.</u>	<u>Facsimile No.</u>	<u>Electronic Mail</u>
Francis M. Alcorn (99)	804-522-5157	804-522-5922	fmalcorn@aol.com
Warner A. Blyckert (98), Publications/Newsletter	509-946-0941	509-946-4395	yck@ornl.gov
Stephen M. Bowman (00), Liaison to 2001 Embedded Topical Mtg	423-574-5263	423-576-3513	st5@ornl.gov
Jack Bullington, Secretary	803-952-3385	803-952-3063	jack.bullington@srs.gov
Doug Croucher, Treasurer/Finance	303-966-2175	303-966-7641	douglas.croucher@rfets.gov
Adolf S. Garcia (98), Education	208-526-4420	208-526-7245	garciaas@inel.gov
Song T. Huang (00), Bylaws	510-422-6516	510-423-2854	huang3@llnl.gov
David Heinrichs (98), Membership	510-424-5679	510-423-2854	heinrichs1@llnl.gov
David Lindenschmidt, Program	614-424-7514	513-779-6621	lindenschmidt@prodigy.net
Thomas P. McLaughlin, ANS-8 Chair	505-667-4789	505-665-4970	tpm@lanl.gov
Cecil V. Parks, Vice Chair	423-574-5280	423-576-3513	cvp@ornl.gov
Richard Paternoster (00), Honors/Awards >6/98	505-667-4728	505-665-3657	rpaternoster@lanl.gov
Valerie L. Putman, Division Representative/Nominating	208-526-9529	208-526-0518	vlp@barbie.inel.gov
John A. Schlessler, ANS-8 Secretary	505-665-2815	505-665-4970	johna@lanl.gov
Richard G. Taylor (99), Liaison to Public Information Committee	423-574-3529	423-576-1785	rgt@ornl.gov
Peter R. Thorne (99), International Relations	011-44-1925-833004	011-44-1925-832161	prrt@amgmps.com
Dennis A. Tollefson, Chair	423-574-3530	423-576-1785	tof@ornl.gov
R. Michael Westfall, Fellow Award-Coordinator	423-574-5267	423-574-3527	rwe@ornl.gov

AWARDS COMMITTEE - Paul Felsher

The NCSA announces and congratulates the winners of the best paper award for the Winter Meeting in Albuquerque, New Mexico. The authors and winning paper were: R. R. Spencer, K. H. Guber, L. C. Leal, D. C. Larson, G. Dos Santos, J. A. Harvey, and N. W. Hill for the paper "Neutron Total and Capture Cross-Section Measurements on Aluminum at ORELA" presented by K. H. Guber.

PROGRAM COMMITTEE - Dave Lindenschmidt

The ANS Annual Meeting is scheduled for June 7-11, 1998, and will be held in Nashville, TN. The sessions being sponsored by NCSA are: 1) Data and Analysis for Nuclear Criticality Safety; 2) International Critical Experiment Benchmark Program: Past, Present, & Future; 3) Breaking the 5 wt. % Barrier; 4) Student Research in Nuclear Criticality Safety; and 5) Criticality Accident Alarm Systems (CAAS).

The ANS Winter Meeting is scheduled for November 15-19, 1998, in Washington, D.C. The sessions being sponsored by the NCSA are described below and paper submittals are due at ANS Headquarters by June 26, 1998. Please contact the session organizer, or Dave Lindenschmidt, if the paper submittal will be delayed beyond that point.

- 1) **Data and Analysis for Nuclear Criticality Safety.** This session is the general session for NCSA papers which do not fit any other session topic. For more information, **contact Dave Lindenschmidt (513-779-6621).**
- 2) **Criticality Evaluations of Potentially Deteriorated Fissile Material Systems.** This session deals with criticality evaluations of damaged or deteriorated spent nuclear fuel or fissile material systems. Scenarios include: cladding failure, loss of geometry, corrosion, reconfiguration, and reprecipitation of fissile materials. Analysis methods include: Worst case conditions and PRA techniques. Optimum moderation and degraded geometries will be evaluated along with possible methods of criticality control. For additional information, **contact Dominic Napolitano (770-447-1144) or J. Wesly Davis (702-295-4557).**
- 3) **Criticality Safety Analysis of Interaction Between Fissile Units.** Analyzing interaction can be complicated by frequent movement of various types of fissile units and the accurate calculation of large arrays of fissile material. Some facilities use methods like solid angle or surface densities while others use Monte Carlo computer codes. Others

do not consider interaction under certain circumstances. This session will address how different facilities treat interaction as well as the regulatory guidance on interaction. For additional information, **contact Christa Boman (510-422-2272) or Larry Wetzel (804-522-6580).**

- 4) **The Reactor Physics of Burnup Credit.** Joint Session with the Reactor Physics Division. There is a current effort to use burnup in the licensing of spent fuel pools, loading of storage canisters, transportation casks, dissolvers in reprocessing and in final disposal of spent nuclear fuel. The IAEA has recently issued a report on the international efforts. The NEA has a working group on benchmark activities. Burnup credit requires knowledge of both incore fuel management and criticality safety and is therefore jointly sponsored by both divisions. For additional information, **contact Thomas Doering (702-295-4382).**

Notes from the NCS D Program Chair - Dave Lindenschmidt

This is a very important time for the Division's Program Committee. Within the next few months three important decisions will be required for which I am requesting assistance from the membership.

First, every year in July, three members of the Program Committee rotate off the committee. I need to fill these positions by June. These positions are three year appointments. The Program Committee meets four times a year - on Sunday at each ANS Meeting (June and November) and for two days during the Paper Reviews (February and July). Each member of the committee is asked to commit to attend at least one Paper Review Meeting and one ANS Meeting a year. These positions are a great way for individuals with some experience in NCS to become active within the NCS D.

Second, my three-year term as Program Chair expires in July as well. Cecil Parks, incoming Division Chair, will be appointing an experienced NCS D person to take over, hopefully one who has Program Committee experience. This position requires more commitment than just a Committee member. The Chair is expected to attend each of the four meetings a year. If unable to attend any meeting, you still must coordinate the meeting, both before and after, while finding a qualified substitute to run the meeting in your absence. The Program Chair must also attend the Division's Executive Committee meetings and make a report on the Program Committee activities. The Executive Committee meets immediately following the Program Committee at each ANS Meeting. The appointment as Program Chair is for three years.

Finally, we are now in the preliminary planning stages for the 2001 Embedded Topical. The meeting will be held in conjunction with the ANS Winter Meeting, currently scheduled for Reno, NV. At this point, we are looking for persons interested in serving as the General Chair, the Technical Program Chair, or on one of the various committees. Once the committees are established, a theme for the Topical will be chosen and an official request for calendar placement will be made to the ANS Screening Sub-Committee and the National Program Committee.

If you are interested in any of the positions described above, or if you know someone who would be, please let Dave Lindenschmidt (513-779-6621; e-mail lindenschmidt@prodigy.net), Dennis Tollefson (423-574-3530; e-mail tof@ornl.gov), or Cecil Parks (423-574-5280; e-mail cvp@ornl.gov) know by the end of April.

NEWS SUMMARIES

NCS D Dinner. The NCS D dinner at the Annual Meeting in Nashville will be on Monday, June 8, 1998, starting at 6:30 p.m. It will be held at Calhoun's Restaurant with a choice off the open menu. The cost is approximately \$15 for the meal but does not include transportation. If you want more information, **call Dennis Tollefson at (423) 574-3530 or send email to tollefsonda@ornl.gov.**

Standard ANSI/ANS-8.3-1997, Criticality Accident Alarm System, was approved May 28, 1997. It includes a few significant revisions to the previous version, ANSI/ANS-8.3-1986. The new revision, ANSI/ANS-8.3-1997, is now available for purchase from the American Nuclear Society for \$24 + 7% shipping and handling (US \$). There is a 10% discount for ANS members.

New **Standard ANSI/ANS-8.22-1997,** Nuclear Criticality Safety Based on Limiting and Controlling Moderators, was approved October 31, 1997. It also is now available for purchase from the American Nuclear Society for \$26 + 7% shipping and handling (US \$). There is a 10% discount for ANS members.

Comments Requested. The Nuclear Regulatory Commission has issued, for comment, a draft guide on criticality safety, Draft Regulatory Guide DG-3013, Nuclear Criticality Safety Standards for Fuels and Material Facilities. While there are several exceptions, the draft guide endorses the ANS-8 series of American National Standards.

The NRC is soliciting comments from the public and requests comments be submitted by March 31, 1998 to the Rules and Directives Branch, Office of Administration, U. S. Regulatory Commission, Washington, D.C. 20555-0001. Copies of the Draft Guide may be obtained by writing to the U. S. Regulatory Commission, Washington, D.C. 20555-0001, Attention: Printing, Graphics and Distribution Branch, or by fax to (301) 415-5272.

Training Courses. On May 18-22, 1998, the **University of Tennessee at Knoxville** will present a short course in criticality safety. The course topics include illustrative applications using the SCALE system developed at Oak Ridge National Laboratory with emphasis on the Monte Carlo code KENO Va, standards, regulations, review of accidents, hand calculation methods, subcritical limits, code validation techniques, emergency response, process upsets and recovery actions, and transient excursion modeling. The cost of the 5-day course is \$1195. For additional information, **contact** Lydia Salmon at the University of Tennessee (phone: (423) 974-2525) or email utne@utk.edu.

18th Annual NCS Short Course, July 14-18, 1997, will be presented at the **University of New Mexico**. The purpose of the short course is to provide an overview of the theory and practice of nuclear criticality safety. The course content is directed toward the individual with less than two years experience in the field. Topics include, but are not limited to: Fundamentals of NCS, Nuclear Physics, Neutron Chain Physics, Administrative Controls, Double Contingency and Elements of a Criticality Safety Evaluation. The basic fee for the Nuclear Criticality Safety Short Course is \$1,200.00. This fee covers tuition, textbook, all other course materials, and lunch each day. For information or questions, contact Bob Busch at busch@unm.edu or (505) 277-8027.

4th Workshop for Managers in Nuclear Criticality Safety, July 8 - 10, 1997, also will be presented by the **University of New Mexico**. Technical information on nuclear criticality safety for facility managers will be provided. They will share first-hand data on how to coordinate nuclear criticality safety with other facility safety requirements. The information presented at this workshop is designed for those people with oversight responsibility for criticality safety but not direct supervision of the criticality safety process. Anyone who needs to know what is involved in criticality safety and how it will affect their responsibilities should take this course. The basic fee for the Managers Workshop is \$700.00. This fee covers tuition, textbook, all other course materials, and lunch Wednesday and Thursday. For information, or questions, contact Bob Busch at busch@unm.edu or (505) 277-8027.

SCALE Course. ORNL will be offering a SCALE/KENO-VI training course on April 27-30, 1998. This course will provide an in-depth introduction to CSAS6/KENO-VI criticality safety sequence for solving problems with complex geometries. The course will be a mix of lecture and hands-on problem solving using PCs and workgroups of three persons. A copy of the SCALE software and manual on CD is included in the registration fee. Registrations will be accepted on a first-come basis. Registration forms may be submitted via FAX or e-mail to reserve your place. Classes are limited to 24 participants and are subject to cancellation if minimum enrollment is not obtained. Course fees are refundable up to one month before each class. See the SCALE Training Web page (http://www.cad.ornl.gov/cad_nea/text/trcourse.html) for further information, or contact Steve Bowman, scalehelp@ornl.gov, 423-574-5263.

As a reminder, NCS is now on the WWW! Please visit our developing web site at <http://www.vic.com/~ncsd>

Message From The Editor

We are, indeed, fortunate to have dedicated people who give of themselves in furthering the service of this Society (and Division) to its members. Many of them, over the years, have labored unknown and unsung in their efforts to ease the burden of others, to encourage associates in their professional development, and to provide guidance to the community. Being on the defensive in a field of endeavor which is shrinking in public support and esteem is not easy, nor comfortable, for a proponent of nuclear technology. However, with firm resolve in their convictions that the use of nuclear technology is of inestimable help to our world in providing environmentally sound electrical power and thus increased standard of living, that medical advances are dependent upon the use of radioactive particles and technology, and that food spoilage can be cut so that people may not die needlessly because of the lack of food, many have zealously carried the torch of knowledge and application in their selfless service. We salute each and every one of you, whether

you are well known or unknown, and give to you our highest esteem and heartfelt thanks for your selflessness. Let all of us follow your example and carry the torch for the betterment of all mankind.