RSIC Newsletter

Oak Ridge National Laboratory
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MANAGED BY MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE U.S. DEPARTMENT OF ENERGY

Phone No. 615-574-6176
FAX 615-574-6182

BitNet: PDC@ORNLSTC • Internet: PDC@ORNL.GOV

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And he gave it for his opinion, that whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.—Swift

SCALE Users Training Course Summary

The SCALE Users Training Course, held July 19–22 at Pollard Auditorium in Oak Ridge, Tennessee, was sponsored by the U.S. Department of Energy Transportation and Packaging Safety Division and hosted by the Radiation Shielding Information Center (RSIC), distributor of the SCALE code package. The sixty-five people who attended represented a wide range of experience and interests. Thirteen international participants represented eight countries. The major analytical portions of SCALE were covered: criticality safety (CSAS), isotopic depletion/decay and source-term generation (SAS2 and ORIGEN-S), radiation shielding (SAS1 and SAS4), and heat transfer (HTAS1 and HEATING7).

The staff of the ORNL Computing Applications Division, who are responsible for the development and maintenance of the SCALE code system, instructed the participants by emphasizing hands-on experience and solving practical problems in small workgroups. The new workstation and PC versions of the SCALE system were installed on a network of six workstations and six PCs which allowed the staff members to interact with the workgroups and provide guidance and answer questions. The participants learned from each other as well as from the staff members and provided valuable feedback to the staff. This information exchange will facilitate further development and enhancement of the SCALE code system. Both the participants and the staff indicated that the course was a profitable and rewarding experience.

If you are interested in attending a future course, please contact Denise Henderson at (615) 574- 8240 to be added to the notification list for the next course.

CHANGES TO THE COMPUTER CODE COLLECTION

Five changes were made to the computer code collection during the month. A new code system was packaged, an existing code package was replaced with a newly frozen version, two code packages were updated or corrected to improve performance, and an existing code package was extended with an additional hardware version. One change resulted from a foreign contribution.

CCC-112/SAND-II

The Experimental and Mathematical Physics Consultants, Gaithersburg, Maryland, contributed a new hardware version of this code system for neutron flux spectra determination by multiple foil activation using the iterative method. The new release for personal computers is a conversion of RSIC's C00112/I3675/00 SAND-II release, which was last modified in August 1977. The Lahey F77L-EM/32 compiler, Version 5.01, was used to create the executables included in the package, which run on 80386 or 80486 personal computers equipped with a math coprocessor. The package is transmitted on one DS/HD 5.25-in. (1.2 MB) diskette in self-extracting compressed DOS files. References: AFWL-TR-67-41 (Sept. 1967), BNWL-855 (Aug. 1968), and BNWL-1312 (May 1970). Fortran IV; CDC (C00112/C7600/00) and IBM 360 (C00112/I3675/00). Fortran 77; 80386 and 80486 PC; (C00112/IBMPC/00).

CCC-474/MORSE-CGA Version 2.0

The developer at Oak Ridge National Laboratory has updated this package with a correction to Subroutine RELCOL which impacts gamma-ray problems using the Klein-Nishina estimator. MORSE-CGA is a Monte Carlo multigroup, neutron and gamma-ray transport code system with array geometry capability. Users of Version 2 may request a copy of the memo describing the correction. The code system runs on many computers: IBM 3090 under MVS-XA, Cray under UNICOS, VAX under VMS, IBM RISC 6000 under AIX, and on 80386 personal computers (equipped with math coprocessors) under DOS using both Silicon Valley Software Version 2.8.2 and Microsoft Version 5 compilers and under OS/2 with the Wattcom compiler. The package is distributed in DOS format on 2 DS/HD 3.5-in. (1.44 MB) diskettes. Since user-supplied Fortran routines are an integral part of the MORSE system, MORSE executable files are problem specific and are not included in the package. References: ORNL-6174 (April 1985, revised 1993). Fortran 77 and Assembler for IBM mainframe only; IBM 3090, Cray, VAX, IBM RISC 6000 and PC 386 (C00474/ALLCP/02).

CCC-619/SCALE-PC

Oak Ridge National Laboratory has contributed a corrected version of this SCALE modular code system for performing computer analyses for licensing evaluation. The new release includes minor updates to KENO-V.a and CSAS, a new version of AIM, and corrections to the chlorine data in the 27GROUPENDF4 and the 27BURNUP cross-section libraries. The COMPOZ program has been added for updating the Standard Composition Library. The personal computer release performs criticality safety analyses using well established functional modules tailored to the SCALE system. SCALE-PC includes functional modules BONAMI, NITAWL-II, XSDRNPM, ICE, and KENO-V.a, as well as the CSAS control module. The modules are functionally equivalent to those in the CCC-545/SCALE4.1 release. The OFFSCALE program is included to assist in preparing an input file for any of the criticality sequences contained in the CSAS4 module. SCALE-PC runs on either 80386 or 80486 personal computers equipped with a math coprocessor and 4 MB extended memory. A 486 PC with at least 8 MB of extended memory is recommended. Nominal hard disk requirements are around 40 MB to install the executables and data files and run the sample cases with around another 50 MB required to compile and link the source files. The executables included in the package were created with the Lahey F77L/EM32 Fortran compiler, Version 5.01, and the Phar Lap Dos Extender and virtual memory manager under DOS 5.0. The package is transmitted on seven DS/HD 3.5-in. 1.44 MB diskettes written in self-extracting compressed DOS files. Fortran 77; PC 386 or 486 (C00619/PC486/01).

PSR-171/NJOY91.91

Los Alamos National Laboratory, Los Alamos, New Mexico, contributed a newly frozen version of this code system for producing pointwise and multigroup cross sections from ENDF/B evaluated nuclear data, including ENDF/B-VI. NJOY91 works with neutrons, photons, and charged particles and produces libraries for a wide variety of particle transport and reactor analysis codes. This new release, designated NJOY91.91, includes bug fixes, improvements in several modules, and some new capabilities. Information on the changes is included in the README file. Because NJOY91.76 has been

rescinded, the following summary includes information on major improvements made since the NJOY91.38 release. All users of NJOY are urged to request the 91.91 version.

A few of the major changes include the following: UP62 fixes GROUPR to handle multiple emissions in file 6 for the ENDF/B-VI material F-19; UP64 fixes problems with the photon production in the MATXS files with bad mt50+n gamma yields to correct an error in UP30; UP68 fixes Monte Carlo processing to handle all the energy-angle formats in ENDF/B-VI; and UP69 fixes the Reich-Moore problem, correcting an error in UP2; UP91 fixes GROUPR to correct a problem with getsed for uktot.gt.1.

The code runs on Cray/UNICOS, Cray/CTSS, IBM, VAX/VMS, and Sun workstations. The package is transmitted on either 1 DC 6150 (150 MB) cartridge or 8-mm tape in TAR format or on 4 DS/HD (1.2 MB) diskettes in self-extracting compressed DOS files. References: Unpublished document (February 1991), LA-12057-MS (March 1991), LANL Memo T-2-L-10991 (June 1987), LA-9303-M (ENDF-324), Vol. I (May 1982), Vol. II (May 1982), Vol. III (October 1987), Vol. IV (December 1985), LA-UR 89-2057 (June 1989), LANL Memo T-2-L-10991 (June 1987), and informal documents (April 1992 and May 1992). Fortran 77; Cray (CTSS & UNICOS), VAX/VMS, SUN/UNIX (P00171/MFMWS/02).

PSR-336/PEGAS

The Slovak Academy of Sciences, Dubravska, Czechoslovakia, through the NEA Data Bank, Issy-les-Moulineaux, contributed this pre-equilibrium-equilibrium gamma and spin code system, based on the unified model of nuclear reactions. The equilibrium (compound-nucleus) emission is treated as an organic part of the pre-equilibrium emission. The code has two important novel features: the angular-momentum couplings are correctly taken into account for all processes (equilibration, particle and gamma-ray emission), and nucleon as well as gamma-ray emissions are calculated with all possible cascades for all possible sequences of the ejectiles. PEGAS runs on IBM PC or compatibles with at least 578 K of RAM under DOS. The MS Fortran 5.0 compiler was used to create the executable file included in the package. One DS/HD 5.25-in. (1.2 MB) diskette is used to transmit the package in self-extracting compressed DOS files. Reference: Slovak Academy of Sciences unpublished report (Oct. 1992). Fortran 77; IBM PC (P00336/IBMPC/00).

CHANGE TO THE DATA LIBRARY COLLECTION

A new data library contributed by the United Kingdom was added to the data library collection during the month.

DLC-171/UKFY2

The Winfrith Technology Center and the University of Birmingham of the United Kingdom through the NEA Data Bank, Issy-les-Moulineaux, France, contributed this evaluation of fission product yields in ENDF-6 format from the thermal, fast, and 14 MeV neutron-induced fission of the following nuclides: ^{232}Th, ^{233}U, ^{234}U, ^{235}U, ^{236}U, ^{238}U, ^{237}Np, ^{238}Np, ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{241}Pu, ^{242}Pu, ^{241}Am, ^{242m}Am, ^{243}Am, ^{243}Cm, ^{244}Cm, ^{245}Cm. Spontaneous fission data of ^{242}Cm, ^{244}Cm, and ^{252}Cf is also included. Two retrieval programs are distributed with the data. The FITFYS program generates the covariance matrix for a fission system. FYSSCAN produces optimum values of constraints and repeatedly applies more constraints to the adjustments. The Microsoft Fortran Version 5.0 compiler under DOS 5 was used to create the executable programs included in the package. One DS/HD 5.25-in. (1.2 MB) diskette is used to transmit the package written in self-extracting compressed DOS files. References: AEA-TRS-1015, AEA-TRS-1018, and AEA-TRS-1019. Fortran 77; IBM PC (D00171/IBMPC/00).

PERSONAL ITEMS

In serving a specialized area of scientific endeavor, it seems important that we note significant changes in the activities of people concerned with radiation protection, transport, and shielding in the nuclear industry. We, therefore, continue to carry personal items as they are brought to our attention.

EPMD/RSIC Staffers Retire

Engineering Physics & Mathematics Division (ORNL) staffers R. G. "Tut" Alsmiller and Dick Maerker opted for a recent Voluntary Reduction In Force (VRIF) effective at the end of September.

Tut has served 36 years at ORNL and achieved world-wide recognition in the field of high-energy physics and radiation transport modeling. He contributed well over 100 journal articles and about as many conference and topical reports. He participated in numerous major programs such as the Gemini and Apollo space programs, the SLAC and Fermi Lab accelerator projects, and until retirement he was working on the ANS and SSC projects.

Maerker also achieved world-wide recognition during his career of approximately 34 years. He is especially well known for his many contributions to the field of shielding benchmarks and sensitivity/ uncertainty analysis methods. The LEPRICON methodology which Dick helped to develop has become the centerpiece for NRC's current program to evaluate pressure vessel fluences for vessel integrity and plant life extension studies.

RSIC Staffers Carol P. Coker and Betty L. McGill also took advantage of the VRIF. Betty left effective August 31 and Carol left September 30.

McGill was the Martin Marietta Energy Systems, Inc. coordinator for the Energy Science & Technology Software Center (ESTSC). Prior to that appointment she coordinated the flow of the testing and packaging process among the computer specialists on the RSIC staff.

Coker was responsible for computer code/data transmittal activity. She was also responsible for the generation, inventory, and maintenance of the code and data library collection. Carol began her career with Martin Marietta Energy Systems, Inc., as a keypunch operator (**what's that!**); remember when data was passed around on card decks?

Visitor to RSIC

During the month the following person came for an orientation visit and/or to use RSIC facilities: *Katsuhei Kobayashi*, Kyoto University.

CONFERENCES, COURSES, SYMPOSIA

RSIC attempts to keep its users/contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers to RSIC.

MASH v1.0 Seminar/Workshop

The Monte Carlo Adjoint Shielding Code System, MASH version 1.0 Seminar/Workshop is planned for Monday through Thursday, November 15–18, 1993, in Oak Ridge, Tennessee. The MASH code system was developed by the Oak Ridge National Laboratory (ORNL) and Science Applications International Corporation (SAIC) for the Department of Defense (DoD). MASH v1.0 is currently the code of choice in the U.S. Army Qualified Research Requirements (QRR) document and has been adopted by the NATO Panel VII Ad Hoc Group of Shielding Experts for performing nuclear surviv-ability/vulnerability assessment calculations. Current sponsorship for the MASH code system is through the Defense Nuclear Agency (DNA) which will provide coordination and approve attendance of the workshop.

The MASH code system estimates neutron and gamma-ray environments and radiation protection factors for armored military vehicles and other shielding configurations by coupling a forward discrete ordinates air-over-ground transport calculation with an adjoint Monte Carlo treatment of the shielding geometry. The code system includes the GRTUNCL and DORT codes for air-over-ground transport calculations, a version of the MORSE code with the GIFT5 combinatorial geometry package for adjoint shielding calculations, and several auxiliary codes for data preparation, transformations, and coupling functions. The discrete ordinates calculation determines the fluence due to an external neutron/gamma-ray source on a coupling surface surrounding the shielding geometry. The Monte Carlo adjoint calculation determines the effectiveness of the fluence at that surface in causing a response in a detector within the shielding geometry, i.e., the "dose importance" of the coupling surface fluence. A coupling code folds the fluence together with the dose importance to determine the dose response as a function of the shielding geometry orientation relative to the source, distance from the source, and energy response of the detector.

Registration will begin on Monday evening at the Garden Plaza Hotel and continue Tuesday morning prior to the start of the seminar. The seminar consists of one and one-half days of lectures on the theory, input, and typical application of the code system. The workshop consists of one and one-half days of hands on application of the MASH code system.

Based on estimates from the preliminary announcements of the Seminar/Workshop, a block of rooms has been set aside for the Seminar/Workshop attendees at the Garden Plaza Hotel, 215 S. Illinois Ave., Oak Ridge, TN 37830 (phone 615-481-2468). The quoted price is $54 including tax. The rooms will be available at the government rate with government identification. Reservations must be made by November 1, 1993. There are several other hotels in the general vicinity for lodging including:

Days Inn, 206 S. Illinois Ave., Oak Ridge, TN 37830 (ph. 615-483-5615)
Hampton Inn, 206 S. Illinois Ave., Oak Ridge, TN 37830 (ph. 615-482-7889)
Holiday Inn, 420 S. Illinois Ave., Oak Ridge, TN 37830 (ph. 615-483-4371)
Comfort Inn, 433 S. Rutgers Ave., Oak Ridge, TN 37830 (ph. 615-481-8200)

The Garden Plaza will serve as the check-in and registration site for the Seminar/Workshop on Monday evening, November 15, 1993. The hotel is within walking distance of the Pollard Auditorium and Meeting Center, which will be the site of the Seminar/Workshop activities on Tuesday through Thursday, November 16-18, 1993.

The fee to cover expenses for the Seminar/Workshop has been set at $225. A registration form with appropriate instructions is appended to this newsletter. The fee covers all materials, breaks, luncheons, and a portion of the computer equipment rental for the hands on application.

International Conference on Nuclear Data for Science and Technology

The next in the triennial series of *International Conferences on Nuclear Data for Science and Technology* is being organized and co-sponsored by the Oak Ridge National Laboratory. It will be held May 9-13, 1994, in Gatlinburg, Tenn., at the Park Vista Hotel. About 300 participants, split about evenly between foreign and U.S. scientists and engineers, are expected to attend.

The working program for the 1994 Conference is as follows:

Nuclear Data for Fusion and Fission
- Status and needs
- New experimental results
- Spent-fuel storage
- ITER

Nuclear Theory/Nuclear Structure
- New concepts for reaction and structure analysis
- Advances in model calculations

Evaluation and Validation of Nuclear Data
- Status and comparisons of evaluated data sets
- Comparisons of techniques and predictions
- Processing and library development

Standards and Facilities
- New or improved facilities/instrumentation
- Standards status and needs

Medium Energy Nuclear Data
- Accelerator development, spallation research
- Shielding requirements
- Photonuclear, neutron and charged-particle data

Experiments
- Interdisciplinary techniques for measurements
- New high-resolution/high-precision measurements

Radiation Damage and Activation/Transmutation
- Application to fusion and fission reactor components
- Disposal of nuclear materials

Scientific Applications
- Medical, biomedical needs; KERMA analyses
- Astrophysics
- Solid-state physics
- Geophysics

Industrial Applications
- Health physics; dosimetry
- Oil-well logging
- Neutron radiography
- Environmental monitoring
- Transportation
- Decommissioning
- Hiroshima, Nagasaki studies
- Safeguards

CALL FOR PAPERS: Contributions can be submitted on any of the given topics. Both oral and poster sessions will be scheduled. One-page abstracts were due by **October 15, 1993**. Post-deadline abstracts will be considered under certain circumstances; contact the conference chairman. Further information can be obtained by calling the conference chairman, J. K. Dickens (615-574-6115), or the conference secretariat, A. M. McCoy (615-574-6133); fax number for both is 615-576-8746. Messages may also be sent by e-mail.

3rd International Workshop on Implementation of ALARA at Nuclear Power Plants Call for Papers

The *Third International Workshop on Implementation of ALARA at Nuclear Power Plants*, will be held May 8–11, 1994, Radisson Hotel Islandia, Hauppauge, Long Island, New York (Fee $350). The cosponsors are the U.S. Nuclear Regulatory Commission and the Brookhaven National Laboratory ALARA Center. The workshop format will include formal presentations, summaries of recent developments, poster sessions, and demonstrations. Papers are solicited on the following topics as they relate to ALARA:

Work Planning, Prioritization, High-Dose Jobs,
Controlling Radiation Fields,
ALARA During Operations and Shutdown,
ALARA in New Reactors, Robotics
and Remote Handling,
Decommissioning of Nuclear Power Plants,
Economics vs. Excellence, and
Recent Recommendations on Dose Limitation

Participants are expected to submit either an abstract of a formal presentation (not to exceed 300 words), or a one-page summary of information on a topic intended for discussion. Deadline for submission is **December 1, 1993**. Author notification will be sent out by December 15, 1993. Abstracts should be submitted to Tasneem A. Khan, ALARA Center, Building 703M, Brookhaven National Laboratory, Upton, New York 11973. For further information or for a brochure, call 516-282-3228, fax 516-282-7091 or 516-282-5810.

Calendar

Your attention is directed to the following events of interest.

November 1993

Annual Meeting of the Council on Ionizing Radiation Measurements and Standards, Nov. 8–10, 1993, Gaithersburg, Maryland. Contact: Lori Phillips, NIST, Gaithersburg, MD 20899-0001 (phone 301-975-3881; fax 301-948-2067).

Introduction to Microdosimetry, Nov. 8–12, 1993, Knoxville, Tennessee, sponsored by Consultec Scientific, Inc. Contact: Consultec Scientific, Inc., 725 Pellissippi Parkway, Suite 110, Knoxville, TN 37932-3300 (phone 1-800-269-4333, fax 615-675-4334).

Statistics for Health Physicists, Nov. 8–12, 1993, Knoxville, Tennessee, sponsored by Consultec Scientific, Inc. Contact: Consultec Scientific, Inc., 725 Pellissippi Parkway, Suite 110, Knoxville, TN 37932-3300 (phone 1-800-269-4333, fax 615-675-4334).

Nuclear Energy Forum, Nov. 14–17, 1993, San Francisco, California. Contact: Conference Office, USCEA, 1776 I Street NW, Suite 400, Washington, DC 20006-3708 (phone 202-293-0770, Fax 202-785-4113).

Effective Utilization of MCNP4A on the PC, Nov.

14–18, 1993, a short course conducted by Experimental and Mathematical Physics Consultants, P.O. Box 3191, Gaithersburg, MD 20885 (phone 301-869-2317).

Introduction to Health Physics, Nov. 15–19, 1993, Knoxville, Tennessee, sponsored by Consultec Scientific, Inc. Contact: Consultec Scientific, Inc., 725 Pellissippi Parkway, Suite 110, Knoxville, TN 37932-3300 (phone 1-800-269-4333, fax 615-675-4334).

Radiological Risk Assessment, Nov. 15–19, 1993, Knoxville, Tennessee, sponsored by Consultec Scientific, Inc. Contact: Consultec Scientific, Inc., 725 Pellissippi Parkway, Suite 110, Knoxville, TN 37932-3300 (phone 1-800-269-4333, fax 615-675-4334).

External Radiation Dosimetry, Nov. 15–19, 1993, a short course presented by Technical Management Services, Inc. Contact: Technical Management Services, Inc. P.O. Box 226, New Hartford, CT 06057 (phone 203-738-2440, fax 203-738-9322).

Air Sampling, Nov. 16–19, 1993, Albuquerque, New Mexico. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

Radiation Contamination Risk: Communicating with the Public, Nov. 29–Dec. 3, 1993, Clearwater Beach, Florida. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

January 1994

11th Symposium on Space Nuclear Power Systems, Jan. 9–13, 1994, Albuquerque, New Mexico. Contact: Richard Johnson, Inst. of Space Nuclear Power Studies, University of New Mexico, Chemical and Nuclear Engineering Dept., Albuquerque, NM 87131-1341.

Reactor Physics and Reactor Computations, Jan. 23–26, 1994, Tel Aviv, sponsored by the Israel Nuclear Society and the European Nuclear Society. Contact: Dan Knassim Ltd., P.O. Box 57005, Tel Aviv 61570, Israel (phone 972-3-562-6470, Fax 972-3-561-2303).

Measurement and Detection of Radiation, Jan. 31–Feb. 4, 1994, Orlando, Florida. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

February 1994

Managing Radioactive and Mixed Waste, Feb. 13–17, 1994, Albany, New York, sponsored by the Health Physics Society. Contact: John M Matusek, NENYHPS, P.O. Box 2249, Empire State Plaza Station, Albany, NY 12220-2249.

1992 HEART Conference, Feb. 14–18, 1994, Monterey, California. Contact: Logicon/RDA, ATTN: 1994 HEART Conference, Mr. Ed. Quinn, 2100 Washington Blvd., Arlington, VA 22204-5706.

Principles of Health Physics (C.H.P. Park 1 Exam Study), Feb. 27–Mar. 4, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

March 1994

Internal Dosimetry, Mar. 14–18, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

The Nuclear Fuel Cycle, Mar. 14–18, 1994, a short course sponsored by Continuing Education, University of Missouri-Rolla, 103 Mechanical Engineering Annex, Rolla, MO 65402-0249 (phone 314-341-4200, fax 314-341-60610.

11th International Conference on the Use of Computers in Radiotherapy, Mar. 20–24, 1994, Manchester, United Kingdom. Contact: J. M. Wilkinson, Christie Hospital, Withington, Manchester M20 9BX, GB.

April 1994

30th Annual Meeting of the National Council on Radiation Protection and Measurements, Apr. 6–7, 1994, Arlington, Virginia. Contact: National Council on Radiation Protection and Measurements, 7910 Woodmont Ave., Suite 800, Bethesda, MD 30814-3095 (phone 301-657-2652).

Methods and Applications of Radioanalytical Chemistry (MARC III), Apr. 10–16, 1994, Kona, Hawaii, an International Topical Conference of the American Nuclear Society. Contact Prof. Roy H. Filby, Technical Program Chairman, Department of Chemistry, Washington State University, Pullman, WA 99164-4630 (phone 509-335-3331, fax 509-335-8867).

Topical Meeting on Advances in Reactor Physics, Apr. 11–14, 1994, Knoxville, Tennessee, sponsored by the American Nuclear Society. Contact: B. A. Worley, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6363 USA (phone 615-574-6106).

High Performance Computing `94: Grand Challenges in Computer Simulation, Apr. 11–15, 1994, La Jolla, California, sponsored by the Society for Computer Simulation. Contact: Dr. Adrian Tetner, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439 (phone 708-252-8454).

ARS '94, International Meeting on Advanced Reactor Safety, Apr. 17–20, 1994, Pittsburgh,

Pennsylvania. Contact: D. Squarer, Westinghouse Electric Corp., Science and Technology Center, 1310 Beulah Road, Pittsburgh, PA 15235-5098 USA (phone 412-256-2063; fax 412-256-1348).

8th International Conference on Radiation Shielding, Apr. 24–27, 1994, Arlington, Texas, sponsored by the American Nuclear Society with cooperation from several international and professional societies. Contact: Dr. R. M. Rubin, TU Electric, 400 N. Olive St., LB81 24 SLIC, Dallas, TX 75201, or Nolan Hertel, Georgia Tech, Atlanta, Georgia 30332-0405 USA. R. W. Roussin is the International Liaison.

RECOD '94, 4th International Conference on Nuclear Fuel Reprocessing and Waste Management, Apr. 24–28, 1994, London. Contact: W. L. Wilkinson, RECOD '94 Steering Committee, British Nuclear Forum, 22 Buckingham Gate, London SW1E 6LB, United Kingdom. (phone 071-828-0116; fax 071-828-0110).

42nd Annual Meeting of the Radiation Research Society, Apr. 25–29, 1994, Nashville, Tennessee. Contact: Radiation Research Society, 1891 Preston White Drive, Reston, VA 22091.

May 1994

9th Pacific Basin Nuclear Conference, May 1–5, 1994, Sydney, Australia. Contact: Australian Nuclear Association, P.O. Box 445, Sutherland, NSW 2232, Australia.

Advanced Health Physics (C.H.P. Part 2 Exam Study), May 1–6, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

International Workshop on Implementation of ALARA at Nuclear Power Plants, May 8–11, 1994, Long Island, New York. Contact: Dr. John W. Baum or Dr. T. A. Khan, Brookhaven National Laboratory, ALARA Center, Upton, Long Island, NY 11973 USA (phone 516-282-3228, Fax 516-282-5810).

International Conference on Nuclear Data for Science and Technology, May 9–13, 1994, Gatlinburg, Tennessee, USA. Contact: J. K. Dickens, Oak Ridge National Laboratory, P.O. Box 2008, Oak Ridge, TN 37831-6356 USA (phone 615-574-6115).

1994 Symposium on Radiation Measurements and Applications, May 16–19, 1994, Ann Arbor, Michigan, the 8th in a series sponsored by the U.S. Department of Energy. Contact: Helen Lum, Symposium Secretary, 3034 Phoenix Memorial Laboratory, The University of Michigan, Ann Arbor, MI 48109-2100.

Radioactive Materials Transport and Radwaste Disposal, May 16–20, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

June 1994

Radiation Safety Officer Training, June 13–17, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

July 1994

Environmental Health Physics, July 11–15, 1994. Contact: Woodson Assoc., Inc., P.O. Box 2665, Gaithersburg, MD 20886 (phone 301-990-0751, Fax 301-990-6153).

18th International Radiation Physics Society, July 18–22, 1994, Rabat, Morocco. Contact: Pr. M. Berrada, Lab. de Physique Nucléaire, Faculté des Sciences, B. P. 1014 Rabat, Morocco (Fax 212-7-77-99-78).

October 1994

Fourth Conference on Radiation Protection and Dosimetry, Oct. 24–26, 1994, Orlando, Florida, sponsored by the Oak Ridge National Laboratory. Contact: J. S. Bogard, ORNL, P.O. Box 2008, Oak Ridge, TN 37831-6379 (phone 625-574-5851, fax 615-574-9174).

November 1994

2nd Radiation Physics Conference, Nov. 20–24, 1994, Sadaat City, Egypt, sponsored by the Atomic Energy Authority, Menoufia University. Contact: Prof. M. A. Gomaa, Atomic Energy Authority, 101. Kasr El-Aini Street, Cairo, Egypt (phone 02-355-8269/8264, fax 02-354-0982).

SEPTEMBER ACCESSION OF LITERATURE

The following literature cited has been ordered for review, and that selected as suitable will be placed in the RSIC Information Storage and Retrieval Information System (SARIS). This early announcement is made as a service to the shielding community. Copies of the literature are not distributed by RSIC. They may generally be obtained from the author or from a documentation center such as the National Technical Information Service (NTIS), Department of Commerce, Springfield, Virginia 22161. For literature listed as available from INIS contact INIS Clearinghouse, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna.

RSIC maintains a microfiche file of the literature entered into SARIS, and duplicate copies of out-of-print reports may be available on request. Naturally, we cannot fill requests for literature which is copyrighted (such as books or journal articles) or whose distribution is restricted.

This literature is on order. It is not in our system. Please order from NTIS or other available source as indicated.

RADIATION SHIELDING LITERATURE

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Maps of the area surrounding the Garden Plaza Hotel will be available at the registration desk. The maps show several restaurants and shopping places within walking distance of the workshop site. The American Museum of Science and Energy is also within walking distance of the site.

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