Radiation Safety Information Computational Center

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"If you take all the experience and judgment of men over fifty out of the world, there wouldn't be enough left to run it." --Henry Ford

Printable PDF file of this newsletter available at: **http://www-rsicc.ornl.gov/NEWSLETTER.html**.

Change in Transmittal Fees Effective August 1, 2002

RSICC's DOE/NRC funding offices and their contractors	No charge
US DOE contractors, other government agencies, US educational institutions, Not For Profit organizations	$1000
General public (includes other government contractors)	$1150
ALL Foreign installations	$1300

Tribute to Dr. A. D. Callihan

In view of Dr. Callihan's very important work in the field of nuclear criticality experimentation, I asked several of his colleagues to share in a tribute to his work. Because his personality was shaped by his many interests, I asked other associates to share in this tribute as well. Several qualities in his character appeared in each testimony. He was a gentleman, dedicated to his work, generous to his friends and colleagues, precise and careful in the exposition of technical material, an effective diplomat, an enthusiast for the arts (whether it be folk dancing or high opera), and he contributed to his social community as well as the scientific community. "By personality he was superbly suited to be the founder of the field of systematic criticality experimentation" (Weinberg). His respect for words and dedication to their proper use served him well as the founding editor of *Nuclear Science and Engineering*. As a leader in the definition and evolution of the science of criticality safety, it probably shouldn't come as a surprise that he was also the first male Girl Scout Leader of record in Oak Ridge. Space in this newsletter is limited, so the **complete tribute** is included as a weblink.

Alice Rice / RSICC

ACES POLL
Nuclear Community Needs for Free Computational Expert Consulting

Go back and take a look at Mr. Ford's quote for this month. The loss of legacy knowledge is one of the issues that prompted RSICC's proposal to create a center to assess and meet the needs of those who require a little more than a readme file or an enotebook to get the codes acquired from RSICC up and ready to solve practical problems in radiation shielding, transport, and protection. RSICC wishes to poll the user community on the need for a centralized Atomic Computational Expert Services (ACES). If you would benefit by being linked to a consulting expert via email or phone, please send email to **aces@ornl.gov** by **September 30th** with a list of codes on which you might want to receive expert help. Note the work areas to which you would apply the codes (GenIV, Homeland Defense, Reactor Safety, Consequence Analysis, Nuclear Criticality Safety, etc.). DOE Complex experts would be made available to users needing immediate help on those software and data tools for their application and use. ACES would be free of charge to the users.

RECENT NRC RESEARCH NEWS

A draft revision of the US NRC's "Advanced Reactor Research Plan" was released under Accession number ML021760135 (see Adams Reading Room at **http://www.nrc.gov/reading-rm/adams/login.html** for more details). The report is a direct outgrowth from the Future Licensing and Inspection Readiness Assessment (FLIRA) Report released in October 2001 in response to a Commission request for information on the "Staff Readiness for New Nuclear Plant Construction and the Pebble Bed Modular Reactor."

In the FLIRA report, the staff committed to create a research plan for the development and guidance of a comprehensive advanced reactor research program. The plan would help to formulate and direct research programs which would include the development of a regulatory framework for advanced designs and the analytical tools and experimental data for the independent assessment of the safety of new reactor designs.

More on GEN IV

The Generation IV International Forum (GIF) is a group of representatives from the leading nuclear nations, including Argentina, Brazil, Canada, France, Japan, Republic of Korea, Switzerland, United Kingdom, and the United tates, with the missions to facilitate bilateral and multilateral cooperation related to the development of new nuclear energy systems. GIF is a formal, government sanctioned organization committed to the collaborative pursuit of R&D on Generation IV systems. The benefits gained in the GEN IV Forum include sharing expertise, resources, and test facilities to gain efficiencies and avoid duplication. The formal charter for this organization was signed in July 2001.

A Generation IV Technology Roadmap being prepared by GIF member countries will identify six to eight most promising reactor system and fuel cycle concepts and the R&D necessary to advance them for commercialization. The Roadmap, initiated in October 2000, is scheduled for completion in September 2002.

New Nuclear Energy Lead Laboratory

In a speech to employees at the Department of Energy's (DOE) Idaho National Engineering and Environmental Laboratory (INEEL), Secretary of Energy Spencer Abraham announced a major mission realignment for the lab, establishing the site as the Nation's leading center of nuclear energy research and development. Abraham announced that INEEL would receive an additional $5 million in funding to "jump-start" the transition of the site from Environmental Management to the Office of Nuclear Energy.

The laboratory, which has been managed by the department's environmental management program,

will now be reassigned to the Office of Nuclear Energy, Science and Technology, where it will become a major contributor to initiatives such as Generation IV nuclear energy systems and advanced, proliferation-resistant fuel cycle technology.

DOE News Release, July 17, 2002

New weblinks on the RSICC homepage

FUSION ENERGY RESOURCES

The ANS Fusion Energy Division
ANS-FED Newsletter Jun 2002
Fusion Materials Program -- ORNL
Important Fusion Links
Important International Meetings
UK-AEA Fusion

PRESSURE VESSEL DOSIMETRY AND DYNAMICS

H. B. Robinson-2 Pressure Vessel Benchmark, ORNL/TM-13204, prepared by Igor Remec and F.B.K. Kam, et al. (October 1997).

The Embrittlement Data Base (EDB).

SOFTWARE QUALITY/QUANTITY ASSURANCE FOR NUCLEAR ANALYTICAL TOOLS

Code Quality Assurance, Benchmarking and Validation Databases
Codes Under SQA Processing
DNFSB - Tech 25 Call for SQA on Nuclear Safety Analysis Tools
IVV and Other Centers
Recommendations from SQA Reviews
References for SQA Standards
Safety Analysis Software Group Information (SASG)
SASG Software Working Group News and Current Issue Related to SQA
Upcoming Meeting on SQA
U.S. Government's Top 5 Quality Software Projects - Nominations Due by Dec. 2002

"What Is Information Assurance?" by Dr. Walter L. McKnight, Shim Enterprise, Inc., Published by Cross Talk July 2002.

Available NRC Codes

Two U.S. Nuclear Regulatory Commission (NRC) software packages transferred from the Energy Science and Technology Software Center, Oak Ridge, Tennessee, to RSICC were processed this month. Please browse the computer code abstracts available at RSICC's web site for more information on these packages.

CCC-366/DASH-FP **DLC-074/PUDK-82**

Changes to the Computer Code and Data Collection

Three changes were made to the computer code collection this month: one new package, one newly frozen package and one correction.

CCC-661/SOURCES4C

OP SYS: Windows, Linux, Unix
Language: Fortran 77
Computers: Pentium & Sun
Format: Self-extracting Windows & Unix tar

Los Alamos National Laboratory, Los Alamos, New Mexico, contributed a newly frozen version of this code system that determines neutron production rates and spectra from (alpha,n) reactions, spontaneous fission, and delayed neutron emission due to radionuclide decay. In this release the three-region problem was modified to correct several bugs, and new documentation was added to the package. The code is capable of calculating (alpha,n) source rates and spectra in four types of problems: homogeneous media (i.e., an intimate mixture of alpha-emitting source material and low-Z target material), two-region interface problems (i.e., a slab of alpha-emitting source material in contact with a slab of low-Z target material), three-region interface problems (i.e., a thin slab of low-Z target material sandwiched between alpha-emitting source material and low-Z target material), and (alpha,n) reactions induced by a monoenergetic beam of alpha-particles incident on a slab of target material. Spontaneous fission spectra are calculated with evaluated half-life, spontaneous fission branching and Watt spectrum parameters for 44 actinides. The (alpha,n) spectra are calculated using an assumed isotropic angular distribution in the center-of-mass system with a library of 107 nuclide decay alpha-particle spectra, 24 sets of measured and/or evaluated (alpha,n) cross sections and product nuclide level branching fractions, and functional alpha-particle stopping cross sections for Z<106. The delayed neutron spectra are taken from an evaluated library of 105 precursors. The code provides the magnitude and spectra, if desired, of the resultant neutron source in addition to an analysis of the contributions by each nuclide in the problem.

The code was tested on Intel Pentium and Sun. An executable compiled using Compaq Visual Fortran Standard Edition Version 6.6.0 on a PC running Microsoft's Windows 2000 Professional (Version 5.0, Service Pack 2) is included, and an executable created under RedHat Linux 6.1 on an Intel PC with Portland Group Inc. V3.3-2 compiler is included. SOURCES4C was also tested on Sun SparcStation under SunOS 5.6 with g77 0.5.23. A Windows executable for the LASTCALL graphical user interface is included in the code package; no Unix version of LASTCALL is available. The package is transmitted in a self-extracting, compressed Windows file and in a GNU compressed tar file. References: LA-UR-02-1839 (April 2002) and LA-UR-02-1617 (2002). Fortran 77; PC and Sun (C00661/MNYCP/04).

CCC-711/EASY-99
OP SYS: Unix or Linux
Language: Fortran 77 & C
Computers: IBM, Sun, HP, PC
Format: Unix tar

UKAEA/EURATOM Fusion Association, Oxfordshire, United Kingdom, through the OECD NEA Data Bank, Issy-les-Moulineaux, France, contributed this multipurpose activation and transmutation code system. EASY-99 is an updated version of CCC-678/EASY-97. Information on EASY-99 is posted at the UKAEA web site: **http://www.fusion.org.uk/**. The European Activation System (EASY) is a complete tool for the calculation of activation in materials exposed to neutrons. It can be used for any application (fusion, transmutation, fission and accelerator) where the neutron energy does not exceed 20 MeV. EASY-99 consists of the inventory code FISPACT-99 and the EAF-99 file, which contains various libraries of nuclear data. EASY-99 calculates the response of materials irradiated in a neutron flux. It is designed to investigate fusion devices which will act as intense sources of high energy (14 MeV) neutrons and cause significant activation of the surrounding materials. The EAF-99 library contains 12468 excitations functions involving 766 targets from 1H to 257Fm, in the incident energy range up to 20 MeV. The SYMPAL code has been used to update most of the data. A set of nine different multigroup libraries are provided. Available group structures are: WIMS (69), GAM-II (100), XMAS (172), VITAMIN-J (175) and TRIPOLI(315).

Fortran and C compilers are required to build executables. The source code was compiled and executed at RSICC on an IBM RS/6000 Model 590 running AIX version 4.2.1 with XL Fortran 5.1.1.0 and C version 4.3. Makefiles are provided for Sun, IBM, HP and Intel PC linux systems. This release does not run on Windows. The package is transmitted on a CD-ROM as a GNU compressed Unix tar file which contains scripts, source files, test cases, data libraries and documentation files. References: UKAEA FUS 407 (December 1998), UKAEA FUS 408 (December 1998), UKAEA FUS 409 (December 1998), UKAEA FUS 410 (December 1998), EDS-0 (December 1998), EDS-3a., EDS-2a (December 1998). Fortran 77 & C; IBM RS/6000, SUN, HP, Linux PC (C00711/MNYCP/00).

MIS-001/HIMAC
OP SYS: Windows
Language: N/A
Computer: PC
Format: MS-Word

Electrotechnical Laboratory, Tsukuba, Ibaraki, Japan, Tohoku University, Sendai-shi, Japan, and Lawrence Berkeley National Laboratory, Berkeley, California, contributed a correction to the HIMAC package. The authors carefully checked numerical data on thick target neutron yield and found some mistakes. The data of Ne 100 MeV/nucleon were revised and replaced in the July 2002 update. No other files were changed in this update. HIMAC contains recent experimental data on differential neutron yields in energy and angle produced by 100, 155 and 180 MeV/nucleon He, 100, 155, 180 and 400 MeV/nucleon C, 100, 180, 400 MeV/nucleon Ne, 400 MeV/nucleon Ar, Xe and Fe, 272 and 435 MeV/nucleon Nb and 800 MeV/nucleon Si ions stopping in thick targets of C, Al, Cu, Pb and Nb. The data are distributed on diskette in MS-Word files. References: Informal paper (M0001/MNYCP/02).

Monthly Code Focus

ENVIRONMENTAL TRANSPORT of RADIONUCLIDES

As years have gone by many different codes and applications have been sent to RSICC for stewardship. We currently have over 1700 analytical code and data packages and distribute as many each year to 73 countries in the world. To help 'categorize' each package, we have developed a database of 'Main Categories' to attach applications to the packages at RSICC. Doing so requires investigation into each code package, user feedback from end use statements, and extensive RSICC staff experience and analysis so that we can deliver useful information each month on the 30 different categories we have identified thus far. Links to the package abstracts are embedded into the WWW version of the RSICC Newsletter. Feedback from our Newsletter community is very valuable so please direct your comments and/or suggestions to **PDC@ORNL.GOV**.

AIRBORNE
AIRDOS-PC
AIRGAMMA
ARCON96
AREAC
ARRRG
AT123D
ATM-TOX
ATR5

BLT-FEMWATER
BUSH

CAAC
CAP-88
CDR
CHNSED
CLOUD-M
CRRIS

DECDC 1.0
DEIS
DELFIC-TES
DIFMOD
DISPERS
DPCT
DUST-BNL
DWNWND

EFDOS

FE3DGW
FEMWASTE/FEMWATER
FEWA-FEMA
FOOD

GALE86
GASPAR
GENII-S
GETOUT
GFX-GAMIX

HAARM-3
HABIT 1.1
HADOC
HIMAC

IMPACTS-BRC2.1
INTERTRAN I
IODES
IRDAM

LADTAP II
LAS CRUCES
LINSED

MACCS 1.5.11.0
MACCS 2
MARINRAD
MESODIF-II
MESOI
MESORAD 1.4
MINTEQ

NRCDOSE 2.3.2

ORION-II

PABLM
PAGAN
PAVAN
PFPL
PLUDOS
PLUMEX
PRESTO-II

PROCIV
RABFIN,PARTS
RADOS
RADSHIP-2
RADTRAN4
RANCHMD
RASCAL 3.0.3
RATAF
RIVER-RAD
RRR
SEDONE
SESOIL
SMART
SPOOR
SWIFT
SWIFT2
TACT-III
TERFOC-N
TOXRISK
UDAD
UHS
UTMTOX
WEERIE
WHATIF-AQ
XOQDOQ-82

CONFERENCES, COURSES, SYMPOSIA

RSICC 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 alphabetically. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email to **FINCHSY@ornl.gov** with "conferences" in the subject line by the **20th of each month**. Please include the announcement in its native format as an attachment to the message. If the meeting is on a website, please include the url.

Every attempt is made to ensure that the links provided in the Conference and Calendar sections of this newsletter are correct and live. However, the very nature of the web creates the possibility that the links may become unavailable. In that case, please call or mail the contact provided. Below is a condensed list of the conferences only. More details are listed after the table.

Condensed Table of Conferences

Name of Conference	Time and Place	Web Site	Date of Abstract/Paper Submission
International MACCS Users Group (IMUG)	Sept. 6, 2002 Principality of Monaco	**www.bnl.gov/est/IMUG2002/default.htm**	see website
Americas Nuclear Energy Symposium	Oct. 16-18, 2002 Miami, Florida	anes2002@hcet.fiu.edu	Oct. 16, 2002
48th Annual Radiobioassay and Radiochemical Measurements	Nov. 11-15, 2002 Knoxville, Tennessee	**www.bioassay.org/2002/**	July 15, 2002
SC2002	Nov. 16-22, 2002 Baltimore, Maryland	**http://www.sc2002.org/**	see website
ANS 15th Topical Meeting on Technology of Fusion Energy	Nov. 17-21, 2002 Washington, DC	**www.ans.org/meetings**	June 21, 2002
Software Quality Forum 2003 (SQF 2003)	Mar. 25-26, 2003 Arlington, Virginia	**http://cio.doe.gov/sqas**	Nov. 15, 2002

M&C 2003	Apr. 6-10, 2003 Gatlinburg, Tennessee	**meetingsandconferences.com/MC2003**	Oct. 21, 2002
Advances in Nuclear Fuel Management III	Oct. 5-8, 2003 Hilton Head Island, South Carolina	**http://rpd.ans.org/nfm.htm**	Mar. 15, 2003
The 11th International Conference on Fusion Reactor Materials (ICFRM-11)	Dec. 7-12, 2003 Kyoto, Japan	**icfrm.iae.kyoto-u.ac.jp**	Apr. 30, 2003

The 11th International Conference on Fusion Reactor Materials (ICFRM-11)

The first announcement of "The 11th International Conference on Fusion Reactor Materials (ICFRM-11)," which will be held in Kyoto, Japan, **Dec. 7-12, 2003**, is now available on the ICFRM-11 website at **http://icfrm.iae.kyoto-u.ac.jp.** For further information, contact ICFRM-11 secretariat at **icfrm@iae.kyoto-u.ac.jp** or phone +81-774-38-3597, fax +81-774-38-3467.

Advances in Nuclear Fuel Management III - Call For Papers

Preparations for the American Nuclear Society's Advances in Nuclear Fuel Management III Topical Meeting to be held in Hilton Head Island, South Carolina, during the period of **October 5-8, 2003**, have now begun in earnest. You are invited to serve on the Meeting's Technical Program Committee (TPC). In this capacity your commitment will include:

1. Electronically submit one or more papers, and encourage colleagues to do the same,
2. Help identify and organize special session(s) on timely topics you are interested in, and solicit participation, and
3. Electronically review papers assigned to you in a timely and professional manner

Please return the following information (name, affiliation, phone, alternative email if preferable, topics of interest) to Youssef A. Shatilla at **shatilya@westinghouse.com**.

Please remember that the success of this meeting depends on your active support and involvement. Finally, please bookmark the conference web site: **http://rpd.ans.org/nfm.htm** and visit it occasionally for news and updates. Comments and suggestions are most welcome.

American Nuclear Society 15th Topical Meeting on Technology of Fusion Energy

The American Nuclear Society, in cooperation with the U.S. Department of Energy and the Fusion Engineering Division of the Atomic Energy Society of Japan, will hold the 15th Topical Meeting on Technology of Fusion Energy. This meeting will be held as an embedded topical of the American Nuclear Society 2002 winter meeting, held **November 17-21, 2002,** in Washington, DC.

The purpose of this meeting is to bring together specialists in the area of fusion energy to discuss current work and future challenges in the area of fusion technology. In addition to bringing together the varied expertise of this aggressive research area, special sessions are planned to focus on similarities and differences between the inertial and magnetic fusion energy concepts and the interface between materials and design communities. The technical program will include paper and poster presentations as well as invited speakers.

Co-sponsors of this meeting are INEEL, LLNL, NRL, ORNL, and Kyoto University. For more information, visit **www.ans.org/meetings**.

Americas Nuclear Energy Symposium

The Americas Nuclear Energy Symposium (ANES 2002) will be in Miami, Florida, **October 16-18, 2002**, and will provide a forum for a hemispheric discussion and exchange focused on issues related to the future of nuclear energy in the Americas. ANES 2002 will build on the success of both ANES 2000 and the ANS Meeting of the Americas in 1998. The program promises to deliver interactive discussions, workshops, case studies, industry updates, and an exposition by leaders in the nuclear industry. One-page summaries of proposed papers may be sent to **anes2002@hcet.fiu.edu**. The American Nuclear Society is responsible for the technical program.

Notification of abstract acceptance will be sent by August 16, 2002. Full written papers are due by October 16, 2002. Papers will be published on CD after the event. Visit our website at **http://www.anes2002.org** for more information on the symposium.

M&C 2003

To mark the beginning of the second century of nuclear science, the American Nuclear Society's Mathematics and Computation Division 2003 Topical Meeting is organized around the theme Nuclear Mathematical and Computational Sciences: A Century in Review, A Century Anew. The conference will be held at the Park Vista Hotel, Gatlinburg, Tennessee, **April 6-10, 2003**. It is co-sponsored by the American Nuclear Society's Reactor Physics, and Radiation Protection and Shielding Divisions, as well as the ANS Oak Ridge/Knoxville Local Section, Oak Ridge National Laboratory's Radiation Safety Information Computational Center, the Nuclear Energy Agency of the OECD, Korean Nuclear Society, and the Canadian Nuclear Society.

The conference's web site is: **http://meetingsandconferences.com/MC2003/**. It will be updated with new information as it becomes available. Please bookmark and visit it occasionally for news and updates. Comments and suggestions are most welcome. Contact: Yousry Azmy 814-865-0039, **yya3@psu.edu** or Bernadette Kirk 865-574-6176, **kirkbl@ornl.gov**. *(See announcement on SCALE 5 workshop, that will be held immediately before the M&C Conference.)*

MACCS Meeting

The Fourth Meeting of the International MACCS Users Group (IMUG) will be held on **September 6, 2002**, in the Principality of Monaco. The focus of the Fourth IMUG Meeting will be the exchange of technical information relating to the application of MACCS, MACCS2, and COSYMA codes to relevant problems involving atmospheric dispersion of radioactive materials and resulting consequences.

There is no fee to participate in the meeting; however, for planning purposes, advance registration is requested. Everyone, including COSYMA users, is invited to present a paper. Please visit the website **www.bnl.gov/est/IMUG2002/default.htm**, and **http://www.bnl.gov/est/IMUG2002/Latest_News.htm** to find out about IMUG, register for the meeting or request notification of web updates. The website will be updated as additional information becomes available.

Please make your hotel arrangements as soon as possible. There is a block of rooms being held at the Columbus Monaco Hotel for the meeting, but there is another large conference being held in Monaco the same week. The hotel registration form can be found by going to: **www.bnl.gov/est/IMUG2002/HotelRegistrationForm.PDF**.

MCNP Course Announcement for 2002 and 2003

MCNP home page: **http://laws.lanl.gov/x5/MCNP/index.html**
LANL contact: **selcow@lanl.gov**
European contact: **sartori@nea.fr**

2002

September 9-13	Introductory class	Stuttgart, Germany

2003

January 27-30	Introductory class	Mass. Inst. of Technology
February date TBA	TBD	North Carolina State University
May 12-16	Introductory class	Japan
June date TBA	Introductory class	Los Alamos National Laboratory
August date TBA	Advanced MCNP Topics	Los Alamos National Laboratory

The introductory class is for people who have little or no experience with MCNP. The intermediate to advanced class will be held for people who have used MCNP and want to extend their knowledge and understanding of the code system.

The classes will be based on MCNP5. The code and data package will be available through RSICC at a reduced rate to class participants. The new capabilities of version 5 will be covered.

The other capabilities on MCNP will also be covered, including: basic geometry and advanced geometry, source definitions, tallies, data, variance reduction, statistical analysis, criticality, plotting of geometry, and particle tracks, neutron/photon/electron physics.

All classes provide interactive computer learning. Time will be available to discuss individual questions and problems with MCNP experts or to pursue in more detail topics mentioned in the talks. Please note that other classes are offered based on MCNP. The classes mentioned here are the only ones that are taught by the people who develop and write MCNP.

MCNP Visual Editor Classes

The Visual Editor is a powerful visualization tool that can be used to rapidly create complex Monte Carlo N Particle (MCNP 4C2) geometry models, including lattices, universes, fills, and other geometrical transformations. The Visual Editor can:

Display MCNP 4C2 geometries in multiple plot windows,
Create surfaces and cells to build a geometry,
Create materials using the local xsdir file,
Store commonly used materials in a material library,
Sub-divide large cells into smaller cells,
Create cells containing universes and lattices,
Interactively set cell importances from the plot window, and
Display source points and collision points in the plot window.

The class will be held **September 9-13, 2002**, in Richland, Washington. The class will focus on the use of the visual editor, with an overview of MCNP. The fifth day is optional and will focus on using the Visual Editor and MCNP to do some example problems.

Class will include computer demonstrations and exercises that will focus on creating and interrogating input files with the Visual Editor. Advanced visualization work using MCNP will also be demonstrated. The class will be taught on Pentium computers running the Linux operating system and Windows NT. Class attendees can use either the Linux or Windows version of the visual editor. Attendees are encouraged to bring their own input files for viewing and modifying in the visual editor. Further information on this class can be located at: **http://www.mcnpvised.com/train.html**, or by contacting Randy Schwarz (email **randyschwarz@mcnpvised.com**).

Two classes are scheduled for **2003**: **March 17-21** and **September 8-12**, both in Richland, Washington.

MCNPX Workshops for 2002 & 2003

Lead Teachers: Drs. John Hendricks, Gregg McKinney, Laurie Waters
Organizer: HQC Professional Services Contact: **bill@solutionsbyhqc.com**
More Information: **http://mcnpxworkshops.com** MCNPX homepage: **http://mcnpx.lanl.gov**

2002

September 23-27	Intermediate	San Diego, California
November 11-15	Intermediate	Tokyo, Japan

2003

January 13-17	To be decided	Orlando, Florida
February 17-21	To be decided	Las Vegas, Nevada
March 31-April 4	To be decided	Knoxville, Tennessee
May	To be decided	Los Alamos/Santa Fe
June	To be decided	Europe

MCNPX is the LANL all-particle, all-energy (eV-TeV) Monte Carlo transport code based on MCNP4C, LAHET, CEM, etc. MCNPX has been in active development since 1995, sponsored by the particle accelerator community. It has now become an accepted tool for a broad range of applications by nuclear engineers, physicists, and scientists. The MCNPX development effort has expanded the use of the Los Alamos tools to applications such as APT, waste transmutation, accelerator shielding and health physics, particle beam cancer therapy, space shielding and cosmic ray analysis, single event effects in semiconductors, radiography, and more detailed analysis of the effects of light and heavy ions in matter. In addition, the entire functionality of MCNP4C is retained. New variance reduction and data analysis techniques, many adapted from high energy accelerator methodologies, have also been added, such as the extensive 'mesh tally' capability which allows up to 3-d plotting of particle tracks, fluence and fluence-derived quantities, energy deposition, next event estimator generation contributions and particle sources.

The workshops include hands-on instruction, generally on PC Windows machines. Subject to participant export approval for the MCNPX beta test team, participants will be able to access the Fortran-90 version of MCNPX 2.4, the LA150 (150 MeV) cross-section data for over 40 isotopes for incident neutrons and protons, and 12 for photonuclear interactions, and a notebook of viewgraphs.
Follow-up consultation for class participants will be provided.

Classes are taught by experienced MCNPX code developers and instructors. For more information on code versions and their capabilities, go to the MCNPX Workshops web site **http://mcnpxworkshops.com**.

SC2002

SC2002, on **November 16-22, 2002**, in Baltimore, Maryland, will offer bleeding edge technology with stunning exhibits and faster-than-lightning computer systems. Academic and industry researchers draw on this conference as an arena to feature high-performance computing and networking discoveries designed to transform terabytes of data into insights about the origins of our universe, our own genetic makeup, the condition of our planet and its ecosystems, and how to keep ourselves safe in a dangerous world. For more information, see **http://www.sc2002.org/**.

Short Courses on Monte Carlo Analysis and Nuclear Criticality Safety

The Department of Nuclear Engineering at the University of Tennessee-Knoxville is offering two short courses for radiation transport and criticality safety specialists during Tennessee Industries Week (TIW-37), **August 12-16, 2002**.

Monte Carlo Analysis: Monte Carlo is often the method of choice to solve complex problems in nuclear criticality safety and radiation shielding. To use Monte Carlo effectively, the analyst must understand the theoretical and computational fundamentals of the method, as well as the computational options available in particular computer tools. Also, it is sometimes advantageous to create new special-purpose Monte Carlo programs to solve particular problems rather than use an existing program. The Monte Carlo course runs five days.

Nuclear Criticality Safety: Engineers, scientists, and technical managers who wish to increase their knowledge and understanding of nuclear criticality safety will be interested in the intensive five-day short course. The topics covered in the course are based primarily on the experience of the five instructors which totals over 120 years of nuclear criticality safety related experience. Such a wealth of experience needs to be shared with the criticality safety community including both new and experienced professionals.

For additional information on all the courses offered during TIW-37, contact Kristin England at The University of Tennessee, phone (865) 974-5048, email **kengland@utk.edu,** url **www.engr.utk.edu/nuclear/TIW.html**.

48th Annual Radiobioassay and Radiochemical Measurements Conference

The 48th Annual Radiobioassay and Radiochemical Measurements Conference will be held **November 11-15, 2002**, at the Marriott (formerly the Hyatt Regency) in Knoxville, Tennessee. This conference is a continuation of an informal conference with a long history. Over the past 47 years, the conference has also been known as:

Annual Bioassay and Analytical Chemistry Conference,
Annual Conference on Bioassay, Analytical, & Environmental Radiochemistry, and
Annual Radiochemical Measurements Conference.

The objectives of the Conference (as adapted from the proceedings of the First Annual Bioassay and Analytical Chemistry Conference) are as follows:

1. To bring everyone up to date on some of the latest developments in the field of bioassay, analytical, and environmental radiochemistry;
2. To enable all persons actively engaged in the field of bioassay, analytical, and environmental radiochemistry to discuss mutual problems;
3. To standardize some of the procedures commonly used by the various laboratories;
4. To enable each laboratory to become familiar with procedures used elsewhere; and
5. To plan for future meetings.

For more information, please visit the web site at: **http://www.bioassay.org/2002/**.

Radiopharmaceutical Internal Dosimetry

This online course is designed to teach current techniques for calculating the radiation dose from radionuclides administered in nuclear medicine. Lectures include Internal Dose Assessment Techniques, Resources for Internal Dose Assessment in Nuclear Medicine, Kinetic Modeling, Standard Kinetic Models and Phantoms, Extrapolation of Animal Data, Bone Marrow Dosimetry, Study Design for Radiopharmaceutical Dose Assessment, Patient Specific Dosimetry, and Small Scale and Microdosimetry. Problem-solving exercises and a comprehensive online exam are included. Users completing the exam will receive a certificate of completion. Users may also interact with instructors by email about any aspect of the course. The cost of this course is $495; access to the course is through **www.internaldosimetry.com**. For questions or comments contact either of the course instructors, Dr. Michael G. Stabin, (tel 615-322-3190, fax 615-322-3764, email **michael.g.stabin@vanderbilt.edu**) or Dr. Richard B. Sparks

(tel 865- 938-4949, fax 865-947-1550, email **rsparks@creativedevelopment.com**, url **http://www.creativedevelopment.com**, **http://www.internaldosimetry.com**).

SCALE Training Course Schedule for 2002

The SCALE staff at Oak Ridge National Laboratory (ORNL) will be offering two training courses this fall (**October 14-18 and October 21-25**) at ORNL. The courses will emphasize hands-on experience solving practical problems on PCs. There will be workgroups of two persons each. No prior experience in the use of SCALE is required to attend. The registration fee is $1800 for one course or $3000 for both courses ($300 discount if you register at least one month before the course). A copy of the SCALE software and manual on CD may be obtained for an additional fee of $700, and the KENO3D 3-D visualization tool on CD is available for $800 (single license). Registrations will be accepted on a first-come basis. Registration forms submitted directly from the Web are preferred. Registration via fax or email is also acceptable. The registration fee must be paid by check, travelers checks, bank transfer, or credit card (VISA or MasterCard only). The agenda and registration form are on the web page at **http://www.ornl.gov/scale/trcourse.html**. Contact: Kay Lichtenwalter (tel 865-574-9213, email **x4s@ornl.gov**).

SCALE 5 Workshop Announced

The first workshop on SCALE 5 is being planned in conjunction with the American Nuclear Society M&C 2003 Topical Meeting in Gatlinburg, Tennessee. The workshop will be hosted by Oak Ridge National Laboratory in nearby Oak Ridge, Tennessee. The course is scheduled for the week of **March 31 - April 4, 2003**, immediately before the M&C 2003 meeting.

The workshop will feature some of the new modules to be released in SCALE 5, such as the SEN3 3-D sensitivity/uncertainty sequence and the STARBUCS burnup credit sequence for criticality safety. The workshop will emphasize hands-on experience solving practical problems on PCs. There will be workgroups of two persons each. No prior experience in the use of SCALE is required to attend. The registration fee is $1800 (there is a $300 early registration discount). You can register online at **www.ornl.gov/scale/register_scale5.html** or as part of your M&C 2003 registration. The early registration deadline is February 28, 2003. *(See announcement on M&C 2003 Conference)*.

Software Quality Forum 2003 (SQF 2003)

The Forum will be held **March 25-26, 2003** at the Crystal Gateway Marriott Hotel, which is conveniently located in Arlington, Virginia.

The Program Committee is now accepting presentation proposals for the Software Quality Forum 2003 (SQF 2003). The Forum offers an exciting opportunity for software professionals in the Department of Energy (DOE), other Government agencies, private industry, and academia to share their knowledge about trends and technologies in the acquisition, development, support, and management of software intensive systems. Well-known keynote speakers, tutorials on key Forum topics, a showcase for high-visibility IT projects using cutting-edge technologies, and a vendor exhibit area are included in the Forum program.

This is a tri-annual event sponsored by the Software Quality Assurance Subcommittee (SQAS) of the Quality Managers within the DOE Nuclear Weapons Complex. The 2003 Forum is co-hosted by the DOE Office of the Chief Information Officer and the National Nuclear Security Administration, Office of Advanced Simulation and Computing within the Office of Defense Programs.

Please note the following due dates: submission of proposal, abstract, and biography is November 15, 2002, notification of acceptance is December 31, 2002, final abstract is January 15, 2003, and electronic and paper versions of presentation is due February 1, 2003.

For more information, visit the web site **http://cio.doe.gov/sqas**. Look for the "Forum 2003" heading on the left side of the home page. There will be a website devoted to the SQF 2003 in a week or so, which will be linked from at the above website. If you have questions, send email to Kathleen Canal at

kathleen.canal@ hq.doe.gov. If interested in submitting a presentation proposal, please contact Brenda Coblentz, Program Committee Chair, at **brenda.coblentz@hq.doe.gov**.

CALENDAR

August 2002

Spectrum 2002, Exploring Science-Based Solutions and Technologies, 9th Biennial International Conference on Nuclear and Hazardous Waste Management, Aug. 4-8, 2002, Reno, NV. Contact: Dr. Richard Jacobsen (email **jacor@inel.gov**, url **www.ans.org/spectrum**).

Neutron Spectra Unfolding Training Course, Aug. 5-7, 2002, in Braunschweig, Germany. Contact: Burkhard Wiegel, PTB (email **Burkhard.Wiegel@ptb.de,** url **http://www.ptb.de/utc2002/**).

11th International Symposium on Reactor Dosimetry, Aug. 18-23, 2002, Brussels, Belgium. Contact: J. Adams (tel 301-975-6205, fax 301-926-1604, email **james.adams@nist.gov**, url **www.sckcen.be/conf/ isrd2002**).

September 2002

Fourth Meeting of the International MACCS Users Group (IMUG), Sept. 6, 2002, in the Principality of Monaco (url **http://www.bnl.gov/est/IMUG2002**).

22nd Symposium on Fusion Technology - SOFT, Sept. 8-13, 2002, Helsinki, Finland. Contact: Symposium Secretary Mrs. Merja Asikainen (tel +358 9 456 6854; fax +358 9 456 7002; email: **soft2002@vtt.fi**; url **http://www.vtt.fi/val/soft2002/**).

Visual Editor Class, Sept. 9-13, 2002, Richland, WA. Contact: Randy Schwarz (tel 509-372-4042, email **randy.schwarz@ mcnpvised.com**, url **mcnpvised.com /train.html**).

MCNP Course, Sept. 9-13, 2002, Stuttgart, Germany, Contact: Enrico Sartori (**emailsartori@nea.fr,** url **http://laws.lanl.gov/x5/MCNP/index.html**).

MCNPX Workshop, Sept. 23-27, 2002, San Diego, California. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

Neutron Spectra Unfolding Training Course, Sept. 24-26, 2002, in Los Alamos, NM. Contact: Burkhard Wiegel, PTB (email: **Burkhard.Wiegel@ptb.de**, url **http://www.ptb.de/utc2002/**).

YUNSC 2002 - The 4th International Conference of Yugoslav Nuclear Society, Sept.30-Oct.3, 2002, Belgrade, Yugoslavia. Contact (tel ++381 11 454-796; fax ++381 11 444-74-57; email **yuns@rt270.vin.bg. ac.yu**, url **www.vin.bg.ac.yu/YUNS**).

8th Annual Workshop on Monte Carlo Simulation of Radiotherapy Treatment Sources using the BEAM Code System, Sept. 30-Oct. 3, 2002, Ottawa, Canada. Contact: Blake Walters, Ionizing Radiation Standards, National Research Council of Canada, Ottawa, Canada, K1A 0R6 (tel 613-993-2715, fax 613-952-9865, e-mail **bwalters@irs.phy. nrc.ca**, url **www.irs.inms.nrc.ca/inms/ irs/BEAM/beamhome.html**).

October 2002

2002 International Topical Meeting on Probabilistic Safety Assessment (PSA '02), Oct. 6-10, 2002, Detroit, MI. Contact: Rebecca Steinman (phone 734-930-7500, email **rls@adventengineering.com**, url **http://www-ners.engin.umich.edu/PSAConf/**).

PHYSOR 2002, Oct. 7-10, 2002, Seoul, Korea, sponsored by the American Nuclear Society and hosted by the Korean Nuclear Society. Contact: Prof. Nam Zin Cho (tel +82-42-869-3819, fax +82-42-869-5859, email **tpc@physor2002.kaist.ac.kr**, url **http://physor2002.kaist.ac.kr**).

SCALE Source Terms & Shielding Course, Oct. 14-18, 2002, Oak Ridge, TN. Contact: Kay Lichtenwalter (tel 865-574-9213, email **x4s@ornl.gov**, url **http://www.ornl.gov/scale/trcourse.html**).

The Americas Nuclear Energy Symposium (ANES 2002), Oct. 16-18, 2002, Miami, FL. Contact: Martha Santos (tel 305-348-3942, email **msantos@hcet.fiu.edu,** url **http://www.anes2002.org**.

First Asian and Oceanic Congress for Radiation Protection (AOCRP-1), Oct. 20-24, 2002, Seoul, Korea, sponsored by the Korean Association for Radiation Protection (KARP). Contact: Dr. Myung-Jae Song (tel +82-42-870-0202, fax +82-42-870-0269, email **mjsong@khnp.co.kr**, url **www.aocrp-1.com**).

SCALE KENO V.a Criticality Course, Oct. 21-25, 2002, Oak Ridge, TN. Contact: Kay Lichtenwalter (tel 865-574-9213, email **x4s@ornl.gov**, url **http://www.ornl.gov/scale/trcourse.html**).

November 2002

MCNPX Intermediate Workshop, Nov. 11-15, 2002,Tokyo, Japan. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

The 48th Annual Radiobioassay and Radiochemical Measurements Conference, Nov. 11-15, 2002, Knoxville, Tennessee. Contact: Tom Rucker (tel 865-481-2993, email **ruckert@saic.com** url **http://www.bioassay.org/2002/**.)

SC2002, Nov. 16-22, 2002, Baltimore, Maryland. Contact: (**sc2002-info@sc-conference.org**, url **http://www.sc2002.org/**).

15th ANS Topical Meeting on the Technology of Fusion Energy, Nov. 17-21, 2002, Washington, DC. (url **www.ans.org/**).

International Symposium on Standards and Codes of Practice in Medical Radiation Dosimetry, Nov. 25-28, 2002, IAEA, Vienna. Contact: Dr. Ken R. Shortt (tel +43 1 2600 21664, fax +43 1 26007 21662, email **Dosimetry@iaea.org**, url **www.iaea.org/worldatom/Meetings/2002/infcn96.shtml**).

January 2003

MCNPX Workshop, Jan.13-17, 2003, Orlando, Florida. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **mcnpxworkshops.com** for details).

MCNP Course, Jan. 27-30, 2003, Mass. Inst. Of Technology, Contact: Elizabeth Selcow (email **selcow@lanl.gov,** url **http://laws.lanl.gov/x5/MCNP/index.html**)

February 2003

MCNPX Workshop, Feb. 17-21, 2003, Las Vegas, Nevada. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

MCNP Course, Feb. 2003, (TBA), North Carolina State University. Contact: Elizabeth Selcow (email **selcow@lanl.gov,** url **http://laws.lanl.gov/x5/MCNP/index.html**)

March 2003

Software Quality Forum 2003, March 24-26, 2003, in Arlington, Virginia. Contact: Kathleen Canal (email **kathleen.canal@hq.doe.gov**, url **http://cio.doe.gov/sqas**).

MCNPX Workshop, Mar. 31-Apr. 4, 2003, Knoxville, Tennessee. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com** url **http://mcnpxworkshops.com** for details).

SCALE5 Workshop, Mar. 31-Apr. 4, 2003, Oak Ridge, Tennessee. Contact: Kay Lichtenwalter (email **x4s@ornl.gov**, **scalehelp@ornl.gov**, url **http://www.ornl.gov/scale/workshop_mc2003.html**).

April 2003

ANS Topical Meeting, Nuclear Mathematical and Computational Sciences: A Century in Review, A Century Anew, Apr. 6-10, 2003, Gatlinburg, TN. Co-sponsored by the American Nuclear Society's Reactor Physics, and Radiation Protection and Shielding Divisions, as well as the ANS Oak Ridge/Knoxville Local Section, Oak Ridge National Laboratory's Radiation Safety Information Computational Center, the Nuclear Energy Agency of the OECD, the Korean Nuclear Society, and the Canadian Nuclear Society. Contacts: Yousry Azmy (tel 865-574-8069, email **azmyyy@ornl.gov**) or Bernadette Kirk (tel 814-865-0039, email **kirkbl@ornl.gov**, url **http://meetingsandconferences.com/MC 2003/ index.html**).

May 2003

MCNP Course, May 12-16, 2003, Japan. Contact: Elizabeth Selcow (email **selcow@lanl.gov,** url **http://laws.lanl.gov/x5/MCNP/index.html**)

MCNPX Workshop, May 2003, Los Alamos/Santa Fe, New Mexico. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

June 2003

MCNPX Workshop, June 2003, Europe. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

MCNP Course, June 2003, (TBA), Los Alamos National Laboratory, New Mexico. Contact: Elizabeth Selcow (email **selcow@lanl.gov,** url **http://laws.lanl.gov/x5/MCNP/ index.html**)

August 2003

MCNP Course, Aug. 2003, (TBA), Los Alamos National Laboratory, New Mexico. Contact: Elizabeth Selcow (email **selcow@lanl.gov,** url **http://laws.lanl.gov/x5/MCNP/ index.html**)

September 2003

International Conference on Supercomputing in Nuclear Applications, SNA 2003, Sept. 22-24, 2003, Paris, France. Organizers: CEA, SFANS, co-organizer: OECD/NEA. (email **SNA-2003@cea.fr**, url **http://SNA-2003.cea.fr**).

October 2003

American Nuclear Society's Advances in Nuclear Fuel Management III Topical Meeting, Oct. 5-8, 2003, Hilton Head Island, South Carolina. Contact: Youssef A. Shatilla (email **shatilya@westinghouse.com**, url **http://rpd.ans.org/nfm.htm).**

December 2003

The 11th International Conference on Fusion Reactor Materials (ICFRM-11), Dec. 7-12, 2003, Kyoto, Japan. Contact ICFRM-11 secretariat (tel +81-774-38-3597, fax +81-774-38-3467, email **icfrm@iae.kyoto-u.ac.jp**,, url **http://icfrm.iae.kyoto-u.ac.jp**.

ACCESSION OF NUCLEAR SYSTEMS LITERATURE

The nuclear systems literature (shielding, safety, materials) cited below has been reviewed and placed in the RSICC Information Storage and Retrieval Information System (SARIS), now searchable on the RSICC web server (**http://www-rsicc.ornl.gov/SARIS.html**). This early announcement is made as a service to the nuclear sciences community. Copies of the literature are not distributed by RSICC. 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.

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Ann. Nucl. Energy, 30, 159-173 . . . *Power Flattening in Prometheus Breeder Reactor Using Nuclear Fuel and Waste Actinide.* . . . Yapici, H.; Übeyli, M. . . . January 2003 . . . Erciyes Üniversitesi, Kayseri, Turkey; Gazi Üniversitesi, Ankara, Turkey.

Ann. Nucl. Energy, 30, 175-187 . . . *Utilization of Ilmenite/Epoxy Composite for Neutrons and Gamma Rays Attenuation.* . . . Abdo, A.E.; El-Sarraf, M.A.; Gaber, F.A. . . . January 2003 . . . Atomic Energy Authority, Cairo, Egypt.

Ann. Nucl. Energy, 30, 189-209 . . . *Investigation of Spatial Coupling Aspects for Coupled Code Application in PWR Safety Analysis.* . . . Tokorova, N.K.; Ivanov, K.N. . . . January 2003 . . . Pennsylvania State University, University Park, PA.

Ann. Nucl. Energy, 30, 211-222 . . . *A Simple Scheme for the Direct Evaluation of Time-Eigenvalues of Neutron Transport Equation.* . . . Modak, R.S.; Gupta, A. . . . January 2003 . . . Bhabha Atomic Research Centre, Mumbai, India.

Ann. Nucl. Energy, 30, 223-242 . . . *Reactor Noise in Accelerator Driven Systems.* . . . Degweker, S.B. . . . January 2002 . . . Bhabha Atomic Research Centre, Mumbai, India.

Ann. Nucl. Energy, 30, 245-259 . . . *Neutronic Investigation of a Hybrid Version of the ARIES-RS Fusion Reactor.* . . . Sahin, S. et al. . . . January 2003 . . . Gazi Üniversitesi, Ankara, Turkey; Bahcesehir Üniversitesi, Istanbul, Turkey.

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Nucl. Eng. Design, 217, 81-90 . . . *Relation Between Temperature Fluctuation of a Heating Surface and Generation of Drypatch Caused by a Cylindrical Spacer in a Vertical Boiling Two-Phase Upward Flow in a Narrow Annular Channel* . . . Fukano, T.; Mori, S.; Akamatsu, S.; Baba, A. . . . August 2002 . . . Kyushu University, Fukuoka, Japan; Hitachi, Ltd., Ibaraki-ken, Japan; Tsukuba Space Center, Ibaraki, Japan.

Nucl. Eng. Design, 217, 91-101 . . . *Thermal-Hydraulic Analysis of Accidents Leading to Local Coolant Flow Decrease in the Main Circulation Circuit of RBMK-1500.* . . . Kaliatka, A.; Uspuras, E. . . . August 2002 . . . Lithuanian Energy Institute, Kaunas, Lithuania.

Nucl. Eng. Design, 217, 103-110 . . . *Hydromechanical Investigation on 3 PWR Upper Plenum Core Structures.* . . . Xiuzhong Shen et al. . . . August 2002 . . . University of Shanghai Jiao Tong, Shanghai, China.

Nucl. Eng. Design, 217, 111-127 . . . *Analytical Prediction of Friction Factors and Nusselt Numbers of Turbulent Forced Convection in Rod Bundles with Smooth and Rough Surfaces.* . . . Su, J.; Freire, A.P.S. . . . August 2002 . . . Universidade Federal do Rio de Janeiro, Brazil.

Nucl. Eng. Design, 217, 129-139 . . . *Development and Evaluation of Additional Shutdown System at the Ignalina NPP by Employing RELAP5 Code.* . . . Kaliatka, A.; Uspuras, E. . . . August 2002 . . . Lithuanian Energy Institute, Kaunas, Lithuania.

Nucl. Eng. Design, 217, 141-151 . . . *Long Time Experience with the Development of HTR Fuel Elements in Germany.* . . . Nickel, H.; Nabielek, H.; Pott, G.; Mehner, A.W. . . . August 2002 . . . Research Centre Jülich, Germany; Technical University Aachen, Germany; Framatome ANP, Duisburg, Germany.

Nucl. Eng. Design, 217, 153-166 . . . *Inspection Techniques for Primary Pressurized Water Cooler Tubes in the High Temperature Engineering Test Reactor.* . . . Takeda, T. et al. . . . August 2002 . . . JAERI, Ibaraki-ken, Japan; Japan Atomic Power Co., Tokyo, Japan.

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Nucl. Technol., 139, 80-88 . . . *Criticality Analysis of MOX and LEU Assemblies for Transport and Storage at the Balakovo Nuclear Power Plant*. . . . Goluoglu, S.; Primm III, R.T. . . . July 2002 . . . Oak Ridge National Laboratory, Oak Ridge, TN.