Radiation Safety Information Computational Center

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"Normality is a paved road: It's comfortable to walk, but no flowers grow on it." – Vincent Van Gogh

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CHANGES TO THE RSICC CODE AND DATA COLLECTION

CCC-847/ XOQGAM-V1.0

John N. Hamawi, Entech Engineering, Westborough, Massachusetts has contributed the XOQGAM 1.0 code to RSICC. XOQGAM is used to calculate dose rates from radioactive Gaussian plumes of finite dimensions at offsite receptors through use of the gamma atmospheric dispersion factor, referred to as the "gamma (χ/Q)". Models and software routines are presented for three dispersion models: (a) the plume centerline model, where the plume is represented as a straight-line airflow, (b) the sector average model, where the plume is assumed to meander over time and spread uniformly within a cardinal sector, and (c) the stationary puff model, which is applicable to intermediate steps in a variable-trajectory plume dispersion model. The software routines documented in the report are meant for incorporation (by interested parties) into other software that make use of the semi-infinite cloud models and multi-year meteorological data. As such, plume dimensions, plume elevation, wind speed and receptor distance, as well as the gamma radiation emitted by the plume (assumed to be monoenergetic in XOQGAM), are provided as input to the routines, and are evaluated one case at a time. Validation is provided for all three gamma (χ/Q) models, primarily through comparative analyses; one set of such comparisons is between the dose rates from a line source, a disk source, and a point source based on the gamma (χ/Q) vs. corresponding results by a radiation shielding code.

The package is distributed as a download, which contains the referenced document in PDF format and a compressed zip files, executable files, Sample problems, data and reference material. Fortran; Linux, MacOS, Windows (C00847MNYCP 00).

FEE CHANGES

(*Last updated October 1, 2019*)

RSICC does not charge for the packages that we deliver; however, we are required by the Federal government to recoup the cost associated with our operations. This fee is based on the cost for RSICC to maintain its archive, update its archive and support customer requests and registrations. This cost includes the effort required to perform the background and export control compliance checks that are mandated by the Federal government.

The cost recovery fee for those individuals that require more extensive export control and nonproliferation reviews will be $1,250 while the cost recovery fee for those individuals that do not require the extensive reviews will be $1,000. For those individuals that are only approved for access to RSICC software on RSICC's secure cloud server the fee will be $1,823. These rates will be effective on October 1, 2019.

An invoice will be sent to you via email if you are required to pay the cost recovery fee. The cost recovery fee is payable via check written on a U.S. bank, postal money order, PayPal account or any method that PayPal provides including debit and credit card. **RSICC does not accept purchase orders or wire transfers.** If payment is received via wire/bank transfer, RSICC will deny future services to both you and your organization.

SINGLE USER MULTI-ORGANIZATION
LICENSE AGREEMENT

(*Last updated July 1, 2018*)

In order to support the use of RSICC software by multi-national organizations and international collaborations, RSICC now offers our customers the option to request a Single User Multi-Organization Software License Agreement. The Single User Multi-Organization Software License Agreement addresses issues regarding the "re-export" of software and data packages obtained from RSICC because under Federal export control regulations our customers cannot "re-export" the code to another person in another country.

This agreement is intended to allow our customers to specify additional foreign locations for which they may be approved to utilize RSICC software. In general, the default option will be the standard single user license agreement for the country in which the customer resides and is employed. The following defines the requirements for use of this license agreement.

This SUMO software license agreement is only available for individuals that receive software directly from RSICC. In addition, the point of contact (host or system administrator) at the additional foreign location(s), must be licensed directly from RSICC and must agree to abide by the policies associated with host/server/cluster systems that are summarized following this announcement.

To apply for this license the customer must first register with RSICC and provide full and complete information. When submitting their request, the customer must provide the following information in the COMMENTS section of the request form for each applicable package:

- full name and email address of the point of contact (POC),

- the full name of the organization at which the software will be used, and

- the complete address (no post office boxes) of the organization under which additional access is being requested.

Individuals that would like to utilize this service must have a valid reason for needing this access and provide such justification to RSICC in the END USE statement as well. If this information is not included in the END USE statement, then the customer's request will only be considered for the standard single user license agreement.

When processing the request, RSICC staff will verify that the designated POC(s) has a valid license for the same version of software that is being requested by the applicant and verify that the POC obtained the package directly from RSICC. If the POC, did not obtain the package directly from RSICC, the POC will need to register with RSICC, apply and be approved for the package before the applicant's request can be processed.

The requests will be reviewed for each designated location and a decision will be rendered as to whether or not a license is granted. If an organization or location is denied, then the customer will be notified and may be limited to the standard single user license agreement for their own organization.

Exceptions:

Persons that have any citizenship of or are located in countries that are not listed in Appendix A of 10 CFR 810 are not permitted to utilize the Single User Multi-Organization License Agreement.

Fees:

The customer making the request for the single user multi-organization software license will be required to pay the cost recovery fee for each location at which they are approved. In addition, the POCs at the other foreign locations that have not obtained the software directly from RSICC will have to obtain the software from RSICC and pay the applicable fee.

Host/Server/Cluster Guidance

Software obtained from RSICC is export controlled under the jurisdiction of the U.S. Department of Energy, 10 CFR 810, or the U.S. Department of Commerce, 15 CFR 730-744. Additionally, RSICC distributes this software under guidance issued by the U.S. Department of Energy's Office of Nonproliferation and Arms Control. The distribution and use of RSICC software is restricted and controlled under these regulations and guidelines. Individuals that request the software must be cleared through both an export control and a nonproliferation review process prior to the individual being granted a license to receive software for a specific end use.

The software distributed by RSICC is licensed to individual requestors (Licensee) under a single-user license agreement while employed at the organization listed on the license forms and cannot be transferred to any other individual or entity. The Licensee is responsible for the control, management and protection of the software. The Licensee is responsible for compliance with U.S. export control requirements (laws and regulations) and the terms of the license agreement. This includes preventing access to the software by any individual or entity (including IT staff) as such access may be deemed an export control violation. Individual Licensees should protect the software, documentation, and installation accordingly. Neither the software nor manuals should be posted to the Internet or otherwise be made publicly available. Any and all system administrators that are assisting with the installation and maintenance of a licensed code(s) or that would otherwise have access to a licensed code(s) that is placed on a stand-alone system and/or server/cluster must also be licensed for the exact version of the software that is placed on these systems. Individuals whose duties are only that of a System Administrator are not authorized to be users of the licensed codes(s).

System administrators and/or hosts should implement standard and customary account access and/or file permissions such that only the licensed individuals may access the program. This should include identity and access management, such as multi-factor authentication, to ensure software is kept secure from unauthorized access. Please note that the single-user license agreement is code and version specific. The Licensee must be licensed for the specific version to which they are granted access. For example, an individual with a license only for MCNP5 should not be permitted access to MCNP6.1. Additionally, some individuals are only licensed for the executable versions of the code(s), and the system administrator(s) must ensure that such individuals do not have access to the source code. Therefore, it is recommended that the source code be removed after installation of the program(s) and furthermore procedures must be implemented such that control software is not lost via decommissioned storage media.

Network, server, parallel, cluster, or similar installations outside of the United States may not be within a country NOT listed in Appendix A of 10 CFR 810 nor occur at facility identified as an entity under 15 CFR 744.

RSICC software may be hosted on a server, cluster or high-performance computing system with the following conditions:

1) Each server/cluster operator must designate one individual responsible for oversight of the use of RSICC software on the server/cluster. This individual will be responsible for communicating and reporting to RSICC on an annual basis regarding the users of the cluster/server.

2) Each and every system administrator that would have access to any form (source or executable) must register, request, **and** be approved for the software with RSICC for the version to which they would have access.

3) An authorized and approved system administrator may install and maintain the software and must ensure that the software is not distributed or shared with those who do not have a specific license for the version to which they would have access. System administrators are required to utilize protocols that limit access to the software. Users should only be granted access and use of software to which they have a specific license, e.g. users that have a license for SCALE 6.1 should NOT be granted access to SCALE 6.0 or SCALE 6.2.

4) System administrators are not permitted to provide access to RSICC software to individuals **NOT** located within the same country as the server/cluster unless the Licensee has an approved Single User Multi-Organization License Agreement from RSICC.

5) Individuals with citizenship or multiple citizenships that include a country not listed in Appendix A of 10 CFR 810 **may be granted** access to RSICC software on a server/cluster, if the individual **has been approved** for access to the software by the U. S. Department of Energy's Office of Nonproliferation and Arms Control.

6) Under no circumstances should an individual with citizenship or multiple citizenships that include a country **NOT** listed in Appendix A of 10 CFR 810 be granted access to RSICC software on the server/cluster, if that individual has **NOT** been approved by the U.S. Department of Energy's Office of Nonproliferation and Arms Control. Additionally, under no circumstances should an individual located at an entity identified under 15 CFR 744 be granted access to RSICC software on the server/cluster.

7) Individuals that have been only granted access to RSICC's secure cloud server **MAY NOT** be granted access to any other server/cluster.

8) When a Licensee requests access to RSICC software on a server/cluster, the system administrator must follow the following process:

(a) The system administrator will require that the Licensee provide proof of a license by requiring that the Licensee provided an electronic copy of either the Single User License Agreement or the Single User Multi-Organization License Agreement. System administrators cannot provide access to anyone located in another country unless that individual has an approved Single User Multi-Organization License Agreement from RSICC and the organization of the system administrator is listed on the SUMO License Agreement.

(b) As of February 1, 2015, RSICC's single user and export control agreements were restricted to the specific end use provided in the request and to the Licensee's installation (employer, organization, or university) when making the request. The system administrator must ensure that the Licensee's current installation is the same as that on the license agreements.

(c) If the Licensee's current installation is NOT the same as that on license agreements, then access should be denied until the Licensee has updated license agreements with RSICC. This will require the Licensee to update their registration with RSICC and submit a new request with RSICC. The Licensee should not be granted access to the software until they have been authorized. Please note that some approvals are location and organization specific.

9) The system administrator will maintain records of the Licensees that are utilizing the server/cluster and send a record to RSICC (rsic@ornl.gov) that include the Licensee's full name,

RSICC customer identification number, installation, and the codes to which the Licensee has access on the system. This information must be provided when the system administrator makes the first request to RSICC to provide such services and must be updated annually by sending updated information to RSICC no later than November 30 of each calendar year. The record should include the customer's full name, RSICC customer number, customer installation as well as request numbers and software package name and identifier for which they are accessing on the cluster.

Server/cluster operators that agree to comply with these conditions may install RSICC software on the server/cluster that are within their corporate/institutional ownership, physical control, and the individual country identified.

END USE STATEMENT

(*Last updated July 28, 2020*)

Customers are strongly encouraged to provide full and complete information regarding the intended end use of the software being requested. End use statements that specify that the code is for research, training or educational activities are not sufficient. RSICC's regulators need to know explicitly for what purpose you intend to use the codes and detail needs to be provided. Requests that lack sufficient detail will be rejected.

Students that submit requests to RSICC are strongly encouraged to consult their professor or academic advisor as to what purpose they intend to use the codes for their classes and/or their research. Professors are also encouraged to provide such guidance to their students since the professor is responsible for identifying the activities of the students under their tutelage.

REGISTRATION REQUIREMENTS

(*Last updated July 28, 2020*)

During the registration process, individuals are required to provide the name of the institution at which they will use the software, an institutional mailing address and an institutional e-mail address. RSICC's regulators require us to obtain an address associated with the individual's organization. Due to the COVID situation, we know that many of our customers are working remotely. If you are working remotely, you may include an alternate mailing address as a comment during the registration process. Please note that you cannot provide an alternate mailing address that is in a country different than that for the organization with which you are affiliated. RSICC cannot register a customer for access to software in a country different than that of the organization with which the individual is affiliated as the single user license and export control agreements are specific to the country in which the organization is located.

SCIENCE EDUCATION PROGRAMS AT
OAK RIDGE NATIONAL LABORATORY

Looking for an internship or post-graduate opportunity at Oak Ridge National Laboratory? The Science Education Programs at Oak Ridge National Laboratory provide paid opportunities for undergraduates, grad students, recent graduates, and faculty to participate in high-quality research alongside world-class scientists to solve real-world problems. Opportunities are available for internships and co-ops, research appointments, and sabbaticals. You can access all available opportunities through the website at http://www.orau.org/ornl. All levels of participants from undergraduates to faculty are encouraged to publish research papers with their mentors. Please browse through the profiles on the different participants and their research experiences on the web site listed above. Also, there is a video of research participants at ORNL sharing their thoughts on how access to world-class research facilities and staff has catapulted their careers in science and technology. You can find it on YouTube at http://ow.ly/2EQLz.

CONFERENCES, TRAINING COURSES,
SYMPOSIA

Due the coronavirus pandemic many conferences, training courses, and symposium are being cancelled or postponed. Please be sure to consult the event websites for more specific details.

CONFERENCES

29th International Conference Nuclear Energy for New Europe

The Nuclear Society of Slovenia in association with the Jožef Stefan Institute, cordially invites you to attend the 29th International Conference Nuclear Energy for New Europe. The conference will be held in Portorož, **September 7 - 10, 2020**.

The conference is an annual meeting of professionals dealing with different aspects of nuclear energy from all around Europe and worldwide. The primary objective of the meeting is to foster international cooperation amongst professionals active in nuclear research and educational institutions, nuclear vendors, utilities and regulatory bodies.

Portorož, literally "Port of Roses", is a coastal settlement in the southwestern Slovenia, and is one of the country's largest tourist areas. It belongs to the coastal municipality of Piran, located in the north of Adriatic Sea.

For more details on this conference, please visit website at www.nss.si/nene2020/.

Best Estimate Plus Uncertainty 2020 International Conference

BEPU is a leading international meeting on the use of best estimate and uncertainty analyses methodologies for nuclear reactor safety analyses. The last BEPU meeting was held in May 2018 in Lucca, Italy. The BEPU2018 conference demonstrated that:

- BEPU applications in licensing are limited and their increase is foreseen to be slow;
- there is a need for comprehensive guidelines for use of BEPU technologies, and the availability of mature tools was questioned;
- consistency in all steps of BEPU needs to be ensured, however it was identified that there is a need to reduce shortcuts in BEPU applications and to focus on exploitation of the full BEPU process;
- experimental data is central to the BEPU processes and methodologies; thus the use the available of experimental data in an efficient and consistent way is required; and
- BEPU is at first a methodology that increases the knowledge and understanding of uncertainties and biases embedded in any deterministic safety analysis.

Given the outcomes of the BEPU2018 conference, the community recognized the need to address some of the identified shortcomings and initiated the planning for BEPU2020. **BEPU2020 has been postponed**.

Those interested can find additional details at http://www.nineeng.com/bepu2020/index.php.

7th International Conference on Nuclear and Renewable Energy Resources

The main objective of International Conference series on Nuclear and Renewable Energy Resources (NURER) is to provide an international scientific and technical forum for scientists, engineers, industry leaders, policy makers, decision makers and young scientists/professionals who will shape future energy supply and technology, for a broad review and discussion of various advanced, innovative and non-conventional nuclear energy and renewable energy systems with UNTHINKABLE IDEAS on sound scientific-technical basis. **NURER conferences have gained international importance, because of their unique character of bringing together the nuclear and renewable energy communities in the same forum for mutual understanding.** NURER emphasizes the fact that both are completing energies and not competing.

Earlier conferences were held in Ankara (Türkiye, 2009, 2010), İstanbul (Türkiye, 2012), Antalya (Türkiye, 2014), Hefei (China, 2016) and Jeju (Korea, 2018). For 2020, once more the capital city of modern Türkiye has been selected to host NURER2020 due to its central location. Due to the situation with the Coronavirus NURER2020 will be held in Ankara, Turkey from May 23 – 26, 2021.

For more details on this conference, please visit website at http://nurer2020.org/en.

17th International Symposium on Reactor Dosimetry 2021

The Seventeenth International Symposium on Reactor Dosimetry will be held 23-28 May 2021 at École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland. The Symposium is being organized by EPFL and is jointly sponsored by the European Working Group on Reactor Dosimetry (EWGRD) and ASTM International Committee E10 on Nuclear Technology and Applications. Those interested can find additional details at: www.reactordosimetry.org

TRAINING COURSES

LANL MCNP6 Class Schedule

Individuals interested in attending or that have registered for these classes are encouraged to contact the organizers regarding any delays or cancellations.

Website: https://laws.lanl.gov/vhosts/mcnp.lanl.gov/classes/classinformation.shtml

Sept 28 - Oct 2, 2020 Los Alamos, NM	Intermediate MCNP6 Non-US citizens must register by 2020-07-06 | Mon 10:00 - Fri 12:00	$1800 or $1500*
Oct 5-9, 2020 Los Alamos, NM	Introduction to MCNP6 Non-US citizens must register by 2020-07-10 | Mon 10:00 - Fri 12:00	$1800 or $1500*
Oct 26-30, 2020 Los Alamos, NM	Introduction to MCNP6 Non-US citizens must register by 2020-07-31 | Mon 10:00 - Fri 12:00	$1800 or $1500*
Nov 2-6, 2020 Los Alamos, NM	Unstructured Mesh with Attila4MC Non-US citizens must register by 2020-08-07 | Mon 10:00 - Fri 4:30	$1800 or $1500*

See the website for more information.

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MCNP6 Training

Beginning/Advanced Visual Editor Training
For more information, see the website: http://mcnpvised.com/train.html

Date (Click Date for Info)	Workshop	Level of Difficulty	Workshop Content	Location
September 21-25, 2020	**Beginning MCNP® using the Visual Editor**	LEVEL 1	Detailed Description	**Richland, WA**
October 19-23, 2020	**Advanced MCNP® using the Visual Editor**	LEVEL 4	Detailed Description	**Richland, WA**
December 7-11, 2020	**Beginning MCNP® using the Visual Editor**	LEVEL 1	Detailed Description	**Mactan Island, Philippines**
December 14-18, 2020	**Advanced MCNP® using the Visual Editor**	LEVEL 4	Detailed Description	**Seoul, South Korea**

NEA Training Courses / Workshops

https://www.oecd-nea.org/dbcps/training-courses/

Class size is limited, and workshop may be cancelled if minimum enrollment is not obtained one month prior to the workshop. Workshop fees paid are refundable up to one month before each class.

Please note that all attendees must be registered users.

Upcoming Workshops

Date	Class	Registration-Payment	Fees	Location
12-13 November 2020	Thermodynamic data collection and assessment (TDB Project) Course description	Registration form	Free	Online
23-27 November 2020	FISPACT Inventory Simulation Platform for Nuclear Observables and Materials Science Course description	More information coming soon	600 EUR	Paris, France
01-05 February 2021	MCNP6® Introduction Course description	Registration closed	2000 EUR	Paris, France
08-12 February 2021	MCNP6® Intermediate Course description	Registration closed	2000 EUR	Paris, France
22-26 March 2021	SCALE TSUNAMI: Sensitivity and Uncertainty Analysis for Criticality Safety Assessment and Validation Course description	More information coming soon	2000 EUR	Paris, France
29 March – 2 April 2021	SCALE ORIGEN MAVRIC: Source Terms and Radiation Shielding for Spent Fuel Transportation and Storage Applications Course description	More information coming soon	2000 EUR	Paris, France

* The fee includes the training course, luncheons and coffee breaks.

Safety Analysis Report for Packaging (SARP)

Shielding/Criticality Safety Analyst Course
Developed and Conducted by Oak Ridge National Laboratory
Radiation and Nuclear Criticality Analysis of RAM Packages

The **SARP Analyst Course** (NP 607 Radiation and Nuclear Criticality Analysis of RAM Packages) provides detailed instruction on the radioactive material package shielding analyses and NCS evaluation fundamentals needed by analysts/practitioners to prepare and/or review technical analyses for the SARP documentation. Please find more information about the course at https://sarp.ornl.gov/

The next SARP Analyst course will be held **March 1–5, 2021,** at Oak Ridge National Laboratory in Oak Ridge, TN. The registration fee for all students is $2000. Those interested in the course can register at the following website, https://utconferences.eventsair.com/2021-sarp-analyst-course/sarp/Site/Register.

SYMPOSIA

2020 CALENDAR

August
Utility Working Conference and Vendor Technology Expo, Marco Island, Florida. Website: http://uwc.ans.org/.

October
2020 IEEE Nuclear Science Symposium and Medical Imaging Conference, October 31 – November 7, 2020*,* Boston, Massachusetts. Website*:* https://nssmic.ieee.org/2020/.

November
2020 – ANS Winter Meeting and Nuclear Technology Expo, November 15-19, 2020, Chicago, Illinois. Website: http://answinter.org.

December
Nuclear & Space Radiation Effects Conference, December 1-4, 2020*,* Santa Fe, New Mexico. Website: http://www.nsrec.com/.