U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

RADIATION PROTECTION COMPUTER CODE
ANALYSIS AND MAINTENANCE PROGRAM

2020 FALL USERS VIRTUAL MEETING

UNITED STATES NUCLEAR REGULATORY COMMISSION
OCTOBER 26-30, 2020
NOVEMBER 4-6, 2020

WELCOME!

Audio – All participants will be muted.

Video – All participants video will be disabled.

Questions –

- Questions will be addressed at the end of the presentations.
- Please use Chat to submit any questions.
- Please type your name, country, the question, and the person the question is directed to in the chat.
- If you have questions after the meeting, please email the questions to RAMP.ADMIN@pnnl.gov

Electronic Certificates –

- Available per request only. Please email RAMP.ADMIN@pnnl.gov

Technical Issues –

- Please email Tanya Korotkov at RAMP.ADMIN@pnnl.gov

Meet the NRC RAMP Team

U.S. Nuclear Regulatory Commission (NRC) RAMP Team

Vered Shaffer, Ph.D.
RAMP Program Manager

Stephanie Bush-Goddard, Ph.D.
RAMP Program Manager

Jeff Kowalczik, CHP
RAMP Program Team

Edward Harvey
RAMP Program Team

Pacific Northwest National Laboratory (PNNL) RAMP Team

Bruce McDowell
PNNL RAMP Program Manager

Luba Hamilton
PNNL RAMP Program Coordinator

Tanya Korotkov
PNNL RAMP Program Coordinator

Leidos RAMP Team

Daniel Pomykala
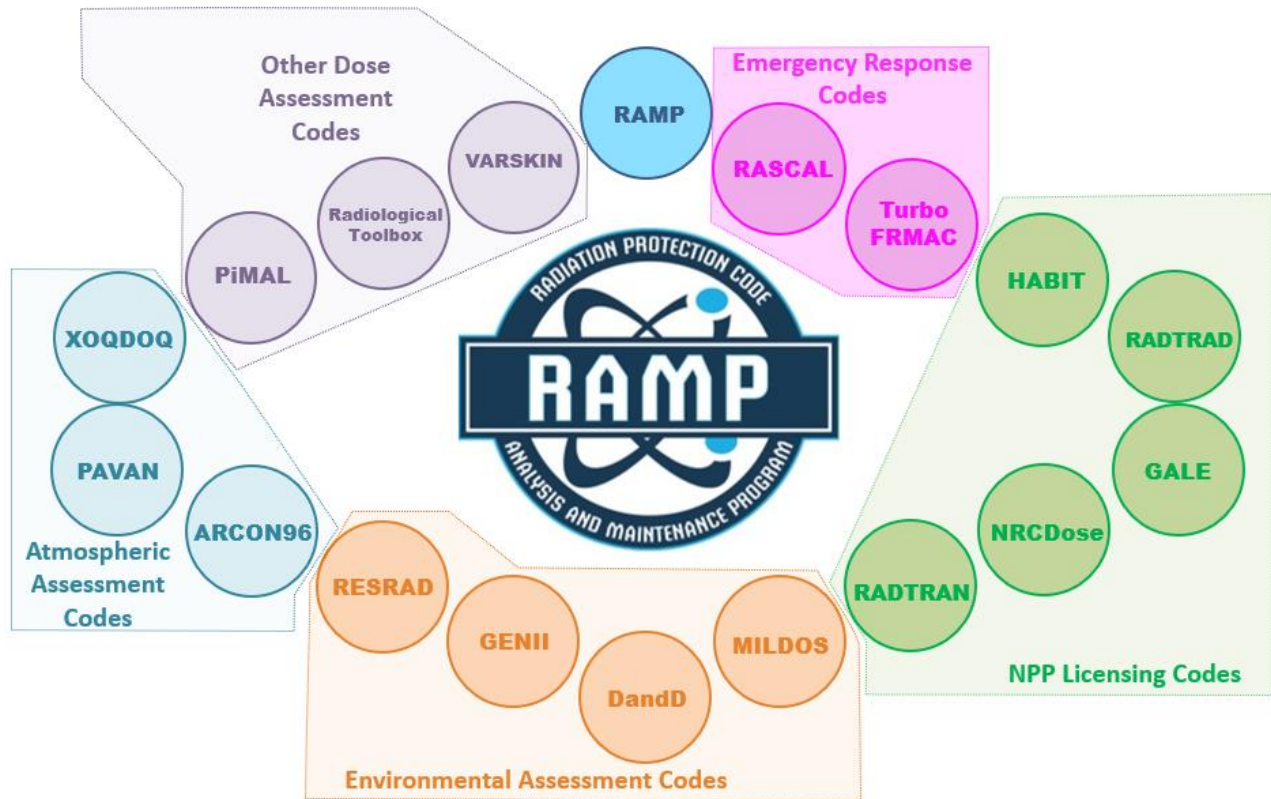Leidos RAMP Program
Manager

James Wiedeman
Leidos RAMP Website
Technical Lead

Frederic Gooding
Leidos RAMP Operations
Support

Radiation Protection Computer Code Analysis and Maintenance Program (RAMP) Codes

RAMP Schedule at a Glance

		Radiation Protection Computer Code Analysis and Maintenance Program (RAMP)
		2020 Fall Users Group Virtual Meeting United States Nuclear Regulatory Commission RAMP Website: https://ramp.nrc-gateway.gov/ **ALL TIMES LISTED ARE EASTERN STANDARD TIME (EST)**
Monday **October 26, 2020**	8 AM – 9 AM EST	**Opening Remarks** **Feature Presentation: What Does Emergency Response Look Like During a Pandemic** **Feature Presentation: Inspections during a Pandemic**
	9:30 AM – 12:00 PM	**RASCAL – For Novice Users**
	1:30 PM – 4:00PM	**GENII**
Tuesday **October 27, 2020**	8 AM – 9 AM EST	**Morning Primer: Toolbox**
	9:30 AM – 12:00 PM	**VARSKIN Technical Meeting**
	1:30 PM – 4:00PM	**RASCAL for Intermediate Users**
	4:00 – 4:30 PM	**Demo of RASCAL 5.0**
Wednesday **October 28, 2020**	8 AM – 9 AM EST	**Morning Primer: IMBA**
	9:30 AM – 12:00 PM	**Internal Dosimetry Symposium**
	1:30 PM – 4:00PM	**RESRAD**
Thursday **October 29, 2020**	8 AM – 9 AM EST	**Morning Primer: ATMO**
	9:30 AM – 12:00 PM	**NRC Dose**
	1:30 PM – 4:00PM	**NRC RADTRAN**
Friday **October 30, 2020**	8 AM – 9 AM EST	**Morning Primer: Turbo FRMAC**
	9:30 AM – 12:00 PM	**RAMP Non-LWR Code Consolidation & Modernization**
	1:30 PM – 4:00PM	**Per request: Country to Country Discussions**

		Radiation Protection Computer Code Analysis and Maintenance Program (RAMP)
		2020 Fall Users Group Virtual Meeting, United States Nuclear Regulatory Commission RAMP Website: https://ramp.nrc-gateway.gov/ **ALL TIMES LISTED ARE EASTERN STANDARD TIME (EST)**
Wednesday **November 4, 2020**	9:00 AM – 12:00 PM	**RADTRAD - novice**
	1:00 PM – 4:00 PM	**RADTRAD - novice**
Thursday **November 5, 2020**		
	9:00 AM – 12:00 PM	**RADTRAD - intermediate**
	1:00 PM – 4:00 PM	**RADTRAD - intermediate**
Friday **November 6, 2020**		
	9:00 AM – 11:00 AM	**RADTRAD – non LWR; advanced designs**
	1:00 PM – 4:00 PM	**Turbo FRMAC**

Notes:
Virtual meeting buffer between sessions

Opening Agenda

2020 Fall RAMP Users Meeting — Opening Session

8:00 – 8:05 AM	Opening and Housekeeping	Bruce McDowell PNNL RAMP Program Manager
8:05 – 8:10 AM	Welcome	Ray Furstenau, Director Office of Nuclear Regulatory Research
8:10 – 8:15 AM	Welcome from the RAMP Team	John Tomon, CHP, Chief Radiation Protection Branch
8:15 – 8:30 AM	Inspections during a Pandemic	Phil McKenna, Chief Oversight and Support Branch
8:30 – 8:45 AM	What Does Emergency Response Look Like During a Pandemic	Jeff Kowalczik, CHP Emergency Response Coordinator
8:45 – 9:00 AM	RAMP User Meeting Information & Roll Call	Vered Shaffer, Ph.D. NRC RAMP Program Manager

RASCAL Session Agenda

October 26-27, 2020

RASCAL Training for Novice Users (October 26)

Instructors:
Jeff Kowalczik; U.S. Nuclear Regulatory Commission
George Athey; Athey Consulting, Inc.

This RASCAL training course is a hands-on computer class for new RASCAL users. No experience with RASCAL is required, but a general familiarity of radiological assessments will be helpful. Instructors will walk users through a step-by-step example of doing a dose assessment using RASCAL 4.3.3. Discussion topics include:

- RASCAL capabilities & tools
- Site locations
- Source Term models
- Atmospheric models
- Reading results

Users are required to have RASCAL 4.3.3. installed on their computer prior to attending.

RASCAL Training for Intermediate Users (October 27)

Instructors:
Jeff Kowalczik; U.S. Nuclear Regulatory Commission
George Athey; Athey Consulting, Inc.

This RASCAL training course is a hands-on computer class for intermediate and experienced RASCAL users. Experience with RASCAL is required. Instructors will walk users through a series of dose assessments, focusing on comparing models in a real-world scenario. Discussion topics include:

- Building RASCAL runs for real-world scenarios
- Core damage estimation using containment radiation monitors
- Comparing small and large break coolant accidents
- Comparing projection results to field measurements

Users are required to have RASCAL 4.3.3. installed on their computer prior to attending.

GENII Session Agenda

October 26, 2020

1:30 – 1:40 PM	Opening and Housekeeping	Bruce Napier GENII Code 2.10
1:40 – 2:00 PM	Introduction to the GENII Code & Poll Questions	Caitlin Condon GENII Code 2.10
2:00 – 3:00 PM	Detailed Tutorial of Example 5	Bruce Napier GENII Code 2.10
3:00 – 4:00 PM	Advanced User Question Session (or Tutorial of Example 11 if there are no attendee questions)	Bruce Napier GENII Code 2.10

VARSKIN Technical Session Agenda

SPECIAL SYMPOSIUMS
FALL 2020
RAMP USERS GROUP
VIRTUAL MEETING

RAMP · U.S.NRC — United States Nuclear Regulatory Commission · Protecting People and the Environment · Pacific Northwest NATIONAL LABORATORY

October 27, 2020

VARSKIN TECHNICAL MEETING

9:30-9:35 | VARSKIN Introduction
Vered Shaffer | Office of Nuclear Regulatory Research, U.S. NRC

9:35-10:00 | Radiation Dosimetry of Nasally Administered PET Radioligands using VARSKIN & Monte Carlo Simulations
James O'Doherty | Siemens Healthcare R&D

10:00-10:25 | Using VARSKIN to Develop New Dosimetry Models for Incidents in Nuclear Medicine Involving Contamination of Skin or Gloves
Bill Thomson | City Hospital, Birmingham, UK

——————— STRETCH BREAK ———————

10:40-11:05 | Charged Particle Buildup Through Air Gap and Cover Materials
Lincoln Johnston | U.S. NRC 2020 Summer Intern

11:05-11:30 | VARSKIN's New Wound Dosimetry Model
David Hamby | Renaissance Code Development

11:30-11:50 | Introduction of VARSKIN+
Jeff Luitjens | Renaissance Code Development

11:50-11:55 | Closing Remarks
Vered Shaffer | Office of Nuclear Regulatory Research, US NRC

All times U.S. Eastern Standard Time

Internal Dosimetry Session Agenda

SPECIAL SYMPOSIUMS
FALL 2020
RAMP USERS GROUP
VIRTUAL MEETING

October 28, 2020

INTERNAL DOSIMETRY SESSION

9:30-9:45 | US Perspective on Internal Dosimetry Needs
Terry Brock | Office of Nuclear Regulatory Research, US NRC

9:45-10:10 | Internal Dosimetry: A Global Perspective
Weibo Li | Institute of Radiation Medicine, Helmholtz
Zentrum Muenchen (GmbH)

10:10-10:35 | Update on ICRP Internal Dosimetry Task Group 95
Francois Paquet | ICRP Task Group 95 (Chair)

10:35-11:00 | EURADOS Internal Dosimetry Working Group 7
Bastian Brenstedt | Kerntechnische Entsorgung (KTE) Karlsruhe

STRETCH BREAK

11:05-11:25 | Internal Dosimetry for Radiation Emergency Response
Armin Ansari | Centers for Disease Control and Prevention

11:25-11:45 | Internal Dosimetry in the US Military Complex
David Boozer | LT, USN, Bethesda

11:45 – 12:05 | Excreta and In-Vivo Measurement QA through Performance Testing
Guy Backstrom | DOELAP, Radiological and Environmental Sciences
Laboratory

12:05-12:10 | Closing Remarks
Vered Shaffer | Office of Nuclear Regulatory Research, US NRC

All times U.S. Eastern Standard Time

RESRAD Session Agenda
October 28, 2020

1:30 – 1:35 PM	Introduction	Stephanie Bush-Goddard
1:35 – 1:40 PM	Update on the RESRAD Family of Codes	Charley Yu
1:40 – 1:50 PM	RESRAD-ONSITE Overview	Charley Yu
1:50 – 2:20 PM	Demo of RESRAD-ONSITE	David LePoire
2:20 – 2:25 PM	Break / Q&A	All
2:25 – 2:45 PM	RESRAD-OFFSITE Overview	Emmanuel Gnanapragasam
2:45 – 3:15 PM	Demo of RESRAD-OFFSITE	Emmanuel Gnanapragasam
3:15 – 3:20 PM	Break / Q&A	All
3:20 – 3:30 PM	RESRAD-BUILD Overview	Charley Yu
3:30 – 3:55 PM	Demo of RESRAD-BUILD	David LePoire
3:55 – 4:00 PM	Q&A	All
4:00 PM	Adjourn	Charley Yu

NRCDose Session Agenda
October 29, 2020

Instructors:

Richard Clement, ScD; U.S. Nuclear Regulatory Commission

J. Stewart Bland, CHP; Duane DeMore, CHP; Chesapeake Nuclear Services, Inc.

This NRCDose3 training course will provide an introduction into the upgrades and improvements that were made by integrating the NRC's environmental dose assessment codes, LADTAP, GASPAR, and XOQDOQ, into a WINDOWS^{TM} format. A key improvement is that essentially all modeling parameters can now be modified by the user to more readily incorporate site-specific information and demographics. Also, in addition to the use of ICRP-2-based dose conversion factors, as contained in Regulatory Guide 1.109, the user has the option to select use of ICRP-30 or ICRP-72 dose conversion factors. Improvements in the biota dose assessment methods have also been incorporated, now addressing the gaseous pathway. No experience with NRCDose3 is required, but a general familiarity with the approach and modeling of Regulatory Guide 1.109 would be helpful. Instructors will walk users through a step-by-step application for each of the integrated codes: LADTAP, GASPAR, and XOQDOQ.

Discussion topics include:

- NRCDose3 Overview
- Overview of Features
- XOQDOQ Modeling and Use/Screens
- GASPAR Modeling and Use/Screens
- LADTAP Modeling and Use/Screens
- NRCDose3 Code Discussions

Users may download the latest version of NRCDose3 (1.1.3) and follow the demonstrated application during the presentation.

RADTRAN Session Agenda
October 29, 2020

Opening Remarks

Don Palmrose | Office of Nuclear Material Safety & Safeguards, U.S. NRC

Brief Introduction to RADTRAN

Erick Ball, Ph.D. | Senior Engineer/Scientist, Energy Research, Inc.

Overview of RADTRAN Updates

RADTRAN Problem Examples (Live Demonstration)
- Example 1: Installation and simple incident-free transport scenario
- Example 2: Basic accident scenario for medical isotope transport
- Example 3: Realistic spent fuel transport scenario with WebTRAGIS route

Selected RADTRAN Modeling Topics

Possibilities for Future Development

Don Palmrose | Office of Nuclear Material Safety & Safeguards, U.S. NRC

Final Q&A

Non-LWR Code Consolidation and Modernization Agenda
October 30, 2020

Presenters: Dr. Stephanie Bush-Goddard, U.S. NRC
Bruce McDowell, Dr. Caitlin Condon, Dr. Saikat Ghosh, Jeremy Rishel, Pavlo Ivanusa,
Dr. Nicole Lahaye, PNNL

Time	Topic	Presenter
9:30 – 9:35 AM	Welcome & Logistics	Bruce McDowell
9:35 – 9:50 AM	Code Consolidation and Non-LWR Overview	Dr. Stephanie Bush-Goddard
9:50 – 10:30 AM	Background a. RAMP Codes Overview b. Advanced Reactor Challenges and Legacy Issues and Inefficiencies	Dr. Caitlin Condon Bruce McDowell
10:30 – 10:40 AM	**Break**	All
10:40 – 11:35 AM	Code Consolidation and Modernization a. Consolidation and Modernization Approach b. Source Term c. Atmospheric Engine Prototype	Bruce McDowell, Dr. Caitlin Condon Dr. Nicole LaHaye, Pavlo Ivanusa Jeremy Rishel, Dr. Saikat Ghosh
11:35 – 11:45 AM	Summary and Path Forward	Dr. Stephanie Bush-Goddard
11:45 – 12:00 PM	Questions and Discussion	All

RADTRAD Session Agenda
November 4-6, 2020

SNAP/RADTRAD User Workshop
Fall 2020 Users Group Meeting
Nov. 4-6, 2020

Highlights

- The SNAP/RADTRAD User Workshop is directed towards users with some dose analysis experience who desire to learn how to use SNAP/RADTRAD.
- Focus will be on the use of SNAP/RADTRAD for dose analysis. It is intended to be a hands-on class.

Day 1

Use of SNAP/RADTRAD for Dose Analysis

Time: 9:00 a.m. to 12:00 p.m.
Presenters: Bill Arcieri & Nolan Bartlow – ISL

- Purpose and Background of SNAP/RADTRAD
- Review of SNAP/RADTRAD Installation
- SNAP/RADTRAD Model Development/ Use of Model Editor
- RADTRAD Mathematical Models
- SNAP/RADTRAD Model Building – 4 Node Model Demo

Use of SNAP/RADTRAD for Dose Analysis (continued)

Time: 1:00 p.m. to 4:00 p.m.
Presenters: Bill Arcieri – Nolan Bartlow – ISL

- SNAP/RADTRAD Model Building – 4 Node Model Demo (continued)
- Use of APTPlot for plotting results
- SNAP/RADTRAD Source Term Models
- SNAP/RADTRAD Release Mechanism Models

- Exercises
  - Fuel Handling Accident – EAB, LPZ
  - Fuel Handling Accident – add normal operation control room model
  - Rod Insertion Accident – change source term for REA analysis and add components for emergency operation of the control room

Day 2

Use of SNAP/RADTRAD for Dose Analysis

Time: 9:00 a.m. to 12:00 p.m.
Presenters: Bill Arcieri & Nolan Bartlow – ISL

- SNAP/RADTRAD RCS Activity Determination
- Exercise – Steam Generator Tube Rupture
- SNAP/RADTRAD Compartment Removal Models

Use of SNAP/RADTRAD for Dose Analysis (continued)

Time: 1:00 p.m. to 4:00 p.m.
Presenters: Bill Arcieri & Nolan Bartlow – ISL

- SNAP/RADTRAD Compartment Removal Models (continued)
- SNAP/RADTRAD Flow Pathway Removal Models
- SNAP/RADTRAD Dose Conversion Factors/Dose Models
- Exercise – Loss of Coolant Accident

Day 3

Use of SNAP/RADTRAD for Dose Analysis

Time: 9:00 a.m. to 11:00 p.m.
Presenters: Bill Arcieri & Nolan Bartlow – ISL

- Application of SNAP/RADTRAD to SMR designs.
- Use of Tabular Parameters and Uncertainty Features in SNAP/RADTRAD

Turbo FRMAC Session Agenda
November 6, 2020

Instructors:

Thomas Laiche, Sandia National Laboratory

Brian Hunt, Sandia National Laboratory

The Turbo FRMAC (TF2020) software automates the calculations described in the Federal Radiological Monitoring and Assessment Center's (FRMAC) Assessment Manual (Volume 1, July 2020). TF2020 is the tool used during a radiological emergency to interpret radiological data and the radiological impact to the general public, workers and food. Information generated by TF 2020 is used by Decision Makers to recommend protective actions in accordance with Protection Action Guides (PAGs) issued by government agencies. TF2020 provides calculated results to answer questions such as:

- Does airborne and/or deposited radioactive materials potentially cause doses that might require the general population to be evacuated, sheltered in place, or relocated?

- How long can emergency workers stay in a given area?

- Should crops, milk and/or other animals be restricted from commerce, or should other actions be taken to prevent ingestion?

Course Requirements

- Attendees should visit: https://nirp.sandia.gov/ and register to obtain Turbo FRMAC 2020 and the associated tools Radionuclide Viewer 2020 and Mixture Manager 2020 and have these installed prior to the start of the presentation.

THANK YOU FOR ATTENDING

STAY TUNED

2021 Winter RAMP Webinar

2021 Spring International Users Group Meeting in Ukraine
(if travel restrictions allow)

For additional information:

Email:
RAMP@nrc.gov

RAMP.Admin@pnnl.gov

RAMP Website:
https://ramp.nrc-gateway.gov