

International RAMP Users' Group Meeting

PRESIDENT HOTEL | IN-PERSON
SEOUL, SOUTH KOREA

SPRING 2024 | APRIL 16-19





Welcome



Meeting Recording

Most sessions will be recorded. The recordings may be posted on NRC's website or used internally. If you do not wish to have your voice recorded, please do not speak during the meeting.



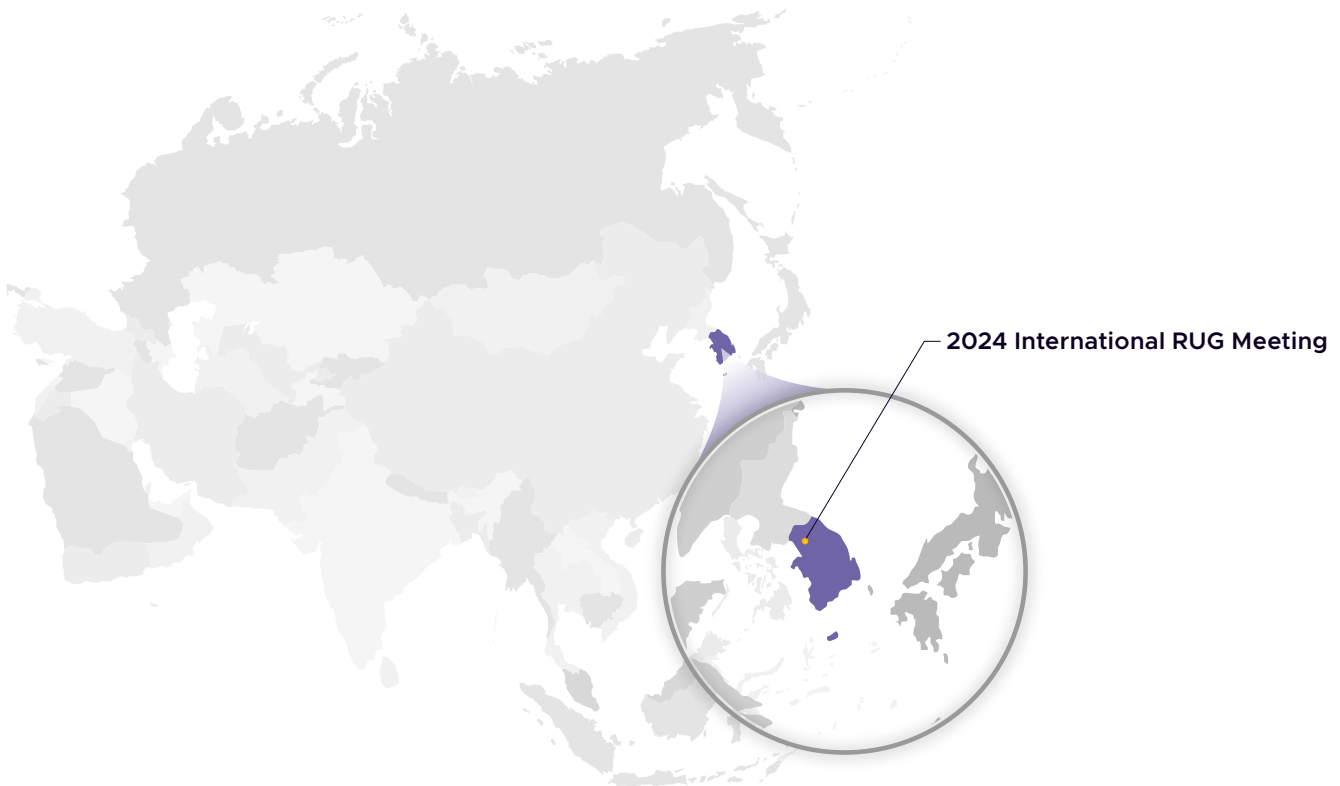
Questions

Questions will be addressed at the end of the presentations. If you have questions after the meeting, please email the questions to ramp.admin@pnnl.gov.



Technical Issues

Please email ramp.admin@pnnl.gov.



2024 INTERNATIONAL SPRING RAMP USERS' MEETING



John Tappert

(Acting) Director of Nuclear
Regulatory Research

U. S. Nuclear Regulatory Commission

NRC, (Acting) Director of Nuclear Regulatory Research (RES)

Welcome to the Radiation Protection Computer Code Analysis and Maintenance Program (RAMP) Users' Meeting. We are pleased that you are joining us for this meeting and for collaboration to enhance nuclear and radiation safety. RAMP is one of the important initiatives through which we engage with domestic and international colleagues. The success of our regulatory program is bolstered by strong partnerships such as the RAMP users' group.

In addition to RAMP, RES plans, recommends, manages, and implements applied research, confirmatory analyses, standards development, and resolution of generic safety issues for nuclear power plants and other facilities regulated by the NRC.

RES partners with other NRC offices, federal agencies, industry research organizations, international organizations, and universities to achieve our mission. We employ a wide variety of talented and diverse experts in engineering and scientific disciplines, including radiation protection, thermal-hydraulics, severe accident progression, nuclear materials, human factors and human reliability, fire protection, seismology, environmental transport, and probabilistic risk assessment. Our experts provide the technical support, analytical tools, and information necessary to accomplish NRC's nuclear safety and security mission.

Besides RAMP, RES also coordinates domestic and international cooperative nuclear safety research activities, including cooperative code-sharing programs for the following areas:

- ▶ Thermal hydraulics, called the Code Applications and Maintenance Program (CAMP).
- ▶ Severe accidents, called the Cooperative Severe Accident Research Program (CSARP).

The NRC is pleased to host this RAMP Users' Meeting and we look forward to collaboration with all attendees. Engaging with our RAMP colleagues is just one of the many ways the NRC works to ensure the safety and security of nuclear materials around the globe. These efforts are critically important as the world becomes more interconnected and interest grows in the use of nuclear technologies. We look forward to your active participation.



Sok Chul Kim

President

Korea Institute of Nuclear Safety

President, Korea Institute of Nuclear Safety

Dear RAMP participants,

I am delighted to extend a warm welcome to all participants on behalf of the Korea Institute of Nuclear Safety (KINS) to the 2024 April RAMP Users' Meeting. We are honored to be hosting this event alongside our esteemed colleagues from the United States Nuclear Regulatory Commission (US NRC).

Established in 1990, KINS serves as a regulatory expert organization dedicated to protecting the public from radiation disasters associated with the production and utilization of nuclear energy, contributing to public safety and environmental conservation. Over the years, KINS has emerged as a pivotal player both domestically and globally in nuclear and radiation safety.

Since joining the RAMP program in 2015, KINS has recognized the value it brings. Our utilization of RAMP codes has grown, emphasizing the significance of this platform in our dose assessment endeavors. We are eager to engage in discussions on how these codes can enhance dose calculation for environmental assessment, nuclear power plant licensing, emergency response, atmospheric assessment, and other dose assessment scenarios.

This event is focused on emergency response and transportation of radioactive materials, featuring a symposium on the first day where experts from various countries and the International Atomic Energy Agency (IAEA) will share experiences and engage in discussions on assessing and responding to nuclear/radiological emergencies at nuclear facilities. Additionally, training courses during the meeting will enhance understanding of programs like dose assessment during emergency response and transportation of radioactive materials, providing a valuable opportunity for users to improve their understanding and share their experiences.

We extend our heartfelt gratitude to the US NRC for their collaboration in co-hosting this event. We anticipate this meeting to be a fruitful platform for discussions, knowledge sharing, and the advancement of best practices in radiation protection.

Enjoy the meeting!

MEET THE NRC AND KINS RAMP TEAM

NRC RAMP Team



John Tomon
BRANCH CHIEF



Stephanie Bush-Goddard
SENIOR RAMP
PROGRAM MANAGER



Rigel Flora
RAMP
RASCAL PROGRAM
MANAGER



Don Lowman
RAMP
PROGRAM TEAM



Sam Edwards
RAMP
PROGRAM TEAM

Korean Institute of Nuclear Safety RAMP Team



Kihoon Yoon
HEAD, DEPARTMENT OF
NUCLEAR EMERGENCY
PREPAREDNESS



Youngmin Lee
SENIOR RESEARCHER



Kyuwon Choi
SENIOR NUCLEAR
SAFETY INSPECTOR

MEET THE PNNL AND LEIDOS RAMP TEAM

Pacific Northwest National Laboratory (PNNL) RAMP Team



Caitlin Condon
PNNL RAMP
PROGRAM MANAGER



Harish Gadey
DEPUTY PNNL RAMP
PROGRAM MANAGER



Luba Hamilton
PNNL RAMP
PROGRAM COORDINATOR



Tanya Korotkov
PNNL RAMP
PROGRAM COORDINATOR



Julia Flaherty
PNNL RAMP
TEAM MEMEBER

LEIDOS RAMP Team



Wendy Chinchilla
LEIDOS RAMP
PROGRAM MANAGER



Frederic Gooding
LEIDOS RAMP
OPERATIONS SUPPORT

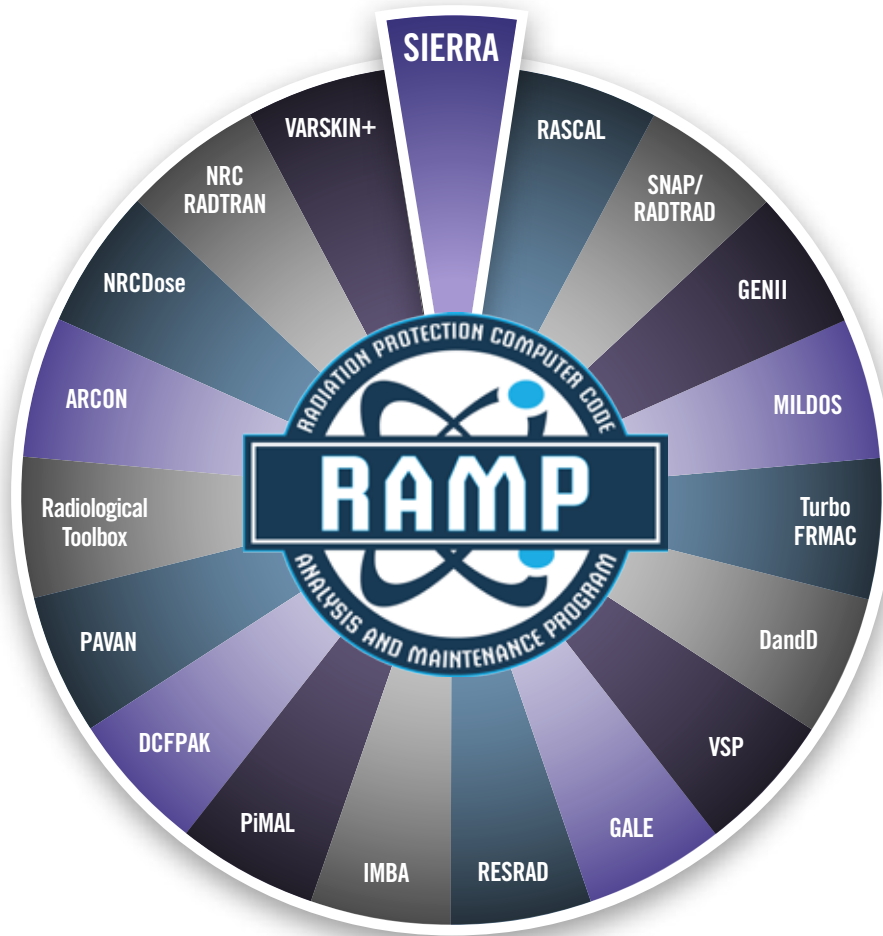


Eric Zimmerman
LEIDOS RAMP
CONTENT MANAGEMENT



**Venukumar
Devlandla**
LEIDOS RAMP
DRUPAL DEVELOPER

RAMP CODES Radiation Protection Computer Code Analysis And Maintenance Program



DOSE ASSESSMENT CODES IN RAMP

<https://ramp.nrc-gateway.gov/codes>

SCHEDULE AT-A-GLANCE

DAY 1 TUESDAY, APRIL 16, 2024 (All times are in KST)		
8:00 a.m.—8:30 a.m.	Registration	
8:30 a.m.—9:00 a.m.	Welcome and Updates on the U.S. NRC RAMP Program (Ivy Hall)	
9:00 a.m.—12:00 p.m.	Emergency Response, Assessment, and Prognosis Symposium (Ivy Hall)	
12:00 p.m.—1:30 p.m.	Lunch (on your own)	
1:30 p.m.—5:00 p.m.	Emergency Response, Assessment, and Prognosis Symposium (Ivy Hall)	
6:00 p.m.—8:30 p.m.	Hospitality Event (Jumbo, President Hotel)	
DAY 2 WEDNESDAY, APRIL 17, 2024 (All times are in KST)		
8:00 a.m.—8:30 a.m.	Registration	
8:30 a.m.—12:00 p.m.	Emergency Response, Assessment, and Prognosis Symposium (Brahms Hall)	
12:00 p.m.—1:30 p.m.	Lunch (on your own)	
1:30 p.m.—5:00 p.m.	RASCAL – Beginner/Intermediate (Brahms Hall)	Introduction to SIERRA, Source Term, and ATD modules (Ivy Hall)
DAY 3 THURSDAY, APRIL 18, 2024 (All times are in KST)		
8:00 a.m.—9:00 a.m.	RAMP – Ask Me Anything	
9:00 a.m.—12:00 p.m.	RASCAL – Exercise (Brahms Hall)	NRC Dose3 (Ivy Hall)
12:00 p.m.—1:30 p.m.	Lunch (on your own)	
1:30 p.m.—5:00 p.m.	Turbo FRMAC – Beginner/Intermediate (Brahms Hall)	NRC-RADTRAN – Introduction/ Exercise (Ivy Hall)
DAY 4 FRIDAY, APRIL 19, 2024 (All times are in KST)		
9:00 a.m.—11:30 a.m.	Turbo FRMAC – Exercise (Brahms Hall)	NRC-RADTRAN – Future Work (Ivy Hall)
11:30 a.m.—12:00 noon	Closing Ceremony (Brahms Hall)	

AGENDA FOR EMERGENCY RESPONSE, ASSESSMENT, AND PROGNOSIS SYMPOSIUM

DAY 1 (All times are in KST)		PRESENTER
8:00 a.m.–8:30 a.m.	Registration	
8:30 a.m.–8:45 a.m.	Welcome	J. Kwon KINS
8:45 a.m.–9:00 a.m.	Updates on the U.S. NRC RAMP	S. Bush-Goddard U.S. NRC
9:00 a.m.–9:50 a.m.	Brief on the South Korean National and Organizational Response Framework	K. Choi KINS
9:50 a.m.–10:05 a.m.	Break	
10:05 a.m.–11:00 a.m.	Brief on the American National and Organizational Response Framework and Lessons from TMI-2	J. Kowalczyk U.S. NRC
11:00 a.m.–12:00 noon	Brief on the Canadian National and Organizational Response Framework	T. Nguyen CNSC
12:00 noon–13:30 p.m.	Lunch	
13:30 p.m.–14:15 p.m.	Brief on the French National and Organizational Response Framework	E. Quentric IRSN
14:15 p.m.–15:00 p.m.	Lessons Learned from the Fukushima Daiichi Accident on A&P	T. Homma NRA
15:00 p.m.–15:15 p.m.	Break	
15:15 p.m.–16:00 p.m.	IAEA Emergency Response Roles	F. Stephani IAEA
16:00 p.m.–16:45 p.m.	European Commission Emergency Preparedness and Response Capabilities	J. Carlos de la Rosa Blui European Commission (Virtual)
16:45 p.m.–17:00 p.m.	Discussion and Wrap-up End 1st Day Session	

DAY 2 (All times are in KST)		PRESENTER
8:00 a.m.–8:30 a.m.	Registration	
8:30 a.m.–10:00 a.m.	Panel Discussion on A&P and Highlights from Day-1	R. Flora U.S. NRC
10:00 a.m.–10:15 a.m.	Break	
10:15 a.m.–10:40 a.m.	U.S. NRC A&P tools and Use Cases (RTT, RASCAL, etc.)	J. Kowalczyk U.S. NRC
10:40 a.m.–11:05 a.m.	IAEA A&P Tools and Use Cases (RAT, DBST, etc.)	F. Stephani IAEA
11:05 a.m.–11:30 a.m.	IRSN A&P Tools and Key Objectives (SESAME)	E. Quentric IRSN
11:30 a.m.–11:55 a.m.	A&P Tools Collaboration Opportunities	J. Kowalczyk U.S. NRC
11:55 a.m.–12:00 noon	Final Remarks	S. Bush-Goddard U.S. NRC
12:00 noon–13:30 p.m.	Lunch	

Day 2



Jeff Kowalczyk

U.S. Nuclear Regulatory Commission

RASCAL Training for Novice Users

This RASCAL training course is a hands-on computer class for new RASCAL users. No experience with RASCAL is required, but a general familiarity with radiological assessments will be helpful. Instructors will walk users through a step-by-step example of doing a dose assessment using RASCAL 4.3.4. Discussion topics include:

- ▶ RASCAL capabilities and tools
- ▶ Site locations
- ▶ Source term models
- ▶ Atmospheric models
- ▶ Reading results

Users are required to have RASCAL 4.3.4 installed on their computer prior to attending.

RASCAL Training for Intermediate Users

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 severe accident progressions
- ▶ Core damage estimation using containment radiation monitors
- ▶ Comparing small and large break coolant accidents

Users are required to have RASCAL 4.3.4 installed on their computer prior to attending.



Caitlin Condon (Virtual)

Pacific Northwest National Laboratory

Introduction to SIERRA, Source Term and ATD Modules

The Software Integration for Environmental Radiological Release Assessment (SIERRA) is framework that was developed to incorporate some of the RAMP codes into a single tool in order to enhance user experience and improve the functionality of the codes. This session will introduce the SIERRA framework and explore the source term and atmospheric dispersion modules.

Day 3



Stewart Bland (Virtual)

Chesapeake Nuclear Services, Inc.

NRC Dose3

NRC Dose is a user-friendly graphical user interface (GUI) for the LADTAP II, GASPAR II, and XOQDOQ programs. These Fortran codes implement NRC's current requirements for As Low As Reasonably Achievable (ALARA) for radioactive effluents from nuclear power plants. NRC Dose allows the user to enter and retrieve data through a series of Windows dialog boxes. The NRC Dose GUI also allows the user to create sets of data that can be named and retrieved at a later date for review or modification.

Day 3 & 4



Jonathan Napier

Pacific Northwest National Laboratory

NRC-RADTRAN

The NRC Radioactive Material Transport (NRC-RADTRAN) computer code is used for risk and consequence analysis of radioactive material (RAM) transportation. A variety of RAM is transported annually within this country and internationally. The shipments are carried out by overland modes (mainly truck and rail), marine vessels, and aircraft. Transportation workers and persons residing near or sharing transportation links with these shipments may be exposed to radiation from RAM packages during routine transport operations; exposures may also occur as a result of accidents. Risks and consequences associated with such exposures are the focus of the NRC-RADTRAN code.

Day 3 & 4



Brian Hunt

Sandia National Laboratories



Autumn Kalinowski

Sandia National Laboratories

Turbo FRMAC

The Turbo FRMAC analysis tool performs complex calculations to quickly evaluate radiological hazards during an emergency response by assessing impacts on the public, workers, and the food supply. Turbo FRMAC calculations are based on methods established by the Federal Radiological Monitoring and Assessment Center (FRMAC). Turbo FRMAC can be used to evaluate the hazard from a wide variety of radiological incidents, such as:

- ▶ Radiological Dispersal Devices (RDDs)
- ▶ Nuclear Power Plant Emergencies
- ▶ Fuel Handling Accidents
- ▶ Transportation Accidents
- ▶ Nuclear Detonations

Speaker Biographies

Jeff Kowalczyk is an emergency response coordinator in the Office of Nuclear Security & Incident Response at the U.S. Nuclear Regulatory Commission (U.S. NRC). His expertise is in the areas of atmospheric transport, emergency response, radiological assessment, and health physics. Jeff holds a master's degree in Health/Medical Physics from Texas A&M University and is also a certified health physicist.

Caitlin Condon is an environmental health physicist at Pacific Northwest National Laboratory (PNNL). She specializes in radiation health physics, environmental impact assessment, spent fuel transportation, and decommissioning. She supports various organizations such as the U.S. Nuclear Regulatory Commission, Department of Energy, and the Department of Defense. Caitlin holds a doctoral degree in Radiation Health Physics from Oregon State University.

Stewart Bland has over thirty-five years of regulatory and operational experience with primary focus in the regulatory, technical areas of health physics, radiation safety, and emergency preparedness. He has seven years of experience with the NRC in licensing, and inspection and enforcement. Mr. Bland has a B.S. in Physics, and M.S. in Applied Nuclear Science, both from the Georgia Institute of Technology.

Jonathan Napier is an environmental health physicist at Pacific Northwest National Laboratory (PNNL). He is an expert in environmental impacts to human health, waste, spent nuclear fuel, transportation, and decommissioning, supporting the U.S. Nuclear Regulatory Commission, Department of Energy, Department of Defense, and Department of Homeland Security. Prior to his work at PNNL, Jonathan was a health physicist for the Washington State Department of Health.

Brian Hunt is a certified health physicist and has been supporting the National Nuclear Security Agency's Consequence Management Program and the Federal Monitoring and Assessment Center (FRMAC) at Sandia National Laboratories (SNL) since 2008. Brian serves as the Chair of the Interagency FRMAC Assessment Working Group, which is responsible for establishing US Federal Government policy for implementing consistent, defensible, state-of-the-art radiological assessment methods for emergency response.

Autumn Kalinowski is a member of the Consequence Management Assessment team at Sandia National Laboratories (SNL) and a team scientist for the Radiological Assistance Program. Her expertise is in the area of dosimetry, health physics, nuclear engineering, dose assessments, and radiological monitoring. Autumn holds a B.S. in nuclear engineering and a master's degree in Nuclear Engineering/ Health Physics both from Texas A&M University. Prior to her work at SNL, she was a graduate intern at Oak Ridge Associated Universities (ORAU).



Thank you for attending the 2024 SPRING USERS' GROUP MEETING

Join us in October 2024 for a joint RAMP
and MACCS User Group meeting at U.S.
NRC Headquarters

For Additional Information

Email: ramp@nrc.gov | ramp.admin@pnnl.gov

RAMP Website: ramp.nrc-gateway.gov

