
Abstracts and Biographical Sketches

Session 1 (Workshop)

REP Program and Planning Course (E/L-340) Overview & Points of Instruction

Course Description:

This course focuses on nuclear power plant off-site emergency preparedness. It addresses REP Program History, federal regulatory policies, development of plans, and public perceptions. This course provides a sound understanding of basic planning assumptions and policy issues.

Selection Criteria:

Local, state, federal, and tribal government and utility personnel involved in off-site nuclear power plant emergency response or planning (under the provisions of NUREG 0654/FEMA REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants). This course is recommended for new federal/state/local/tribal REP planners and federal/state/local/tribal emergency response managers. Utility company off-site planners also may apply.

Course Goal:

To provide the student with the basic fundamental knowledge to:

1. Understand the history and foundation of the Radiological Emergency Preparedness (REP) Program.
2. Develop, Review, and Maintain a REP Plan.
3. Use tools, templates and software to navigate a REP plan

Biographical Sketch:

Lou DeGilio is a Emergency Management Training Specialist in the Federal Emergency Management Agency (FEMA) Technological Hazards Division, Radiological Emergency Preparedness (REP) Branch. Responsibilities include assisting in the oversight of the REP Program. He Plans, and organizes the activities of the radiological emergency preparedness training program.

Prior to working with FEMA Lou was an EMS / Emergency Management Director for Carteret County North Carolina. Prior to that Lou spent 18 years in the Navy as a Corpsmen / paramedic. Lou has taught all levels of Emergency Medical Services training both nationally and at the state college level. He is still an active and certified Firefighter/Paramedic.

Overview of the Exercise Evaluation and Improvement Planning Course E/L-131

Kenneth L. Wierman Jr. (Kenneth.wierman@dhs.gov) FEMA Headquarters Training Specialist

Abstract:

For an emergency management system to be effective, it is critical that personnel, plans, procedures, facilities and equipment be exercised and tested on a regular basis. Still, no amount of exercising will be constructive unless each exercise is followed by a structured evaluation that enables the jurisdiction to identify successes and/or corrective actions that need to be taken to ensure improved capabilities.

A systematic emergency response exercise evaluation and improvement planning program is the primary means by which Federal, State and local emergency managers can:

Validate the effectiveness of their emergency management programs;

Determine whether program changes are being appropriately implemented.

Evaluate preparedness capabilities to respond to and recover from multi-hazard emergencies of all sizes;

Identify corrective actions that require additional emphasis or improvement (such as planning, training equipment, facilities, or personnel); and

Generate data on emergency management exercises that can support a nationwide view of capabilities.

In light of these goals, the purpose of this course is to support individuals with substantial involvement in the exercise evaluation and improvement planning function within their jurisdiction. Specifically, this course is recommended for individuals with responsibilities in State/local exercise programs, including emergency program managers, exercise training officers, and emergency services officials in the public and private sectors.

The course content is designed to provide an understanding of the need for improvement planning and familiarity with available methodologies for exercise evaluation (including REP).

All course content conforms to the capabilities-based exercise evaluation methodology outlined in the Department of Homeland Security (DHS) Homeland Security Exercise and Evaluation Program (HSEEP Guidance).

Biographical Sketches:

Kenneth Wierman is a Training Specialist in the Federal Emergency Management Agency (FEMA) National Preparedness Directorate, Technological Hazards Division, Radiological Emergency Preparedness (REP) Branch. Responsibilities include assisting in the oversight and management of the REP Program and providing technical assistance to FEMA Regions, States, Tribal governments and local jurisdictions. Support States in developing response plans and attaining readiness to respond to radiological incidents. Provides technical and general support to FEMA Regional Field Offices in developing and evaluating emergency response plans and procedures for REP.

Ms. Helen Wilgus is the Senior Technological Hazards Program Specialist for the REP Program in FEMA Region IV in Atlanta, GA.

MS. Wilgus has been in the REP Program since 1994, having joined FEMA in February 1992. As a Senior Technological Hazards Program Specialist she participated in the origination of the writing of the current exercise evaluation criteria in 1995; participated in the Comprehensive Reviews conducted at Nuclear Power Plants in 2007-2008 as a result of HSPD-7 and is currently participating on the National HSEEP Integration Workgroup helping to design the merge of the REP Program and the HSEEP methodology. In addition she mentors new employees in her branch section. Education: Columbia College

Session 2 (Workshop)

A WORKSHOP ON INDEPENDENTLY DEVELOPING FIELD DATA AND GIS MAPS IN SUPPORT OF SUCCESSFULLY DESIGNING AND COMPLETING AN EVALUATED INGESTION PHASE EXERCISE

Dr. Perry J. Manor, Ms. Lisa Olson-McDonald, Mr. Daniel G. Stefenel
(608) 267-4794 (608) 242-3240 (608) 266-0468
perry.manor@wi.gov lisa.olsonmcdonald@wi.gov dan.stefenel@wi.gov

Abstract:

The successful development and implementation of an evaluated ingestion phase exercise (IPX) is significantly improved by the availability and appropriate use of timely injected field data and GIS map resources which effectively drive exercise play. However the efficiency and effectiveness of this IPX development and implementation process is hindered by the lack of clear pre-exercise guidance and resources on IPX design detail, defined data and mapping needs, and performance expectations. This contributes to uncertain pre-exercise approval outcomes and unanticipated evaluation results.

This workshop will focus on the unique data and mapping issues the IPX planner faces and will suggest methods and tools available to allow the IPX planner to independently address these challenges. Topics addressed will include but are not limited to: plume phase to ingestion phase transition time frame choices and their implications; impact of source term values and isotopic ratios; timing and implementation of the 3Rs – with an emphasis on relocation demonstration expectations and its impact on plans and procedures; exercise sequencing of ongoing data needs and data generation within a GIS mapping environment; player confusion between plume map images and deposition map images, as well as confusion over data projection values and data field values; the implications of early IPX data and map information on the development of the required ingestion sampling plan; and the impact of timely availability or non-availability of the federal response.

Consideration is also given to the fact that additional pre-exercise assets outside the planner's agency may not be available, may be limited or not available in a timely manner to assist with the IPX design and development process, thus requiring the planner to independently identify and generate the necessary data and GIS map resources needed to successfully support IPX play. Data generation and mapping tools will be demonstrated, and their use and benefits explained, including non-traditional use of available programs (such as RASCAL and ArcGIS), as well as in-house custom developed processes which are still in improvement development stages.

Biographical Sketches:

Dr. Perry J. Manor is a REP Emergency Planner for the Radiation Protection Section within the State of Wisconsin Department of Health Services in Madison, Wisconsin. He began his career with the State of Wisconsin in 1972 working more than 10 years as the Dept. of Natural Resources hazardous materials spill response coordinator, 8 years managing the federally funded civil defense instrument program in the state's emergency government office, and 13 years in the Dept. of Health's asbestos and lead(Pb) licensure program, before moving to his current position in 2004. Dr. Manor has a B.S. Degree in Chemistry/Math from the University of Wisconsin – River Falls, and a PhD. Degree in Physical Chemistry from Michigan State University, East Lansing, Michigan.

Ms. Lisa Olson-McDonald has worked for Wisconsin Emergency Management since 2004. For the past three and a half years, she has worked as a Radiological Emergency Preparedness planner. Prior to her employment at Wisconsin Emergency Management, she worked as a GIS Specialist for 10 years at the State of Wisconsin's Office of Land Information Services. She holds a Bachelor of Science degree in Geography and Mass Communications from the University of Wisconsin-La Crosse.

Mr. Dan Stefenel is an emergency planner and Training Coordinator for the Radiation Protection Section of the State of Wisconsin Department of Health Services in Madison, Wisconsin. He has worked for the State of Wisconsin since 1992. Mr. Stefenel has nine years experience with the U.S. Navy Nuclear Power Program as an operator, supervisor, and instructor. Prior to joining the State of Wisconsin, Mr. Stefenel was a Nuclear Training Engineer with Westinghouse's Nuclear Services Division, and an operations training contractor to several Midwest commercial nuclear generating plants. Mr. Stefenel holds a Bachelors degree in Geology from the University of the State of New York and a Masters degree in Biology from Concordia University Wisconsin.

Important Note:

The proposed Wisconsin Ingestion Phase Exercise Workshop referenced below is designed to be a complement to the Minnesota presentation on the same subject and is not in any way a duplicative presentation. These two workshops taken together provide a complete resource of the IPX pre-exercise and exercise processes. Any conference scheduling of these two presentations should not be in conflict with one another as interested conference attendees will most benefit from being able to participate in both presentations.

Session 3 (Workshop)

Evidence-based Public Emergency Messaging

Dennis S. Mileti, Ph.D. dennis.mileti@colorado.edu Cell: 303-520-3400

Abstract:

This workshop is divided into two parts. First, a lecture will be delivered that will synthesize the findings from some 350 social and behavioral science research publications on the factors that influence public protective action-taking in response to warnings. Participants will learn about the key role played by warning message content in directing public behavior in response to warnings, be provided with a short list of public warning message factors that research clearly concludes are needed in a public warning to maximize timely and effective public protective action-taking, and will be provided with a template for writing public warning messages based on the accumulated research evidence. Second, workshop participants will then be trained in message writing based on the evidence presented. Attendees will organize into small work groups and have the opportunity to write public warning messages based on the material presented in the lecture. These messages will be read and feedback will be provided regarding what those messages will mean to people who hear them and how the public would likely respond.

Biographical Sketch:

Dennis S. Mileti is Professor Emeritus at the University of Colorado at Boulder where he served as Chair of the Department of Sociology and as Director of the Natural Hazards Center—the U.S.'s national clearinghouse for social and behavioral science research on hazards and disasters. He is author of over 100 publications. Most of these are on the societal aspects of hazards and disasters. His book, *Disasters by Design*, summarized and assessed knowledge in all disciplines and U.S. national policy for hazards and disasters. And for many years, Dennis was the most cited author in America on the topic of hazards and disasters.

He has served on a variety of advisory boards including as Chair of the Committee on Disasters in the National Research Council of the National Academy of Sciences, Chair of the Board of Visitors to FEMA's Emergency Management Institute, as a member of the Board of Directors of the Earthquake Engineering Research Institute, on the Expert Advisory Panel for the National Institute of Standards and Technology's study of evacuation of the World Trade Center towers on 9/11, and more.

Dr. Mileti has also held several political appointments including as a Commissioner on the California Seismic Safety Commission. And he has a long history of working as a consultant in both the private and public sectors in matters related to public risk communication including, for example, many utilities that operate nuclear power plants, the U.S Environmental Protection Agency, and others.

Dennis is currently a member of the START Center at the University of Maryland which is a Department of Homeland Security National Center of Excellence for research on terrorism, the National Research Council's Committee to Evaluate the U.S.'s National Tsunami Warning Program, and as a member of the Advisory Board of the Southern California Earthquake Center.

Session 6

FEDERAL UPDATE
U. S. NUCLEAR REGULATORY COMMISSION
STATUS OF NRC EMERGENCY PREPAREDNESS REGULATORY INITIATIVES
Bill Dean, USNRC (Bill.Dean@nrc.gov, 301-415-0174)

Abstract:

The NRC is currently involved in a comprehensive Emergency Preparedness (EP) rulemaking effort. In May 2009, the NRC, in coordination with the Federal Emergency Management Agency (FEMA), issued proposed EP regulations and draft guidance for public comment. This session will include a broad discussion on the current status of the proposed EP rulemaking and future NRC EP regulatory initiatives being considered.

Biographical Sketch:

Bill Dean serves as the Deputy Director of NRC's Office of Nuclear Security and Incident Response (NSIR). Before his appointment as the Deputy Director of NSIR, Mr. Dean served as the Assistant for Operations in the Office of the Executive Director for Operations (OEDO) and Deputy Director of the Division of Engineering and Deputy Director of the Division of Inspection Program Management in the Office of Nuclear Reactor Regulation (NRR). Since joining the NRC in 1985, as an Operator Licensing Examiner in Region II, he has held many positions of increasing greater responsibility. These include both staff and management positions in NRR and the OEDO. Before joining the NRC, he served on active duty in the United States Navy as a nuclear-qualified surface warfare officer for 8 years. He received a B.A. in Applied Physics and Information Sciences from the University of California, San Diego, and a M.B.A. from National University.

FEDERAL UPDATE
U. S. ENVIRONMENTAL PROTECTION AGENCY
Ronald G. Fraass, USEPA/OAR/ORIA/NAREL
334-270-3401 fraass.ron@epa.gov

Abstract:

EPA radiological emergency response assets are spread across four Special Teams and include two national radiation laboratories, mobile radiation laboratories, and a national monitoring system with 117 upgraded air monitoring systems across the country. This brief update will primarily address the Radiological Emergency Response Team, its recently upgraded assets, and planned/recent exercise participation.

Biographical Sketch:

Ronald Fraass is currently the Director of EPA's National Air and Radiation Environmental Laboratory in Montgomery, Alabama. He came to that position five years ago after serving as the Executive Director of the Conference of Radiation Control Program Directors. Ron spent ten years with the Kansas Radiation Control Program and twenty years in the Air Force. He has been involved with radiation emergency response for more than twenty years. He has a Master of Science Degree with a specialization in nuclear weapon effects.

Session 7

The Emerging Role of Social Media in Managing Incidents at Nuclear Power Plants

Dennis S. Mileti, Ph.D. dennis.mileti@colorado.edu Cell: 303-520-3400

Abstract:

The state of knowledge in the social and behavioral sciences regarding warning system design and public messaging is presented as the context for exploring the emerging role of social media in designing public warning systems and public warning messaging for incidents at nuclear power plants. Key presentation points include: (a) how a social media model can be used to develop and grow highly reliable official public warning systems, (b) the use of social media to monitor public response to inform revised messages to better manage public protective action-taking, (c) how social media help to accelerate public alerting and direct people to more complete official warning messages, (d) how social media could be used to influence the key factors that determine public warning response behavior to better motivate public protective action-taking than may have ever existed previously, and (e) correcting emerging myths about social media and public warnings.

Biographical Sketch:

Dennis S. Mileti is Professor Emeritus at the University of Colorado at Boulder where he served as Chair of the Department of Sociology and as Director of the Natural Hazards Center—the U.S.'s national clearinghouse for social and behavioral science research on hazards and disasters. He is author of over 100 publications. Most of these are on the societal aspects of hazards and disasters. His book, *Disasters by Design*, summarized and assessed knowledge in all disciplines and U.S. national policy for hazards and disasters. And for many years, Dennis was the most cited author in America on the topic of hazards and disasters.

He has served on a variety of advisory boards including as Chair of the Committee on Disasters in the National Research Council of the National Academy of Sciences, Chair of the Board of Visitors to FEMA's Emergency Management Institute, as a member of the Board of Directors of the Earthquake Engineering Research Institute, on the Expert Advisory Panel for the National Institute of Standards and Technology's study of evacuation of the World Trade Center towers on 9/11, and more.

Dr. Mileti has also held several political appointments including as a Commissioner on the California Seismic Safety Commission. And he has a long history of working as a consultant in both the private and public sectors in matters related to public risk communication including, for example, many utilities that operate nuclear power plants, the U.S Environmental Protection Agency, and others.

Dennis is currently a member of the START Center at the University of Maryland which is a Department of Homeland Security National Center of Excellence for research on terrorism, the National Research Council's Committee to Evaluate the U.S.'s National Tsunami Warning Program, and as a member of the Advisory Board of the Southern California Earthquake Center.

Session 8

EMERGENCY RESPONSE IN THREE ACTS – EMPIRE 09

(Lessons Learned Planning and Executing an RDD Exercise in an Urban Setting)

Colleen O’Laughlin (DOE) (OLaughlin@nv.doe.gov) (702) 630-0203

Ken Bergmann (NYSEMO) (ken.bergmann@semo.ny.us)

Eric Daly (EPA) daly.eric@epa.gov

Adela Salame-Alfie, Ph.D. (NYSDOH) (asa01@health.state.ny.us) (518) 402-7750

Bill Irwin (VT) (wirwin@vdh.state.ny.us) (802) 316-0119

Gordon Cleveland (USDA) (Gordon.s.cleveland@aphis.usda.gov) (240) 508-9999

Abstract:

Empire 2009 (EMP-09) was a Department of Energy (DOE) sponsored Full-Scale Exercise (FSE) hosted by the state of New York in June 2009. The exercise was designed to evaluate the technical response and effective management of a domestic Radiological Dispersion Device (RDD) incident in a high-density urban environment. This included assessing the roles of all participants as outlined in the Nuclear/Radiological Incident Annex (NRIA) to the National Response Framework (NRF), and DOE's leadership role in managing the Federal Radiological Monitoring and Assessment Center (FRMAC) during an RDD incident. While previous exercises have focused on the immediate site response to an RDD incident, EMP-09 exercise goals were intended to address in detail the processes of Consequence Management (CM).

Biographical Sketches:

Colleen O’Laughlin has been the CM/FRMAC Program Manager for the past 11 years. During this time, the CM program’s mission has evolved and expanded. Ms. O’Laughlin has been instrumental in the planning of many CM/FRMAC and national-level exercises and has participated in them at all levels, including: Table Top (TTX), Ingestion Pathway (IPX), and Full Scale Exercises (FSE). The most recent national-level exercise was EMPIRE-09 (a FRMAC Full-Scale Exercise) for which she was the lead planner. Ms. O’Laughlin’s duties as CM/FRMAC Program Manager also include working with federal, state and local agencies to assure an integrated response. She is part of the on-call team and deploys with the CM Response Team Phase 1 in support of a FRMAC. Ms. O’Laughlin also co-chairs both the FRMAC Operations and FRMAC Mission Analysis work groups and is a member of all the FRMAC work groups (CM Home Team, Health & Safety, Monitoring & Sampling, Laboratory Analysis and Assessment). She also provides support to other NA-42 DOE/NNSA Office of Emergency Response mission programs such as Crisis Response.

Ken Bergmann is an Associate REP Planner with the New York State Emergency Management Office. Employed by SEMO since 1981, Mr. Bergmann is responsible for maintaining the State REP Plan and providing emergency preparedness planning and training assistance to state and local responders. As the State REP Liaison during over 75 REP exercises and events, he has provided guidance and advice to County and State decision makers. Mr. Bergmann has served as Planning Section Chief in numerous emergency activations including the World Trade Center Event, annual flooding and natural disaster responses and in the recent Empire ’09 Tier II exercise. Ken has also responded to the National Response Coordination Center (NRCC) in the role of EMAC, (Emergency Management Assistance Compact) coordinator.

Adela Salame-Alfie, Ph.D. is the Assistant Director of the Division of Environmental Health Investigation at the New York State Department of Health. She is the Chair of the Conference of Radiation Control Program Directors (CRCPD) and a member of the National Council on Radiation Protection and Measurements (NCRP). Dr. Salame-Alfie chaired the committee that produced the “Handbook for Responding to a Radiological Dispersal Device – First Responders Guide” and companion pocket card. Dr. Salame-Alfie was a lead planner for the Empire09 Full scale exercise that took place in Albany, NY during May and June 2009.

William E. Irwin, Sc.D., CHP is Radiological Health Chief and Deputy Director for Planning for the Vermont Department of Health Office of Public Health Preparedness. Prior to coming to Vermont, he was a health physicist at Harvard University and the Massachusetts Institute of Technology. His degrees from the University of Massachusetts Lowell are in radiological physics and environmental engineering, and he is a certified health physicist.

Gordon Cleveland is the Radiological Program Analyst for the USDA APHIS National Center for Animal Health Emergency Management. He has been a member of the Advisory Team for Environment Food and Health for the past five years, and was Advisory Team Chairman for the first phase of the Empire 2009 Exercise.

Eric M. Daly is an On-Scene Coordinator with the United State Environmental Protection Agency (USEPA). In the past, he has worked as a Laboratory Supervisor, Wastewater Treatment Plant Supervisor, Oil Spill Contractor, and as a Firefighter. Currently, Mr. Daly performs the duties of an Emergency Responder, Enforcement Agent, and Inspector for the USEPA Response and Prevention Branch in Edison, NJ. Mr. Daly has earned a Bachelor's Degree in Honors Biology and a Masters Degree in Environmental Science. Since 2002, Eric has attended specialized training courses in radiological response, participated/planned radiological exercises, gained college credits in health physics courses, and has responded to various radiological incidents. Eric is currently overseeing a radiological response/removal in Puerto Rico while working with the Nuclear Regulatory Commission, USEPA RERT Commanders, the Puerto Rico Environmental Quality Board, and the Puerto Rico Health Department.

Session 9

TMT Handbook: Responding to a crisis resulting from the malevolent use of ionizing radiation

Carlos Rojas-Palma¹, Klaas van der Meer¹, Astrid Liland², Ane Jerstad²,
Alicja Jaworska², Karen Smith³
Tua Rahola⁴, Maarit Muikku⁴, George Etherington⁵, Maria del Rosario Pérez⁶,
Zhanat Carr⁶

¹*Belgian Nuclear Research Centre (SCK•CEN)*

²*Norwegian Radiation Protection Authority (NRPA)*

³*Enviros Consulting, United Kingdom*

⁴*Radiation and Nuclear Safety Authority (STUK), Finland*

⁵*Health Protection Agency, United Kingdom*

⁶*World Health Organization*

Abstract:

In the aftermath of the Chernobyl accident European national emergency response plans have been tailored to deal with accidents at nuclear power plants. Several terrorist acts (World Trade Center, New York; Atocha train station, Madrid; suicide bombings, London bombings) carried out by disaffected groups have shifted the focus to being prepared also for malevolent use of radiation. The radiation exposure can range from very low to substantial, possibly combined with conventional injuries. Therefore practicable tools are needed for an adequate response to such acts and more specifically to address European guidelines covering triage to treatment and long term follow up of exposed people.

The European Commission through the Euratom 6th Framework Program co-sponsored the specific targeted research project TMT handbook. The main objective of this project was to produce a practicable handbook for the effective and timely triage, monitoring and treatment of people exposed to ionizing radiation following a malevolent act.

This paper elaborates on the work carried out and outlines the progress achieved prior to the deployment of the handbook in European national emergency response organizations, and further dissemination is in progress through the International Atomic Energy Agency and the World Health Organization.

This paper also elaborates on the challenges that need to be dealt with in order to secure a sustainable development of what has been achieved through the lifetime of this project.

Biographical Sketches:

Carlos Rojas-Palma, Ph.D. is currently the project leader of R&D activities in the area of nuclear emergency response in the Environment, Health and Safety Institute of the Belgian Nuclear Research Center. Dr Rojas-Palma has many years of experience coordinating European Commission funded projects and recently he delivered the specific targeted research project under the 6th Framework Program: TMT Handbook, that provides guidelines for the triage, monitoring and treatment of the public exposed to the malevolent use of ionizing radiation.

Klaas van der Meer, is a specialist in issues regarding the non-proliferation of nuclear weapons, both the technical and some of the more political aspects. He has investigated systems to prevent the malevolent use of radioactive sources and participated in investigating the consequences of a radiological dispersion device. He has been very active on the development of scenarios for the TMT Handbook project.

Astrid Liland works at the Norwegian Radiation Protection Authority (NRPA). NRPA is the competent authority in Norway regarding nuclear and radiological emergency preparedness and response. Astrid is head of the Section for Health and Environmental Assessments. She is leading a group of 14 dedicated scientists doing research in radiation protection, emergency preparedness and response, and protection of the environment from ionising radiation. Astrid Liland has participated in numerous research projects over the last 10 years, both national and international ones.

Ane Jerstad is working as an adviser at the section for emergency preparedness at the Norwegian Radiation Protection Authority. She has a master of science in environmental physics and has been working with radon, health effects and emergency preparedness. In the development of TMT Handbook she had a coordinating role regarding the technical editing of the book.

* Presenting author, E-mail: carlos.rojas.palma@sckcen.be

Alicja Jaworska is a research scientist at the Emergency Preparedness section of Norwegian Radiation Protection Authority. She is involved in the work on medical and biological aspects of radiation emergency preparedness, with the responsibility to advise Norwegian Health Service in radiation emergency.

Karen Smith has a BSc Hons in Aquatic Bioscience and a PhD in Aquatic Ecotoxicology and is trained in, and has undertaken commercial ecotoxicological assessments of industrial waste effluent. Karen has 13 years experience in environmental research and consultancy support, primarily to the nuclear sector. Karen has extensive technical secretariat experience, including managing and facilitating the work of multi-organisation projects, for example international working groups assessing radiological impact of waste disposal (BIOPROTA) and terrorist use of radioactive materials.

Tua Rahola, has more than 30 years of experience in radiation protection and 20 years in emergency planning and training. She has also long experience of food chain studies both after the atmospheric nuclear bomb tests and after the Chernobyl accident. She was in charge of the Radiation Hygiene Laboratory at STUK using *in vivo*, *in vitro* and other indirect techniques for assessment of internal doses both for radiation workers and members of the public. She has participated in many international, European and Nordic research projects.

Maarit Muikku, PhD is the head of Environmental research laboratory at the STUK - Radiation and Nuclear Safety Authority in Finland. She has eight years experience in *in vivo* measurements ('whole body monitoring'), internal dose assessment, development of methods for monitoring people, radiation protection and emergency preparedness.

George Etherington BSc, MSc, PhD is Group Leader of the Intakes of Radionuclides Group in the Radiation Protection Division (RPD) at the United Kingdom Health Protection Agency (HPA). Since joining the HPA (formerly the National Radiological Protection Board) in 1986, his work has involved radionuclide biokinetic studies, *in vivo* measurements ('whole body monitoring'), internal dose assessment, and development of plans and methods for monitoring people following accidental and deliberate releases of radioactivity to the environment.

María del Rosario Pérez is a scientist of the Department of Public Health and Environment of the World Health Organization (WHO). Medical doctor specialized in radiation oncology, she obtained a diploma in Radiation Protection and Nuclear Safety. Her professional activity include radiation protection and human health. She contributed to the implementation of programs of education and training in Latin America, where she promoted regional cooperation on medical and public health response in radiation emergencies. She is currently responsible for the technical coordination of the WHO Global Initiative on Radiation Safety in Health Care Settings.

Dr Zhanat Carr is a primary responsible officer for WHO's activities in the field of public health preparedness and response to radiation emergencies. A radiation oncologist by training, Dr Carr has more than 20 years of experience in the field of radiation and health, including further studies leading to MSc and PhD degrees in radiation biology, post-doctoral training at the NCI/NIH in radiation epidemiology, and hands-on experience in radiation protection and international public health. During last 5 years, Dr Carr is being in charge of the WHO's global program on radiation emergency preparedness and response. She coordinates WHO network of specialized centers - REMPAN (Radiation Emergency Medical Preparedness and Assistance Network).

Session 10

Nuclear Energy Institute (NEI) Update

Susan Perkins-Grew (spg@nei.org), 202-739-8016
1776 I Street, N.W., Washington, DC, 20006-3708

Abstract:

The Nuclear Energy Institute is the industry's policy organization. Its vision: that nuclear energy is recognized as an indispensable part of America's energy security, environmental stewardship and economic development in the 21st century. Recognition of nuclear energy as a viable and strategic source in our energy portfolio requires the public's continued confidence in the technology and its safety. The commercial nuclear industry's emergency preparedness programs are an important cornerstone in the foundation of public confidence. Even though the regulatory basis from which these emergency plans were designed remains valid in the post 9/11 environment, our nation's perspective on emergency preparedness continues to evolve. Susan will review the industry's response to the most sweeping proposed regulatory changes the industry has seen since Three Mile Island, initiatives that demonstrate industry's commitment to continuous improvement of emergency preparedness programs, and efforts to better integrate industry response programs into the federal response framework.

Biographical Sketch:

Ms Susan Perkins-Grew is the Director of Emergency Preparedness in the Nuclear Generation Division of the Nuclear Energy Institute (NEI), located in Washington, DC. NEI is the organization of the commercial nuclear power industry that is responsible for coordinating the combined efforts of nuclear utilities and other nuclear industry organizations in all matters involving generic operational and technical regulatory issues. NEI develops policy on key legislative and regulatory issues affecting the industry. NEI serves as a unified industry voice before the U.S. Congress, Executive Branch agencies, and federal regulators, as well as international organizations and venues. As director, Ms. Perkins-Grew is responsible for all issues relating to emergency planning and preparedness. Ms. Perkins-Grew has more than 26 years experience in nuclear emergency preparedness.

Session 11

U.S. Department of Energy Preparation for Shipping of Transuranic Radioactive Waste Cross Country- The Waste Isolation Pilot Plant

O. W. Eaton (orlynn.eaton@wipp.ws 1-575-234-8105), Carlsbad, New Mexico

Abstract:

Since the mid 1940's the United States has been engaged in the research, development and construction of nuclear weapons. This process has created millions of cubic feet of radioactive waste that must now be responsibly disposed of. Such was the intent of Congress when in 1978 they passed a Public Law directing the present day Department of Energy to site, construct and operate the world's first permanent repository for the disposal of transuranic radioactive waste. The Waste Isolation Pilot Plant is a U.S. Department of Energy facility designed to safely isolate defense-related transuranic waste from people and the environment. WIPP, which began waste disposal operations in 1999, is located 26 miles southeast of Carlsbad, N.M. The process of disposing of this defense generated waste is three fold. First the waste must be identified, classified, and validated for disposal in compliance with federal and state law and regulation. Lastly it must be placed in permanent storage deep in the earth in compliance with U.S. environmental law. In-between these two activities are where this presentation and your interest lay--- transportation through 24 states and 12 tribal lands of 6.2 million cubic feet of radioactive waste. Since 1988 Cooperative Agreements of been entered into with regional state organizations, and consequently with the member states, and with the Tribal governments to ensure that the emergency preparedness concerns related to this transportation effort are addressed and resolved. This includes training of first responders, medical professionals, emergency planners and the equipping of the emergency responders. Consultation with the State and Tribal governments on issues of routing, accident protocols, safe parking and public outreach had to be resolved.

Biographical Sketch:

O.W. "Lynn" Eaton is currently the Manager of External Emergency Management at the Waste Isolation Pilot Plant. Mr. Eaton has over 42 years of emergency service having been a policeman, a nationally registered Emergency Medical Technician-Intermediate, a State Deputy Medical Investigator, Assistant Fire Chief and safety department manager. He has been directly involved in radiological emergency response and training for the past 34 years.

Session 12

PRACTICAL CONSIDERATIONS FOR SETTING UP A COMMUNITY RECEPTION CENTER (CRC)

Adela Salame-Alfie, Ph.D., New York State Department of Health

(Asa01@health.state.ny.us, 518-402-7501)

Armin Ansari, Ph.D., CHP, Radiation Studies Branch, Centers for Disease Control and Prevention

(asa4@CDC.GOV, 404-498.1837)

Abstract:

In the event of a radiological emergency, affected communities will need to set-up facilities to conduct population monitoring to screen, decontaminate and possibly collect bioassay samples and start a registry of affected members of the public. These facilities will need to be set-up within a few hours after the event has taken place. Setting up and operating these facilities, known as Community Reception Centers (CRCs), will require great coordination between the radiation control staff, local agencies including public health and emergency response, and members from volunteer organizations such as the Red Cross and the Medical Reserve Core. Many critical components should be put in place in the first few hours after the incident, before the arrival of federal assets that might be used to assist in the monitoring efforts. However, the challenges of population monitoring especially in the first few hours and days after a radiation incident tend to be overlooked in emergency response planning for radiological or nuclear terrorism incidents.

Topics to be presented in this workshop include: practical considerations for operating a community reception center; use of available software for optimizing CRC design; building partnerships with local health departments and emergency response agencies, and practical considerations for monitoring of pets. Additionally, this presentation will showcase a modular approach that can be customized depending on the type of event and the resources available. The presentation will also include a sample form that can be used to collect initial data for victim follow-up.

Examples from two recent exercises will be discussed, Empire 09 in New York, and a population monitoring exercise in Metro Atlanta, including available tools, best practices and lessons learned.

Biographical sketches:

Armin Ansari, Ph.D., CHP, is a health physicist at the Centers for Disease Control and Prevention. His primary role is to support the agency's radiological emergency preparedness and response capabilities. Armin received both his undergraduate and graduate degrees in radiation biophysics from the University of Kansas, starting his career as a radiation biologist, and did his postdoctoral research at Oak Ridge and Los Alamos National Laboratories. Prior to joining CDC, he was a senior scientist with the radiological consulting firm of Auxier & Associates in Knoxville, Tennessee. Dr. Ansari led the effort to develop the CDC guidance on population monitoring for local and state public health planners. He also authored the textbook, *Radiation Threats and Your Safety, a Guide to Preparation and Response for Professionals and Community*. He is an active member of his local Medical Reserve Corps and Community Emergency Response Team.

Adela Salame-Alfie, Ph.D., is the Assistant Director of the Division of Environmental Health Investigation at the New York State Department of Health. She is the Chair of the Conference of Radiation Control Program Directors (CRCPD) and a member of the National Council on Radiation Protection and Measurements (NCRP). Dr. Salame-Alfie chaired the committee that produced the "Handbook for Responding to a Radiological Dispersal Device – First Responders Guide" and companion pocket card. Dr. Salame-Alfie was a lead planner for the Empire09 Full scale exercise that took place in Albany, NY during May and June 2009.

Session 13

Federal Emergency Management Agency and Radiological Emergency Preparedness Program Process & Overview of the REP Program Manual

Patricia Gardner Patricia.Gardner@dhs.gov. 202-212-2314

Abstract:

Last summer the Federal Emergency Management Agency (FEMA) accepted comments on the proposed Supplement 4 (Supplement 4) to “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” NUREG–0654/FEMA–REP–1/Rev. 1 (NUREG–0654), and the proposed Radiological Emergency Preparedness Program Manual (the REPP Manual). NUREG–0654 is a joint document issued by the Nuclear Regulatory Commission (NRC) and FEMA that contains the Evaluation Criteria against which FEMA and the NRC measure the emergency preparedness plans of Nuclear Power Plant owners and operators and the State, local, and Tribal jurisdictions in which they sit. The REPP Manual provides additional implementation guidance for State, local, and Tribal jurisdictions.

Supplement 4 revises and provides additional offsite requirements for emergency preparedness programs at the Nation’s nuclear power plants, as well as requirements for backup means for alert and notification, and coordination between licensees and offsite responders. The REPP Manual consolidates all of the FEMA Radiological Emergency Preparedness Program’s many operative guidance and policy documents into one location, and provides additional guidance on the proposed changes in Supplement 4.

This session will present the process that was used to adjudicate all public comments, the subject matter of key issues identified and the remaining steps that need to be taken in order to produce a final document.

Biographical Sketch:

Ms Patricia Gardner is an Emergency Management Specialist in FEMA's Radiological Emergency Preparedness (REP) Branch. In this capacity, she serves as the FEMA Region V Project Officer, Instructor, New Reactor Licensing Team Member, and the REP Program Manual Revision team lead. She has attended several exercises across the country as an evaluator including the HSEEP pilot exercise at SONGS in September. Ms. Gardner began her career in FEMA in March 2007 as a program specialist in the Mobile Emergency Response Systems at FEMA HQ. Prior to her FEMA employment, Patti graduated from American Military University with a BA in Emergency/Disaster Management and is currently pursuing a master’s degree in Environmental Policy and Management. Patti spent eight years in the U.S. Air Force Security Forces as a weapons trainer, emergency dispatcher, and responder to Hurricanes Ivan, Dennis, and Katrina all effecting Eglin Air Force Base, where she was stationed. Before entering the military, Patti was a professional Firefighter/EMT in southern New Jersey, her hometown. She is married to her wonderful husband of 2 years and they are expecting their first child in September.

Session 14

THE EVOLUTION OF FRMAC: FOCUSING ON THE FUTURE

Colleen O'Laughlin (DOE) (OLaughlin@nv.doe.gov) (702) 630-0203
Dr. John Nasstrom (DOE/NARAC) (jnasstrom@llnl.gov) (925) 423-6738
Robert Augdahl (DOE/RSL) (augdahrt@nv.doe.gov) (702) 630-0761
Thomas Laiche (DOE/SNL) (tlaich@sandia.gov) (505) 845-3066

Abstract:

FRMAC was born out of circumstances 25 years ago when 17 federal agencies descended on the states with good intention during the Three-Mile Island nuclear power plant incident. At that time it quickly became evident that a better way was needed to support state and local governments in their time of emergency and recovery process. FRMAC's single voice of Federal support coordinates the multiple agencies that respond to a radiological event. Over the years, FRMAC has exercised, evaluated, and honed its ability to quickly respond to the needs of our communities. As the times have changed, FRMAC has expanded its focus from nuclear power plant incidents, to threats of a terrorist radiological dispersal device (RDD), to the unthinkable—an Improvised nuclear device (IND). And just as having the right tools are part of any trade, FRMAC's tool set has and is evolving to meet contemporary challenges—not just to improve the time it takes to collect data and assess the situation, but to provide a quality and comprehensive product that supports a stressed decision maker, responsible for the protection of the public. Innovations in the movement of data and information have changed our everyday lives. So too, FRMAC is capitalizing on industry innovations to improve the flow of information: from the early predictive models, to streamlining the process of getting data out of the field; to improving the time it takes to get assessed products in to the hands of the decision makers. FRMAC is focusing on the future through the digital age of electronic data processing. Public protective action and dose avoidance is the challenge.

Biographical Sketches:

Colleen O'Laughlin has been the CM/FRMAC Program Manager for the past 11 years. During this time, the CM program's mission has evolved and expanded. Ms. O'Laughlin has been instrumental in the planning of many CM/FRMAC and national-level exercises and has participated in them at all levels, including: Table Top (TTX), Ingestion Pathway (IPX), and Full Scale Exercises (FSE). The most recent national-level exercise was EMPIRE-09 (a FRMAC Full-Scale Exercise) for which she was the lead planner. Ms. O'Laughlin's duties as CM/FRMAC Program Manager also include working with federal, state and local agencies to assure an integrated response. She is part of the on-call team and deploys with the CM Response Team Phase 1 in support of a FRMAC. Ms. O'Laughlin also co-chairs both the FRMAC Operations and FRMAC Mission Analysis work groups and is a member of all the FRMAC work groups (CM Home Team, Health & Safety, Monitoring & Sampling, Laboratory Analysis and Assessment). She also provides support to other NA-42 DOE/NNSA Office of Emergency Response mission programs such as Crisis Response.

Dr. John S. Nasstrom is a Deputy Associate Program Leader at Lawrence Livermore National Laboratory (LLNL) with responsibility for managing several Department of Energy projects utilizing the National Atmospheric Release Advisory Center (NARAC) at LLNL. He received his Ph.D. degree in Atmospheric Science from the University of California, Davis. He has worked at LLNL's NARAC since 1984, and made contributions to atmospheric plume modeling scientific research, and to operational emergency response systems. His areas of scientific research have included turbulence and diffusion, boundary layer meteorology and air pollution meteorology. He is actively involved in supporting DOE and interagency efforts in operational emergency response, and in the integration of new science and technology to predict and assess the impacts of airborne CBRN hazards.

Bob Augdahl has 20 years of experience in the field of operational health physics at the Nevada Test Site (NTS). Bob also serves as a Senior Operations Specialist and Field Team Supervisor for the Federal Radiological Management and Assessment Center (FRMAC) response team. Current duties entail planning and coordination of Consequence Management drills and exercises. Duties at NTS have included radiological control technician (RCT), RCT and radiological operations supervisor, radiological training coordinator and sealed source program administrator.

Thomas Laiche has 30 years of Health Physics experience. He began his career with the State of Louisiana, Nuclear Energy Division performing medical and industrial x-ray inspections and also worked in the laboratory and the emergency response program. In 1990, Tom took a job with Ecology and Environment, Inc. as a Health Physicist and worked at several radiologically-contaminated sites though out the US. For the past 15 years Tom has worked at Sandia National Laboratories. During this time, Tom has been the operational Health Physics supervisor providing support to the Technical Area 5 Research Reactor and Hot Cell facility. Tom then moved to the Radiation Protection Program where he served as the manager for five years before taking his current position with the Nuclear Incident Response Program.

Session 15

Homeland Security Exercise and Evaluation Program and Radiological Emergency Preparedness Program: A Tale of Two Methodologies

Steve Marshall Steve.marshall@azdema.gov (602) 464-6234

John Padilla padillaj001@mail.maricopa.gov (602) 273-1411

Donna Mayer Dkmayer@ocsd.org (714) 628-3028

Marieke Findley Marieke.Fendley@ema.alabama.gov

Randall (Randy) Hecht Randall.Hecht@fema.gov

Abstract:

The Department of Homeland Security (DHS) has encouraged the use of the Homeland Security Exercise and Evaluation Program (HSEEP) for those utilizing DHS Grant funding since 2004. In 2006 the grant usage language was changed to state that exercises must be HSEEP compliant if DHS funding was used. Because utilities fund REP exercises, the use of HSEEP for exercise planning was largely ignored. This however creates a conflict because the offsite response organizations (OROs) are not purely responders to the utility. They must respond to all hazards and therefore must exercise in all hazards. This may require the use of REP, HSEEP and Chemical Stockpile Exercise Program (CSEP) exercise methodologies, potentially causing confusion and training challenges.

The purpose of the HSEEP is to provide a single national exercise methodology, to be used by all and get all responders on the same page. FEMA, under DHS has adopted HSEEP and the Nuclear Regulatory Commission (NRC) is strongly encouraged to follow suit.

This session will present the experiences of three pilot exercises using the HSEEP process and lessons learned as we move forward with this process. This session will include a short presentation on what has been accomplished in FEMA RIV with the HSEEP After Action Improvement Planning (AAR) and its integration into the improvement planning process, as a result of the Browns Ferry Exercise.

Biographical Sketches:

Steve Marshall is the Radiological Emergency Preparedness Program Manager for the State of Arizona. Mr. Marshall works with state, tribal and local agencies and the licensee to develop the emergency preparedness plans to achieve reasonable assurance for the Palo Verde Nuclear Generating Station. He has been with the State of Arizona for over 4 years as an instructor and exercise planner.

John Padilla joined the Maricopa County Department of Emergency Management as an Emergency Services Planner in October 2003. His responsibilities include coordinating the Maricopa County response to any incident occurring at the Palo Verde Nuclear Generating Station. This includes the planning and execution of the Palo Verde Plume Exposure and Ingestion Pathway Exercises as well as maintenance of the combined State and County Offsite Emergency Response Plan for Palo Verde.

He is also assigned as the department's Continuity of Operations Program (COOP) planner and acts as liaison to the cities of Buckeye, Goodyear, Scottsdale, and Surprise, providing exercise planning and support as well as assisting in the updating and maintenance each city's Emergency Operations Plan.

Prior to coming to Maricopa County John served as Deputy Chief Probation Officer for the Gila County Adult Probation Department, Northern Regional Administrator for the Adult Probation Services Division of the Arizona Supreme Court and six years in law enforcement. He also has 15 years enlisted and commissioned service with the United States Army Active, National Guard and Reserve components. His last assignment was as an instructor for the Officer Advanced and Basic Courses at the U.S. Army Military Police School.

He received a Bachelor of Science Degree in Public Administration from the University of Arizona and serves as an Adjunct Instructor for the Arizona Division of Emergency Management. He holds a Master Exercise Practitioner certification from the Federal Emergency Management Agency and is currently Past-President of the Arizona Emergency Services Association.

Donna Mayer joined the Orange County Sheriff's Department (OCSD) Emergency Management Bureau as an Emergency Management Program Coordinator in January 2008. Her responsibilities include exercise planning and coordination throughout the Orange County Operational Area which includes 114 political jurisdictions. Donna is also the Homeland Security Exercise and Evaluation Program (HSEEP) trainer for Orange County and Chairs the Orange County Exercise Design Committee.

Orange County is an Offsite Response Organization responsible for the San Onofre Nuclear Generating Station Emergency Plan. Donna was assigned the responsibility to integrate HSEEP into REP as part of the FEMA Pilot Program. She successfully executed two FEMA graded Plume Phase functional exercises by incorporating the existing REP criteria into HSEEP methodology which included the ExPlan, Controller Materials, Exercise Evaluation Guide's and After Action Report.

Prior to moving into Emergency Management, Donna was an OCSD Crime Prevention Specialist providing community outreach to all of North Orange County. She thoroughly enjoyed the community outreach aspect of her position which included Emergency Management public education and in her current position she continues to provide her knowledge and expertise to the community.

She received a Bachelor of Arts Degree in Teaching Communications from California State University Long Beach and will finish her Master Exercise Practitioner (MEP) certification from the Federal Emergency Management Agency in May 2010.

Marieke Fendley has worked for the Alabama Emergency Management Agency since 2007 developing comprehensive emergency management plans and procedures for the Radiological Emergency Preparedness Program, Waste Isolation Pilot Program, Local Emergency Planning Committees, State Emergency Response Commission and the Chemical Stockpile Emergency Preparedness Program. She is certified as an Advanced Level Emergency Manager by the Alabama Association of Emergency Managers. Prior to her employment at the Alabama Emergency Management Agency, she coordinated emergency assistance for the public working as a Communication Specialist for the City of Gadsden's Police Department in Gadsden, Alabama. Mrs. Fendley received a B.S. degree in Criminal Justice with minors in psychology and sociology from Appalachian State University in Boone, N.C. and also completed an internship with the United States Coast Guard Sector in Baltimore, Maryland where she assisted in Emergency Planning and Exercise Development for the Baltimore and National Capital Regions.

Randall L Hecht Bio is the South Section Chief for FEMA Region IV's Radiological Emergency Preparedness Program working with the States of Alabama and Florida to ensuring reasonable assurance surrounding the 7 nuclear power sites of both states since 2008. The Browns Ferry and recent St Lucie nuclear power plant REP exercises using the HSEEP process. Mr. Hecht's experience in emergency response and emergency management is over 20 years, starting in mountain rescue and continues currently with FEMA Region IV. He has had experience in hazardous materials, chemical warfare preparedness, natural disaster, and public health emergencies. He has been a member of a LEPC, Regional Response Team (RRT RIV), and the National Response Team (NRT) helping to prepare Federal, State, Tribal and local governments with events involving any type of hazardous materials or other emergencies. He has been an instructor for emergency management for FEMA, GEMA, and US DOT's Transportation Safety Institute. He has attended various colleges and received his Bachelor Of Science Degree in Occupational Safety and Health Engineering from Columbia Southern University and a Masters of Science in Leadership and Disaster Response from Grand Canyon University; he is also a 2009 graduate of the Atlanta Federal Executive Board's Government Leadership Program.

Session 16

NRC RADIOLOGICAL ASSESSMENT SYSTEM for CONSEQUENCE ANALYSIS (RASCAL) Version 4.0; CONTRAST and COMPARISON with VERSION 3.0.5, IMPROVEMENTS, and FUTURE INITIATIVES

Van Ramsdell (van.ramsdell@pnl.gov) (509) 372-6316, Pacific Northwest Natl. Lab.
George Athey (atheyconsulting@frontiernet.net) (304) 725-8834, Athey Consulting
Paul Holland (paul.holland@exeloncorp.com) (610) 380-3821, Exelon Corporation
Lou Brandon (lou.brandon@nrc.gov) (301) 415-8013, Nuclear Regulatory Commission

Abstract:

RASCAL 4.0, a significant upgrade to the current 3.0.5 version of RASCAL, will soon be in final form with many improvements. This presentation will highlight the major changes to the code, compare and contrast with RASCAL v3.0.5, and discuss possible future improvements.

The most significant change is the inclusion of the RATCHET atmospheric transport and dispersion (ATD) module. Both the old (1988) and newer RATCHET (1994) ATD modules were developed by Van Ramsdell, at PNNL, from the MESORAD model. The RATCHET refinement evolved during the Hanford Dose Reconstruction Project and is based on empirical data. The RATCHET model became recognized as a very fine piece of work and has been validated by a number of national and international studies around the world. The RATCHET module within RASCAL 4.0 tends to disperse the airborne plume more than in the older ATD module, effectively reducing centerline dose projections and slightly spreading the plume width. This update is expected to more accurately predict impacts from any real accidental release. Examples will be given to illustrate the magnitude of these changes under various conditions. Details of some of the validation studies will also be shared.

Numerous other improvements have been adopted in RASCAL 4.0 and will be discussed with examples.

These include:

- Updates to the basic core and coolant inventories
- Calculation of intermediate phase doses from projected ground deposition
- Improved monitored mixtures source term option
- Display options to explore the deposition of nuclides on the ground
- Modifications to the decay scheme, including use of implicit daughters
- Improvements to the modeling of reactor release pathways, and
- Improvements to the modeling of spent fuel pool accidents

Where important, the improvements will be compared to RASCAL v3.0.5.

The RASCAL code is progressively being recognized as a 'sweet' model with a moderate level of sophistication, a fair range of assessment options, and a quite respectable ATD module. It has many features that permit assessments to be viewed and analyzed from various perspectives. Recent corporate interest from Entergy and Exelon has spearheaded an initiative to capture the RASCAL ATD module (RATCHET) into a more standardized fleet model that still reflects enough similarity that operators retain ease of use. Ideally, standardization across larger fleets should promote more consistency in results. Dose assessment analysts, being familiar, should be able to effectively respond from large distances. Paul Holland will demonstrate conceptual examples and working models to illustrate these ideas.

Biographical Sketches:

James V. Ramsdell, JR. joined Battelle as a scientist in the Atmospheric Sciences Department in 1967 and is now a Senior Technical Researcher in the Radiological Sciences and Engineering Group in Battelle's Energy and Environment Directorate.

He specializes in development of models for atypical applications. He has developed and validated models for dispersion under low wind speed conditions and for dispersion in the vicinity of buildings. He developed a set of models to evaluate potential consequences of a release of material associated with a potential collapse of the shelter covering the Chernobyl Unit 4 reactor. He developed and validated the dispersion model used Hanford Environmental Dose Reconstruction (HEDR) Project which examined the consequences of the release of 131I from the Hanford Site, and he developed the atmospheric dispersion and dose calculation models that are part

of the U.S. Nuclear Regulatory Commission's Radiological Assessment System for Consequence Analysis (RASCAL).

He has reviewed manuscripts for the editors of: *Science*, *Journal of Climate and Applied Meteorology*, *Atmospheric Environment*, *Health Physics*, *Nuclear Technology*, *Solar Energy*, and the *Journal of Energy*, and he has been on review teams for the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission, the U.S. Environmental Protection Agency, and the National Research Council. In addition, he has made presentations to National Academy of Sciences Review Panels, to the U.S. Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards, and to the U.S. Nuclear Regulatory Commission's Atomic Safety and Licensing Board.

Van received a BS degree in General Science from Oregon State University in 1961, and an MS degree in Atmospheric Sciences for Oregon State University in 1962. He is a member of the American Meteorological Society and the Health Physics Society.

George Athey has been operating his own consulting firm (Athey Consulting) for 16 years. Much of his work has been as a contractor to the NRC. He is one of the developers of the RASCAL models and has been involved since the beginning. In addition he is one of the authors of the RASCAL Workbook and has taught many RASCAL training classes. Before forming Athey Consulting, George performed contract work for NRC while employed at other firms including Battelle – Pacific Northwest Laboratory.

Paul Holland works for Exelon Nuclear Corporation as the Emergency Planning Radiological Controls Coordinator for the company's four Mid Atlantic sites. He is responsible for radiological issues relative to Emergency Planning at the sites and the company's Emergency Operations Facilities. His primary responsibilities include assisting in the development of Emergency Planning procedures and policies, development of off-site radiological drill data, performing radiological assessment training of protective measures and field team personnel and interfacing with state personnel for emergency planning radiological issues.

Mr. Holland hold degrees in Nuclear Power and Electronic Engineering. Prior to joining Exelon Corporation in 2002, Paul worked for American Electric Power for 21 years in Radiation Protection and four years in Emergency Planning at the Donald C. Cook Nuclear Plant in Michigan.

Lou Brandon currently works at the Nuclear Regulatory Commission headquarters as an Emergency Response Coordinator. He is the program manager for the RASCAL code. He coordinates and trains the Protective Measures Teams, responsible for incident assessment using the RASCAL model, and other means. He is actively involved with the FRMAC Assessment and Operations workgroups, and works closely with the IMAAC workgroup and NARAC. Before joining the NRC in 2006, Lou worked for the State of Michigan as Chief of the Nuclear Facilities Unit, within MDEQ. During this time, he became a certified health physicist and worked extensively with various assessment models including RASCAL. Lou received an MS degree in Physics from Michigan State University.

Session 18

It's Better to Detect in Advance

Robert "Lonnie" Swindell (Robert.Swindell@dhs.gov; 202-254-7117)

Abstract:

The threat of a terrorist group obtaining radioactive materials to construct a weapon of mass destruction to be used against the United States is real. As most people know, the affects of such an event happening on US soil could be catastrophic; drastically changing the way we, as American's, live forever. The aftermath would result in years even decades of recovery efforts. So the question must be asked, how can we prevent this from happening? One could argue Al-Qaida misjudged US resolve after 9/11. They did not fully anticipate the Nation's significant and sustained response. If terrorist know they will pay a high price for their actions, could they be trying to determine if there is a more efficient way to achieve their stated goals of large scale casualties, damage, panic and shock? Coupled with their clearly stated intention is concern that terrorist organizations may acquire radiological materials and develop the means to use them in an attack. The United States has developed a number of comprehensive global programs to deter or interdict the illegal transport of radioactive materials overseas. But what if those measures fail? What can we do here in the continental United States to prevent an attack versus solely focusing on responding to the consequences?

What is being done?

Federal agencies are working together to develop what is being called the Global Nuclear Detection Architecture. This Architecture is a comprehensive system of systems that addresses the threat in a layered approach by developing and deploying a set of radiation detection systems (fixed and/or mobile), concepts of operations (Conops), human resources (enforcement officials, technical experts, local and national response teams, authorities), and the supporting infrastructure (communications means, intelligence, law enforcement, security programs, and regulatory compliance). Holistically, this system intends to integrate multiple layers of defense by first indentifying and securing the source of rad/nuc materials, monitoring potential threat pathways, protecting likely targets and by providing early warning of illegal or nefarious activities involving these materials to law enforcement officials worldwide. At the program level, it integrates detection activities into routine law enforcement functions to ensure detection, interdiction, and adjudication follow an established set of procedures and protocols. For this systems-approach to be successful several key components are needed: a combination of dedicated law enforcement and emergency services professionals, effective intelligence gathering and sharing methods, smart non-intrusive detection systems, experienced subject matter experts and lastly: robust multi-agency mutual aid and cooperation agreements to take advantage of the ability to provide force multiplication when needed.

To assist with this effort, the Department of Homeland Security (DHS) created the Domestic Nuclear Detection Office (DNDO). DNDO provides support to federal, state, local and tribal agencies by providing technical assistance and policy support to help these organizations build their own detection capability. This is done primarily by integrating radiation detection assets into police and emergency service operations. Because radiation detection is secondary to most law enforcement and other first responder's primary duties of crime fighting and public safety, specialized detection equipment is being developed and fielded utilizing detection techniques tailored to their environment. This emerging mission area is commonly referred to as Preventive Radiological Nuclear Detection or PRND. The term PRND is often misunderstood and draws concern from radiation experts who question whether a non-SME can understand the nuances of properly discerning between threat and nonthreat materials. Consider for a moment that 30 years ago, metal detectors were an emerging technology for airport security and there was resistance and fear that threats would slip through the "new" systems as screeners did not fully comprehend the technology. Even today with advanced x-ray systems, explosive and metal detection technology, and effective training programs, threat objects still manage to occasionally make there way through. However, few would argue against the merits of eliminating this security measure. But, the question still remains; can law enforcement be taught basic detection concepts and decision triggers to make the proper adjudication actions?

Starting in the 1970's, the Department of Energy (DOE) was the only agency that employed dedicated teams charged with performing "prevent rad/nuke detection" operations. Since 9/11, other federal agencies have joined the mission to include: the Federal Bureau of Investigation (FBI), Customs and Border Protection (CBP) and the United States Coast Guard (USCG). Each has demonstrated proficiency utilizing radiation detectors, but what role has the State and Local law enforcement community played? Or what role might they play? To

test this concept, the US Congress and DHS through the office of DNDO have initiated several programs. Securing the Cities and the Puget Sound and San Diego Maritime pilots are a few examples. Through these programs it has been determined that law enforcement and fire/hazmat perform at very high levels if given proper equipment, training, and technical support. Personnel trained under these new concepts have not only demonstrated great skill and capacity to adjudicate potential threats effectively; they have also developed new and innovative ways to employ this capability.

Early detection is paramount to the success of interdicting the threat of a nuclear event. The prevent mission is designed to detect and interdict before assembly and/or delivery of the WMD. The current strategy attempts to ensure that any attempted attack will be intercepted far from US borders in the initial phases of its operation, but the last line of defense will always be here in our own back yard. As a result, we must employ every means at our disposal to understand this threat and to develop innovative, effective, and sustainable capabilities to encounter it.

Biographical Sketch:

Robert “Lonnie” Swindell is the Chief of Training for the Department of Homeland Security, Domestic Nuclear Detection Office in Washington DC. Prior to DHS Mr. Swindell was a member of DOE’s emergency response capability at the National Nuclear Security Administration’s (NNSA) Remote Sensing Laboratory (RSL) at Andrews AFB. Mr. Swindell has held the title of: Radiation Technologist, Search Coordinator, Mission Leader, Project Manager, Senior Technical Staff Member, and Training and Outreach Coordinator. During his twenty year career in PRND Mr. Swindell has provided operations support to NNSA/DOE, the United States Secret Service, the Federal Bureau of Investigation, United States Coast Guard, the Transportation and Security Administration, United States Civil Support Teams, the Department of Defense, the United States Capitol Police and numerous other agencies and groups to include state and local emergency services.

Session 19

DOE/NNSA, DNDO and the PRND Mission

Christine Van Horn (christine.vanhorn@ch.doe.gov); 630-252-2498

Abstract:

The US Department of Energy/National Nuclear Security Administration (DOE/NNSA) Office of Emergency Response (NA-42) has a mission to provide specialized radiological/nuclear emergency response capabilities to requesting International, Federal, State, Tribal and local agencies and governments. The Office of Emergency Response is comprised of Federal and national laboratory personnel from across the country, with specialized capabilities at specific locations. The Office of Emergency Response mission was founded in the 1950s to support the nation's nuclear weapons complex capabilities and has grown into several hundred personnel supporting the nation's radiological/nuclear needs today.

The DOE/NNSA Office of Emergency Response is committed to support DHS/DNDO with the Nation's Preventative Radiological Nuclear Detection (PRND) mission. There is a strong partnership between DOE/NNSA and DNDO in the realm of preparing other Federal, State, Tribal and local agencies to better detect radiation in a preventative, yet operational mode. In recent years, the nation as a whole has embraced the mission for preventative radiation detection. This includes active use of radiation detectors by Federal, State and local agencies supporting special events and active monitoring at areas of interest prior to an incident occurring. DOE/NNSA has representatives as part of DNDO and has partnered with DNDO for several initiatives, including specialized training classes. DOE's mission in this arena will be discussed.

Biographical Sketch:

Christine Van Horn is the Regional Response Coordinator (RRC) and Radiological Assistance Program (RAP) Manager for DOE Region 5, which includes ten states in the Midwest. Ms. Van Horn has held this position for ten years. She works for the U.S. Department of Energy / National Nuclear Security Administration (DOE/NNSA) Headquarters, Office of Emergency Response. She has been a Senior Energy Official (SEO) and Deputy SEO for several high profile DOE responses and is often the DOE Team Leader for RAP Region 5 responses. She also has served as the Emergency Management Program Manager for the DOE Chicago Office (CH), overseeing the Emergency Management operations for CH and seven national laboratories. She is a Certified Emergency Manager (CEM) and was the first CEM in Illinois. She also has worked at Argonne National Laboratory for 20 years in Health Physics and Emergency Management. Prior to her work at Argonne, she was a Radiologic Technologist, Nuclear Medicine Technologist and Radiation Therapist. She holds a B.S. Degree in Health Sciences and both Masters and Doctorate Degrees in Theology and is in process of a Master of Arts Degree in National Security and Strategic Studies from the Naval War College.

Session 20

INGESTION PATHWAY EXERCISE DATA DEVELOPMENT – FROM MAPS TO SAMPLES, AN INSIDER’S LOOK

RaJah Mena (MenaRM@nv.doe.gov) (702) 630-4948

Abstract:

In an effort to simulate Federal Radiological Monitoring and Assessment Center (FRMAC) involvement in response to a nuclear power plant incident the Remote Sensing Laboratory, on behalf of the Department of Energy, provides data packages in support of Ingestion Pathway Exercises (IPXs). Some of the most frequently asked questions we receive are about how to generate a good source term and our data products. This technical presentation explores different source term options. Participants will see how varying the ratios of the major nuclide groups, stability classes, and precipitation affect the outcome of plumes. This presentation will also cover the tools FRMAC planners use to produce data products for IPXs.

Biographical Sketch:

RaJah Mena is a scientist for the Consequence Management section at the Remote Sensing Laboratory – Nellis in Las Vegas, Nevada. She has worked in the field of health physics for a number of years since completing her degree at the University of Nevada Las Vegas in Health Physics. RaJah has assisted with the planning and executing of numerous ingestion pathway exercises as well as in Department of Energy Full Scale Exercises and drills for the Federal Radiological Monitoring and Assessment Center (FRMAC). RaJah also holds multiple duty positions within the FRMAC including Assessment Scientist and Aerial Measurement Survey Mission Scientist as well holding the position of working group chair of the CMHT.

Session 21

DECOMMISSIONING OF THE HANFORD BURIAL CRIBS CONTROLLED AREA USING THE AERIAL MEASURING SYSTEMS HELICOPTER EMERGENCY RESPONSE ACQUISITION SYSTEMS

Craig Lyons lyonscl@nv.doe.gov (702) 295-8760, Chris Brock Christopher_T_Brock@RL.gov (509) 376-2472

Abstract:

The Hanford Nuclear Reservation (HR) lies within south central Washington State and covers an area of 560-square-miles. The facility began operations in 1944, centered on the nine graphite moderated plutonium production reactors located adjacent to the Columbia River. All reactors have been shutdown. Located in the center of the HR is the 200-area, where plutonium and uranium were extracted from irradiated uranium fuel elements.

The BC Controlled Area is one of the 200-area clean-up sites. The site consists of six cribs—engineered soil waste disposal sites—and 20 trenches that were used in the 1950s to absorb more than 30 million gallons of contaminated waste from the chemical separations plant. Before they were capped with an intrusion barrier in 1969, animals had burrowed into them and eaten the radioactive salts and then spread radioactivity to surrounding areas through biological processes. The subsequent dispersion has resulted in shallow soil contamination within the northern part of the BC Controlled Area, an area of approximately 3,707 acres.

The BC Controlled Area is divided into separate regions based on past historical information and recent analytical sampling events. Within the northern part of the BC Controlled Area is “Zone A” at 141 acres, which has the highest levels of contamination from cesium-137 and strontium-90. The remainder of the site contains some areas of contamination in an irregular pattern; however, these are generally considered to be of lower risk to human health and the environment. This region is referred to as “Zone B”.

The aerial surveys were conducted at an altitude of 50 feet and parallel line spacing of 75 feet to maximize the man-made radiation sensitivity and reduce the effective footprint of the survey system to meet data quality objectives for characterization of the site. These survey parameters provide multiple data points for grid sizes ranging from 1,000 m² to 10,000 m². In addition, a 100% gamma scan survey was accomplished as required for a scoping survey.

The Minimum Detectable Activity (MDA) of the acquisition system is a fraction of the action levels or clean-up levels under negotiation. The calculated MDA for Cs-137 at the 50' altitude was approximately 0.4 pCi/g using default assumptions. The lowest action level for Cs-137 is currently estimated at 2.9 pCi/g.

Biographical Sketches:

Craig Lyons has over 20 years in experience in radiation measurements working as a Nevada Test Site contractor health physicist. Mr. Lyons has supported numerous programs including radiological control, environmental restoration and waste management. For the past 7 years he has worked as Senior Scientist at the Department of Energy (DOE) Remote Sensing Laboratory-Nellis AFB in Las Vegas, Nevada, where he is involved in radiological emergency response planning and operations. Mr. Lyons' primary responsibility is as Task Leader of the Aerial Measuring Systems Radiation Mapping Response, and is a Mission Scientist flying on the DOE emergency response aircraft.

Christopher Brock has worked in Health Physics for the last 20 years in various capacities. Mr. Brock has supported the Department of Energy Oversight Programs, as well as establishing an environmental monitoring network for the State of Idaho. He is currently a Senior Health Physicist with CH2MHill Plateau Remediation Company. For the last 3 years Mr. Brock has worked at the Hanford Reservation in Richland, Washington. After recently completing the decommissioning of the Fast Flux Test Facility (FFTF) Reactor, he is now working with the Soil and Ground Water Remediation Project to remediate many of the contaminated sites at Hanford. Mr. Brock has also worked with local responders to enhance capabilities in radiological emergency response.

Session 22

Planning for Animals in Nuclear Power Plant Emergencies

Kevin C. Leuer (651) 201-7406, kevin.leuer@state.mn.us

Abstract:

Providing for animals during a disaster means more than strictly helping animals; it ensures the personal safety and mental health of evacuees, responders and the population as a whole. With more than half of U.S. households owning at least one pet, people view pets and service animals as irreplaceable members of the family. In addition, exhibition/large animals and livestock comprise a significant portion of the animal population and are essential to the economy and food supply. Unfortunately animal plans are often considered to be a low priority, but history has shown that without the appropriate preparation, animal issues can become an emergency in themselves. As such, it is important that plans for the care of animals are a top priority. Using the State Emergency Operations Plan, Minnesota is able to coordinate the effective use of public and private partnerships for the care and well being of animals during and after a nuclear power plant emergency. To facilitate planning and response, Minnesota has organized domesticated animals into four categories: exhibition/large animal, household pet, livestock and service animal. In this presentation, Minnesota clarifies how animals in each category fit into the radiological response-planning and the response itself. The presentation will also outline the state's process of integrating the Minnesota Veterinary Reserve Corp and the American Humane Society into the reception center activities and their method for the proper monitoring and decontamination of household pets.

Biographical Sketch:

Kevin Leuer is the Director of the Preparedness Branch for the Minnesota Division of Homeland Security & Emergency Management. Kevin has oversight responsibility for the Minnesota Emergency Operations Plan, Continuity of Operations Planning for the Division, Radiological Emergency Preparedness Program, Pandemic Influenza Planning, Minnesota School Safety Center and is the Governor's designee for the coordination of High Level Radioactive Waste transportation in Minnesota. He is a former Director of the Minnesota Division of Emergency Management and a former Chief Officer of the Plymouth Fire Department with 23 plus years of fire service experience.

Session 23

EFFECTIVE GIS SUPPORT DURING A RADIOLOGICAL EVENT

Kara E Scott, 312.408.5377, Kara.scott@dhs.gov

Abstract:

A Geographic Information System (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. -*ESRI*
This session will demonstrate Geospatial capabilities for emergency responders and decision-makers during a REP-related incident. This session will focus primarily on critical data layers utilized for off-site response. By employing an ESRI GIS platform, the demonstrator will illustrate the ability to view static functional data in addition to live/real-time data by accessing local and remote data portals. To encourage a common operating picture among local, state and federal partners, several remote repositories have been established for government agencies to access. During the presentation, selected Nuclear Power Plant locations will be shown in addition to several surrounding features overlaid in a map document. In a radiological emergency response situation, first responders and decision-makers will find great benefit in having access to tools that will show situation awareness by revealing incident location, evacuation routes, population distribution, reception and congregate care centers, schools, and hospitals. Only to name a few of the critical infrastructure and REP-related data that will be shown on the map during the presentation.

Acknowledgement:

The author wishes to acknowledge Bob Busch and Lisa Olson-McDonald of Wisconsin Emergency Management for their collaboration on the data.

Biographical Sketch:

Kara Scott received her M.S. degree in Geography and Environmental Resources (GIS focused, Geographic Information Systems) from Southern Illinois University Carbondale. She received her B.S. degree in Physics from Chicago State University in Chicago, Illinois. Prior to joining DHS/FEMA, Ms. Scott was involved in health care mapping, resulting in publications including Spatiotemporal Distributions of Reported Cases of the Avian Influenza H5N1 (Bird Flu) in Southern China in Early 2004 (Oyana *et. al* 2006). Ms. Scott's current position as a Geospatial Analyst with DHS/FEMA comprises collecting, building and organizing geospatial data and preparing comprehensive mapping products using multiple data layers and online data services within the National Preparedness Directorate, Radiological Emergency Preparedness Division. She assists the region by providing geospatial products for timely decision-making in support of prevention, preparation, recovery, and mitigation from and during human induced and natural disasters. In addition to mapping analysis, her position with the Department of Homeland Security requires on-going coordination with local, state and federal partners on information, gathering, data sharing and manipulation, and dissemination. Collaboration across multiple levels of government is critical for seamless and efficient operations during a REP-related incident.

Session 24

Ionizing Radiation: DOWN-REGULATION OF ATM BY 2-DEOXY-D-GLUCOSE: A TIME DEPENDENT STUDY

S. S. Lahiri, S. Hambarde, S. Chaturbedi, R. P. Tripathi
Institute of Nuclear Medicine and Allied Sciences, Timarpur, Delhi 110054, India

Abstract:

Exposure to Ionizing Radiation (IR) kills cells by causing oxidative stress and DNA damage generally double strand break. Ataxia telangiectasia mutated (ATM) protein is involved in DNA double strand break sensory and repair pathways and therefore, inhibition of 'atm' expression can lead to radio-sensitization of cancerous cells. A glucose analogue, 2-Deoxy-D-Glucose (2- DG), blocks glycolysis, modulates protein glycosylation, sensitizes cancerous cell to radiation, protects surrounding healthy cells from radiation and also prevent proliferation of cancer cells by metabolic inhibition. An 'atm' transcription factor 'Sp1' is also down-regulated by 2-DG. We aimed to study the effect of 2-DG on radiation induced expression of 'atm' gene. Monolayer culture of a Human glioma cell line (BMG1) were treated with 2-DG before and after irradiation at different doses and at various time intervals. Expression level of 'atm' was determined at transcriptional, translational level and correlated with cell survival. The exposure of BMG1 cells to IR did not up-regulate 'atm' expression as reported earlier in few cell systems; however its level was significantly down-regulated by 2-DG in unirradiated as well as gamma rays irradiated cells. Significant down-regulation of 'atm' expression by 2-DG treatment could be one of the possible mechanisms of action of 2-DG induced inhibition of DNA repair and radio-sensitization in cancer cells. Four hour pre-treatment of 2DG before irradiation, exhibited best optimized low-dose radiotherapy.

Biographical Sketch:

Dr. Sitanshu Sekhar Lahiri is Scientist-'F' and Jt. Director, Institute of Nuclear Medicine & Allied Sciences (INMAS), Ministry of Defence, Govt. of India; he is also the Head, Division of Drug Safety & Evaluation, ISO Cell. He is the former Head of Div. of Animal Sciences & Quality Assurance, and until July of 2008, he was the Head, Radiation Biology & Radio-protection. Dr. Lahiri has a Ph.D. in Biochemistry from the Jiwaji University, Gwalior, India. Dr. Lahiri has diverse expertise, such as, on Studies on Gene expression in human cells consequent to degrees of radiation exposure & treatment with radio-protectors / radiosensitizers, on Development of DNA Diagnostics for field applications, in In-vitro and In-vivo Genetic Engineering, and other areas. Dr. Lahiri received numerous national honours, such as, "Best Technology Group" Award 2007 of INMAS, India, "Best Poster Award" 2007, at a Conference in Chennai, India, for studies on bacterial radio protection. Dr. Lahiri delivered an Invited Lecture, sponsored by the Colorado State University, at the "1st. Workshop on Natural Toxins", held in Thailand in 1998, organized jointly by Colorado State University, U.S.A. and Ryukyus University, Japan. Dr. Lahiri is a Ph. D. Examiner, Ph.D. curriculum guide and Ph.D. Question Setter for various universities in India, including a couple of universities in Delhi. Dr. Lahiri also has chaired sessions at national and international meetings and workshops. Dr. Lahiri's current interests include, Evaluation of radio-modifying amino-acids for their suitability as radio-protectors under different physiological & irradiation conditions, Development of Herbal and Micro-nutrient based Radio-protectors, Development of molecular markers for rapid evaluation of candidate radio-protectors/ radio-sensitizers, Effect of radio-modifiers (radioprotectors and radio-sensitizers) on radiation induced gene expression in human. Dr. Lahiri has to his credit over 25 publications, one patent and another five applied for.

Session 25

Emergency Management Of A Radiation Accident Victim

WM. MARK HART (REAC/TS, Oak Ridge, TN; 865-576-3131; hartm@orau.gov)

REBECCA W. MURDOCK (REAC/TS, Oak Ridge, TN; 865-576-3129;
becky.murdock@orise.orau.gov)

Abstract:

REAC/TS faculty guides course participants in demonstration of procedures for the emergency management of a radiation accident patient. The demonstration begins with preparation for arrival of the patient. It includes triage and emergency stabilization of the patient, collection of clinical and radiological samples, decontamination techniques and procedures for area contamination control.

The priorities in emergency management of a contaminated patient and the goals of contamination control are reviewed. Techniques aimed at preventing the spread of radioactive contaminants and subsequent detection of any incidental contamination during emergency treatment are demonstrated.

Goal: Discuss preparations for receiving and treating a radiation accident victim. This objective is achieved as the participant learns to:

- 1) Identify decontamination priorities on a contaminated patient.
- 2) Identify procedures for decontaminating intact skin.

Biographical Sketches:

WM. MARK HART JULY 1996-CURRENT- REAC/TS-OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

Participates as a member of the REAC/TS emergency response team during Federal Radiological Monitoring Assessment Center (FRMAC) deployment or during deployment for the World Health Organization/International Atomic Energy Agency. Assists Medical Team Leader by providing professional nursing services through the assessment, treatment, and the follow-up healthcare of individuals or groups experiencing radiation-induced injuries and/or illness. Participates in REAC/TS training activities on- and off-site providing instruction related to nursing aspects of emergency response to radiation accidents. Assists in the writing and production of audiovisual training materials for pre-hospital and hospital emergency medical services.

EDUCATION

Master of Science - Safety - UNIVERSITY OF TENNESSEE @ KNOXVILLE, TN 1998

Bachelor of Science - Adult Education - UNIVERSITY OF TENNESSEE @ KNOXVILLE, TN 1990

Associate Degree of Science - Nursing - WALTER STATE COMMUNITY COLLEGE @ MORRISTOWN, TN 1982

Emergency Management - Paramedic - STATE TECHNICAL INSTITUTE @ KNOXVILLE, TN 1978

EXPERIENCE

EMERGENCY ROOM NURSE 1992 – 1996, FT. SANDERS LOUDON MEDICAL CENTER

AEROMEDICAL SUPERVISOR - LIFESTAR 1984 – 1992, UNIVERSITY OF TENNESSEE

MEDICAL CENTER - KNOXVILLE

PARAMEDIC SUPERVISOR - C Shift 1977 – 1984, EAST TENNESSEE EMERGENCY MEDICAL SERVICES

Rebecca W. Murdock (Becky): April 2002-Current-REAC/TS-Oak Ridge Institute for Science and Education Assists the Health Physics Team Leader in all aspects of day to day operations and the maintenance of monitoring equipment. Participates in REAC/TS training activities on-site providing instruction related to health physics aspects of emergency response to radiation accidents.

Maintains the REAC/TS Radiation Accident Registry for all world-wide radiological events.

Maintains the DTPA and Prussian Blue Registries for reporting to the FDA.

EDUCATION

As, Health Physics, Roane State Community College, 1995

AS, Industrial Hygiene, Roane State Community College, 1991

WORK EXPERIENCE

1990- April 2002

Environmental, Safety & Health Department, Oak Ridge Associated Universities

Performed safety inspections of all buildings and maintained the Safety Corrective Action Tracing System

Performed yearly respirator fit testing for all employees

Supported all aspects of operations in industrial hygiene and health physics

Session 26

THE REP EPZ SECTOR DIAGRAM – A TRANSFORMATION AND ADAPTATION IN SUPPORT OF AN ALL HAZARDS RESPONSE CAPABILITY

Dr. Perry J. Manor, Mr. Aaron J. Weier
(608) 267-4794 (608) 267-2360
perry.manor@wi.gov aaron.weier@wi.gov

Abstract:

The geographic heart of the nation-wide and long established standardized Nuclear Power Plant (NPP) radiological planning, training and response effort are the 10 mile plume and 50 mile ingestion EPZ sector diagrams. These EPZ sector diagrams have provided a uniform geographic referencing system which allows all participants to quickly focus in on the locations of time dependent threats, impacted individuals and response activities necessitated by the potential or actual emergency. This presentation will build and expand on this long standing and familiar radiological emergency preparedness foundational tool, and demonstrate how a fully geographically transportable and scalable EPZ sector diagram can be embedded at any map location for use in supporting planning, training and response efforts on any emergency scale, whether NPP or non-NPP, radiological or non-radiological, large or small, urban or rural, or at federal, state or local levels. This mobile geographic EPZ reference capability is installed as a formal program enhancement “tool” within the ESRI ArcGIS desktop environment and provides for user data inputs resulting in complete control and flexibility for the appropriate locating, scaling and utilization of the EPZ sector diagram image within this GIS mapping environment.

Biographical Sketches:

Dr. Perry J. Manor is a REP Emergency Planner for the Radiation Protection Section within the State of Wisconsin Department of Health Services in Madison, Wisconsin. He began his career with the State of Wisconsin in 1972 working more than 10 years as the Dept. of Natural Resources hazardous materials spill response coordinator, 8 years managing the federally funded civil defense instrument program in the state's emergency government office, and 13 years in the Dept. of Health's asbestos and lead(Pb) licensure program, before moving to his current position in 2004. Dr. Manor has a B.S. Degree in Chemistry/Math from the University of Wisconsin – River Falls, and a PhD. Degree in Physical Chemistry from Michigan State University, East Lansing, Michigan.

Mr. Aaron J. Weier is a GIS Analyst within the State of Wisconsin Department of Health Services (DHS) in Madison, Wisconsin. With nearly 15 years experience in GIS, Aaron provides many geospatial based services for DHS that range from data creation to desktop mapping and automation as well as developing web mapping applications. Aaron is a member of the Wisconsin Geographic Coordination Council (WIGICC) which is a newly formed organization that serves as the primary forum and coordinating body for geographic information and technology in the State of Wisconsin. Aaron is also a member of the State Agency GIS Coordinators team (SAGIC) which is made up of representatives from state agencies with mutual geospatial interests. SAGIC's mission is to promote and improve the collaboration, communication, quality, and sharing of best practices among state agency users and developers of geospatial data and technologies. Aaron has a B.S. Degree in Geography from the University of Wisconsin Stevens Point.

Session 27

THE ADVISORY TEAM FOR ENVIRONMENT, FOOD AND HEALTH: WHO, WHAT, WHEN, WHERE AND WHY

Charles Miller (cmiller1@cdc.gov; 770-488 3725), Sara DeCair (decair.sara@epa.gov; 220-343-9713), Lynn Evans (gfn6@cdc.gov; 770-488-3656) Mike Noska (michael.noska@fda.hhs.gov; 301-827-5630), Jack Patterson (jack.patterson@usda.gov; 301-504-2445)

Abstract:

State radiation control programs and emergency management organizations are often unaware of the federal emergency response resources available to them through the Advisory Team for Environment, Food and Health (Advisory Team). This presentation is meant to be a panel discussion explaining the roles and responsibilities of the Advisory Team during radiological incidents and how state and local governments can use the Advisory Team when needed. An overview of the Advisory Team, including history and purpose, will be presented. This will be followed by presentations from each member agency (US Department of Agriculture, Environmental Protection Agency, Food and Drug Administration, Centers for Disease Control and Prevention) explaining their specific responsibilities.

Biographical Sketches:

Dr. Charles Miller joined the Centers for Disease Control and Prevention in January 1992. He is currently Chief of the Radiation Studies Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health. In this position he provides leadership for the agency's radiological emergency response and consequence management efforts. Previously, Dr. Miller worked with the Illinois Department of Nuclear Safety, Oak Ridge National Laboratory, and Anderson (Indiana) University. His primary area of expertise is the transport and dose assessment of radionuclides released to the atmosphere, and other facets of environmental radiological dose assessment. He has authored or coauthored over 100 journal articles, laboratory reports, and meeting papers. Dr. Miller is a member of both the National Council on Radiation Protection and Measurements and the Health Physics Society. Dr. Miller holds a B. S. in Physics/Math from Ball State University, a M. S. in Meteorology from the University of Michigan, and a Ph. D. in Bionucleonics (Health Physics) from Purdue University.

Sara DeCair has been with the Environmental Protection Agency's Office of Radiation and Indoor Air since 2003. She works on policy, planning, training, and outreach specific to federal nuclear and radiological emergency preparedness and response. Focal areas are coordination of Radiological Emergency Response Team activities and updating the Protective Action Guides Manual. She previously worked for seven years with the State of Michigan's Department of Environmental Quality in nuclear power plant emergency response and planning. She was a team member and trainer for everything from state field team leader, dose assessor, decontamination team leader, various Emergency Operations Center positions, and eventually scenario development and exercise design. Prior to that, she worked as a state inspector of radioactive materials registrants and a radiation incident responder. Incident responses ranged from scrap yard portal monitor alarms to oil and gas pipe yard NORM discoveries to medical waste from Ohio or Canada. She also led the instrument calibration efforts for materials program instruments, completed several oil and gas NORM site cleanups, and facilitated the proper disposal of numerous orphan radioactive sources.

CAPT Lynn Evans is a Commissioned Officer in the U.S. Public Health Service currently assigned to the Radiation Studies Branch in the Centers for Disease Control and Prevention (CDC). She received a Bachelor of Science in Biology from the University of Alabama in Tuscaloosa and a Bachelor of Science in Nuclear Medicine Technology from the University of Alabama in Birmingham. She later attended the Georgia Institute of Technology where she earned a Master of Science in Health Physics. CAPT Evans has attained over 20 years of health physics experience while serving in assignments to the National Institutes of Health, the US Food and Drug Administration and the US Environmental Protection Agency.

CAPT Mike Noska is a health physicist in the U.S. Public Health Service and Team Leader for Radiological Emergency Response at the Food and Drug Administration. CAPT Noska has served in the Public Health Service for seventeen years. His health physics career began at the National Institutes of Health where he served for six years in a variety of medical health physics positions, mainly related to internal dosimetry and radioanalysis. His next assignment was with the FDA Center for Biologics where he served as the project manager for the review of radiopharmaceuticals. In 2002, CAPT Noska joined the Center for Devices and

Radiological Health where he began his work in emergency preparedness. In 2009, he transferred to the Office of the Commissioner. Prior to joining the PHS, CAPT Noska spent eight years as a research assistant in radiopharmaceutical laboratories at Harvard Medical School and Duke University Medical Center developing radiolabeled antibodies for the treatment of cancer. CAPT Noska received his B.A. from the University of Massachusetts and his M.S. from the University of North Carolina School of Public Health. CAPT Noska is a Past President of the Baltimore-Washington Chapter of the Health Physics Society. He is a member of the Advisory Team for the Environment, Food and Health and the Federal Radiological Preparedness Coordinating Committee. He also serves on several interagency committees and workgroups related to radiological emergency response.

Mr. Jack Patterson is the Radiological Emergency Programs Coordinator for the U.S. Department of Agriculture, and works in the USDA's Office of Homeland Security and Emergency Coordination. This position serves as a focal point for the Department's activities in radiological emergency response and has three primary functions:

- Serves as the radiological subject matter expert (SME) for the Secretary of Agriculture
- Leads USDA activities regarding radiological emergency response
- Represents USDA at interagency radiological emergency response activities

He has a B.S in Physics, is Certified by the American Board of Health Physics, and is a Fellow in the Health Physics Society. Mr. Patterson started his Federal career at the Veterans Administration Medical Center in Washington, DC in 1972, and has worked with the FDA's Bureau of Radiological Health in Rockville, MD, a private consulting firm, and the USDA.

Session 28

Stress Management in Stressful Times

Frederick J. Cowie, Ph.D.

(Ph: 406-431-3531; e-mail: fredcowie@aol.com; website: fredcowie.com)

Abstract:

Sixty minutes, from 8:00 AM to 9:00 AM! What can people learn about stress in one hour that will change their lives forever, for the better? First, through a highly interactive session the attendees will, for themselves, outline what happens physically, emotionally, mentally and behaviorally during long term stress. Second, attendees will have to admit that virtually nothing good comes from long term stress, while many detrimental things are caused by long term stress. Third and finally, they will admit to themselves that with stress left unaddressed and unmanaged, their lives will become chaotic, but if they manage their stress through “aggressive relaxation” techniques, they can learn to manage the stress. After nine o’clock, the decision whether to manage stress or not is up to them, but they will not be able to deny the personal consequences of unmanaged stress.

Biographical Sketch:

Fred Cowie does not teach stress management using some canned, off-the-shelf course, for he teaches from experience and the heart. The father of a son with Duchenne Muscular Dystrophy, who is now twenty-six, one hundred percent disabled, and weighs under ninety pounds, Fred knows personally the meaning of long term, 24/7, heart wrenching stress—as do all in his family. As an emergency manager with twenty years experience in preparedness and training, he also knows the stresses involved in emergency response. Fred is a nationally renowned trainer who regularly speaks at fire, hazmat, emergency management and terrorism events around the U.S.; developed the Amber Alert system and Meth Lab conferences for Montana; sits on grant and development panels for the National Academies of Science; and has given stress management talks to organizations such as the Montana Supreme Court Summit Conference, the Oregon Fire Chief’s Conference, the CA Continuing Challenge Hazmat Conference, the NV Hazmat Explo Conference, and the NY State Fire Academy Hazmat Conference.

Session 29

Risk Communication Principles, Tools and Techniques

Patricia A. Milligan, USNRC (301-415-2223, patricia.milligan@nrc.gov)
Dr. Vincent Covello, Center for Risk Communications, New York, NY (917-270-5280,
vcovello@CenterForRiskCommunication.org)

Abstract:

Based on existing regulations and guidance, each licensee and Federal, State and local response organization is responsible for developing its own media and communication plans for a radiological event. The lack of clear guidance has resulted in a wide range of facilities and equipment available to support public communications during an emergency as well as lack of consistency throughout the industry and offsite officials in reporting events. There has been great emphasis on “risk” communications and “good” communications in professional journals, at meetings, workshops, and conventions. While these efforts at awareness are long overdue, in so many cases necessary tools are lacking to make them effective. The NUREG/CR upon which this paper is based provides tools and techniques for NRC licensees and others to use to develop effective “risk” communications.

This session will provide a “hands on” opportunity for participants to learn how to use the tools (i.e., message mapping, templates) to develop and use pre-scripted messages as part of their risk communications strategy.

Biographical Sketches:

Dr. Vincent Covello is the founder and Director of the Center for Risk Communication. Over the past twenty-five years, he has held numerous positions in academia and government, including Associate Professor of Environmental Sciences and Clinical Medicine at Columbia University. Prior to his joining the faculty at Columbia, Dr. Covello was a senior scientist at the White House Council on Environmental Quality in Washington, D.C., a Study Director at the National Research Council/National Academy of Sciences and the Director of the Risk Assessment Program at the National Science Foundation. Dr. Covello received his doctorate from Columbia University and his B.A. with honors and M.A. from Cambridge University in England. He is on the editorial board of several journals and is the Past President of the Society for Risk analysis, a professional association with over 2,500 members. Dr. Covello has authored or edited over 25 books and over 75 published articles on risk assessment, management, and communication.

Patricia Milligan is a Certified Health Physicist as well as a nuclear pharmacist. She works for the Nuclear Regulatory Commission in their Rockville Maryland office. Ms. Milligan is a Senior Advisor in the Office of Nuclear Security and Incident Response- Division of Preparedness and Response. Ms. Milligan has worked for the NRC since 1998. Prior to joining the NRC, she worked for 13 years in the nuclear power field and for 5 years in the nuclear pharmacy field. In addition, Ms. Milligan was Panel Chair for the American Board of Health Physics (ABHP) Part 1 exam and is presently a board member of the ABHP.

Session 30

Development of the Intermediate/Ingestion Phase Exercise

Kevin C. Leuer (651) 201-7406, kevin.leuer@state.mn.us
Robert E. Hines Ph.D. (651)-201-7415, robert.hines@state.mn.us

Abstract:

Development of an ingestion phase exercise is a challenging endeavor that many states struggle with when preparing for an intermediate/ingestion phase exercise during the 6 year cycle. With limited guidance and direction for scenario requirements and numerous questions as to what is expected during exercise play, many are left wondering how best to put together an ingestion phase exercise. In 2009, the State of Minnesota conducted an ingestion phase exercise with the Monticello Nuclear Generating Plant. Here, Minnesota shares their best practices and their lessons learned.

In this presentation, Minnesota gives details about their original planning and preparation leading up to the ingestion phase exercise. Included is a description of Minnesota's 240 day exercise development timeline, a review of the extensive training leading up to the exercise, experiences working with FRMAC to develop the maps and sampling data and preparing for the FEMA entrance meeting. In addition, exercise issues such as conducting time jumps and an explanation of the injects used during the scenario to drive the demonstration of criteria such as relocation, describing the restricted zone, re-entry, return, food protections and recovery will also be discussed.

Biographical Sketches :

Kevin C Leuer is the Director of the Preparedness Branch for the Minnesota Division of Homeland Security & Emergency Management. Kevin has oversight responsibility for the Minnesota Emergency Operations Plan, Continuity of Operations Planning for the Division, Radiological Emergency Preparedness Program, Pandemic Influenza Planning, Minnesota School Safety Center and is the Governor's designee for the coordination of High Level Radioactive Waste transportation in Minnesota. He is a former Director of the Minnesota Division of Emergency Management and a former Chief Officer of the Plymouth Fire Department with 23 plus years of fire service experience.

Robert E Hines Ph.D. has worked for the Minnesota Division of Homeland Security and Emergency Management for the past three years and is the REP exercise coordinator responsible for the extent-of-play, offsite scenario, timelines and controller injects. During the exercise, Rob works as the lead controller for the state of Minnesota. Throughout the year, Rob conducts training for the medical services portion of the response, which includes the ambulance and emergency room personnel. Rob is a certified emergency manager and holds a Ph.D. in molecular biology. He is also a published author of six peer-reviewed scientific articles and teaches biology at a local Community College.

Session 31

THE BRIGHT SIDE AND THE DARK SIDE: A WebEOC® REVIEW

Stephen Rea (Stephen.Rea@sdcounty.ca.gov; 858-715-2204)

Stephen Simerly (s.simerly@emd.wa.gov; 253-512-7040)

John Yacyshyn (john.yacyshyn@exeloncorp.com; 610-765-5055)

Abstract:

WebEOC®, crisis information management technology software, is the world's first Web-enabled emergency management communications system and has been in use for over a decade. WebEOC (ESi product) connects crisis response teams and decision makers at local, state and national levels, healthcare providers, airlines and corporations worldwide, by providing access to real-time information for a common operating picture during an event or daily operations. WebEOC can be accessed via any computer with a connection to the internet and an issued login and password. WebEOC is a secure, redundant system with servers at designated locations as well as a backup at ESi. All saved documents, entries, and other input in WebEOC is recoverable. WebEOC is recognized as a secure documentation system, applying common NIMS principles, response doctrine and meets the National Response Framework guidance for all-hazards response. Many utilities and emergency agencies are adopting WebEOC as an electronic method of managing the flow of information during drills and events. This presentation will cover the benefits as well as the pitfalls encountered while implementing the WebEOC software, including equipment needs, training requirements, program administration and configuration. Experiences from a utility as well as two emergency management organizations will be presented.

Biographical Sketches:

Stephen Rea is a Senior Emergency Services Coordinator of the County of San Diego's Office of Emergency Services since October 2005, and was the Information and Intelligence Chief of the Operational Area Emergency Operations Center during the 2007 Firestorm. The Office of Emergency Services is responsible for alerting and notifying appropriate agencies when the disaster strikes; coordinating all agencies that respond; ensuring resources are available and mobilized in times of disasters; and developing plans for response and recovery from disasters. He joined the County after receiving a baccalaureate degree in Education from the University of Illinois. His experience includes working as a full time professional fire fighter and as a Technology Training Manager for Compaq, HP, and Gateway computer firms. Stephen, and the Information and Intelligence section coordinates WebEOC, the software and hardware applications behind a disaster's common operational picture. Stephen is one of only a few Certified WebEOC Administrators in the country and is the winner of ESi's Boundless Collaborator award (2008) and ESi's WebEOC Catalyst award (2007).

Stephen Simerly is an Exercise Coordinator for the Washington State Emergency Management Division. Since coming to EMD in 2007, Steve has independently provided professional level emergency management exercise and training duties supporting local emergency management jurisdictions, nine state Homeland Security Regions, tribal nations, state agencies, the Columbia Generating Station and US Department of Energy – Richland. Steve supports the state exercise program by designing, developing, conducting, and evaluating discussion-based exercises (seminars, workshops and tabletops) and operations-based exercises (drills, functional and full-scale). Steve created the first ever state Corrective Action Program and prepares after action evaluations and reports for state-wide emergency management exercise by following compliance and guidance standards established in the Department of Homeland Security's Exercise and Evaluation Program. Steve has completed the Master Exercise Practitioner Program Course at the Federal Emergency Management Agency – Emergency Management Institute. Steve has served in an operational capacity in the State Emergency Operations Center and in the field in numerous activations including winter storms, flooding, wildfires, landslides, Howard Hanson Dam and the 2010 Winter Olympics. Previously, Steve spent over 11 years serving as a Military Police Officer serving in various locations including a combat tour in Iraq.

John Yacyshyn is the Facilities and Equipment Lead for the Exelon Nuclear Emergency Preparedness Department. His responsibilities include serving as the Administrator of the WebEOC program which is used to support drills, exercises and actual events at 10 nuclear generating sites as well as two corporate emergency facilities. He has served in this capacity for the past fourteen months. He is responsible for all aspects of the use of WebEOC at Exelon including developing, and coordinating the implementation of standardized WebEOC boards across the nuclear fleet.