National Council on Radiation Protection & Measurements (NCRP)

Program Action Committee (PAC) – 3
Nuclear and Radiological Security and Safety
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Who are we?

- Tammy P. Taylor*, Vice President, Pacific Northwest National Laboratory
- Brooke R. Buddemeier*, Co-Chair, Lawrence Livermore National Laboratory
- Daniel J. Blumenthal*, Department of Energy
- Lawrence L. Chi*, General Electric Power and Water
- C. Norman Coleman*, Department of Health and Human Services
- Nicholas Dainiak, Oak Ridge Institute for Science and Education
- Sara DeCair, Environmental Protection Agency
- John Donnelly, Washington, DC Fire Department
- Joseph R. Dynlacht*, Indiana University
- Stephen V. Musolino*, Brookhaven National Laboratory
- Adela Salame-Alfie*, Centers for Disease Control
- Tom Seif, Illinois Emergency Management Agency
- Jim Rogers, Consultant, Department of Homeland Security
- Benjamin Stevenson, Consultant, Department of Homeland Security
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Top left to right: J. Donnelly, T. Taylor, B. Buddemeier, J. Rogers, D. Blumenthal, T. Seif
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What do we do?

- PAC 3 provides guidance and recommendations for response to nuclear and radiological incidents of both an accidental and deliberate nature. The major elements of activities and reports under the oversight of PAC 3 include:
  - Identify important steps to be taken in the interdiction of, preparedness for, and effective responses to possible acts of nuclear and radiological terrorism;
  - Define performance requirements, instrumentation, and testing criteria for security surveillance systems;
  - Develop operational strategies and optimization procedures for early, intermediate, and late-phase responses to a radiological incident or nuclear incident; and
  - Recommend effective methods for protecting against, mitigating, and treating traumatic injuries and long-term health and psychological effects of radiation exposure

Why do we exist?

- The NCRP cooperates with:
  - International Commission on Radiological Protection
  - International Commission on Radiation Units and Measurements
  - Other national and international organizations, governmental and private, concerned with radiation quantities, units and measurements and with radiation protection
- NCRP was chartered by the U.S. Congress in 1964 as the National Council on Radiation Protection and Measurements to provide advice on radiation protection topics to the Federal Interagency

Our Goals

- Determine how previous publications could be made more useful
- Provide the emergency response community “implementation guides”
- Ensure sound, scientific consensus on guidance and recommendations
- Justify actions with scientific underpinnings
- Ensure that the emergency response community has standards that can be met
- Provide a clear description of how NCRP reports relate to other Federal guidance
- Develop and disseminate special publications to support the optimal performance, operations, and protection of emergency responders and the public

Top Priority: SC 3-1, Guidance for Emergency Responder Dosimetry

- The report will provide guidance on how to determine doses where personal dosimetry is incomplete or not available
- It will Identify changes in how the recording of the dose will evolve as the event transitions from the emergency phase to the recovery phase
- A companion document will be derived from the content of the report, but focused on operational implementation for state and local responders

NCRP PAC 3: Rad/Nuc Security, Response and Recovery Domains & Operations

WORKING DRAFT

Prevention / Security (S)

- Intelligence & Vulnerability Assessments
- Protection or Replacement of Source Material
- Preventive Rad/Nuc Detection
- Interdiction

Manage the Response (MR)

- Manage Time-Critical Post-Nuclear Incident Information
- Provide Emergency Public Information
- Establish Unique Post-Nuclear Elements of Incident Command to Coordinate All Response Assets
- Establish Emergency Communications in Post-Nuclear Environment
- Support Safe Worker Entry & Ops in Post-Nuclear Environment

Characterize the Incident (C)

- Establish Key Incident Parameters & Make Predictions
- Determine Hazards to People
- Assess Effects & Damage; Functionality of CIKR
- Characterize Fallout Particles, Distribution in Environment
- Recommend Protective & Response Actions for All Hazards in Damage Zone

Initial Response (I)

- Make Time-Phased Determination on Shelter-in-Place vs. Evacuation
- Implement Safe Responder Entry & Ops
- Conduct Search & Rescue
- Organize & Manage Evacuation
- Monitor, Decontaminate Population
- Provide Essential Human Needs
- Decontaminate Emergency Workers and Response Equipment
- Maintain Public Trust, Confidence

Medical Triage & Initial Care (Med)

- Predict Health Effects, Estimate Triage Needs/ Locations/Required Assets
- Establish Triage Sites, Provide Emergency Medical Stabilization
- Evaluate Radiation Exposure of Patients
- Conduct Epidemiological Assessment
- Conduct Field Dosimetry
- Make Triage Decisions
- Mass Casualty Care, and Management
- Alternative Care Facilities
- Patient Decontamination

Post-Incident Casualty & Evacuee Care (P)

- Register, Process, Track Individuals
- Provide Medical & Specialized Medical Care
- Provide Public Health & Behavioral Health Services
- Provide Fatality Management
- Conduct Bioassay, Biodosimetry Assessment
- Provide Data Management
- Provide Palliative Care
- Conduct Casualty/ Survivor Rostering

Stabilization & Control of the Impacted Area (SC)

- Extinguish Fires Initiated by Blast, in Contaminated Areas Downrange
- Stabilize Utilities, Structures Affecting Evacuation Routes
- Provide Public Safety, Security in Vicinity of Blast Area, Overall Federally-Declared Disaster Area

Site Cleanup & Restoration of Essential Functions (CR)

- Manage Environmental Hazards in Impacted Area, Contaminated Areas Downwind
- Perform Gross Decontamination of CIKR
- Perform Restoration of CIKR
- Containment, Control of Contaminant Migration
- Ensure Safety of Food, Ag Products
- Characterize Radiological Environment
- Wide-Area Decontamination & Environmental Remediation
- Debris Removal, Management, Disposal

Legend

- PAC 3 Area
- Relevant, but addressed elsewhere sufficiently or in a prior category
- Relevant to NCRP, but not PAC 3
- Not Relevant for NCRP

- *Help Public Take Protective Actions*
- *Limit Adverse Social, Psychological Effects*
- *Guidance to Public on Self-Care, Medical Attention*

Sources:
DHS Strategy for Improving the National Response and Recovery from an IND Attack (2010)
Nuclear Defense Research and Development Roadmap, FY 2013-2017 (2012)
Nuclear/Radiological Incident Annex to the National Response Framework (June 2008)

NCRP PAC-3 Prioritization Survey

Answer Options	High Priority (X3)	Moderate Priority (X2)	Low Priority (X1)	Not a PAC 3 Issue (-X1)	Weighted Rating Sum
(MR) Support Safe Worker Entry & Ops in Post-Nuclear Environment	8	3	0	0	30.00
(Med) Predict Health Effects, Estimate Triage Needs/Locations/Required Assets	6	4	1	0	27.00
(I) Make Time-Phased Determination on Shelter-in-Place vs. Evacuation	7	3	0	1	26.00
(I) Implement Safe Responder Entry & Ops	6	4	0	1	25.00
(I) Monitor, Decontaminate Population	4	6	1	0	25.00
(C) Establish Key Incident Parameters & Make Predictions	5	5	0	1	24.00
(C) Recommend Protective & Response Actions for All Hazards in Damage Zone	6	3	0	2	22.00
(Med) Conduct Field Dosimetry	4	3	3	0	21.00
(MR) Manage Time-Critical Post-Nuclear Incident Information	5	3	0	1	20.00
(Med) Evaluate Radiation Exposure of Patients	3	5	1	2	18.00
(MR) Provide Emergency Public Information	4	4	0	3	17.00
(C) Characterize Fallout Particles, Distribution in Environment	3	4	2	2	17.00
(Med) Conduct Epidemiological Assessment	0	6	5	0	17.00
(P) Preventive Rad/Nuc Detection	3	3	3	2	16.00
(P) Protection of Source Material	2	3	3	3	12.00
(SC) Extinguish Fires Initiated by Blast, in Contaminated Areas Downrange	0	2	2	7	-1.00
(SC) Stabilize Utilities, Structures Affecting Evacuation Routes	0	1	3	7	-2.00

Prospective new efforts could be:

- Manage the response:
  - Support Safe Worker Entry & Ops in Post-Nuclear Environment
  - Manage Time-Critical Post-Nuclear Incident Information
- Medical:
  - Predict Health Effects, Estimate Triage Needs/Locations/Required Assets
    - Address biodosimetry recommendations and coordination between Federal agencies and state and local authorities
- Characterize the Incident and Initial Response
  - Make Time-Phased Determination on Shelter-in-Place vs. Evacuation
  - Implement Safe Responder Entry & Ops
  - Monitor, Decontaminate Population
  - Establish Key Incident Parameters & Make Predictions
  - Recommend Protective & Response Actions for All Hazards in Damage Zone

PAC-3 Passion

- Aligning our stakeholders interests to what we can do in service to the community
- Making an impact on biodosimetry recommendations and coordination
- Learning more about how we could be useful on radiation source security topics, particularly alternative technology concepts

What do we need from you?

- Feedback
- Do we have prospective future efforts that are interesting to you?
- What are we missing?