EPA's Radiological Emergency Response Program and Protective Action Guides

NRC State Liaisons Meeting
August 2009

Introduction

- Overview
- EPA Response Roles
- EPA Response Assets
- Protective Action Guides

Preparedness

Building Capacity and Coordinating with:

- DHS/FEMA
  - Federal Radiological Preparedness Coordinating Committee(FRPCC)
  - Radiological Emergency Preparedness (REP)
  - Nuclear Incident Response Team (NIRT)
- Dept. of Energy
- Homeland Security Council
- National Response Team
- Dept. of Defense

EPA Response Roles - Plans

National Response Framework (NRF)

- All Hazards
- Nationally significant incidents
- Nuclear/Radiological Incident Annex
- ESF #10

National Oil & Hazardous Substance Pollution Contingency Plan (NCP)

- All Oil, Hazardous Substances, & Pollutants or Contaminants
  - Includes any imminent and substantial threat to the public health or welfare of the United States or the environment of the United States including radiological materials
- Nationally significant incidents

EPA's Role in Terrorist Incidents

Pre-release

- Support the DHS and the FBI in threat credibility assessment
- May pre-deploy or assist at Nationally Significant Special Events or on Domestic Emergency Support Team

Post-release

- Forensic assets assist in evidence collection
- Emergency response assets respond to consequences of incident at the tactical ICS level
- Clean-up efforts

Consequences Response Role

- Provide overall response coordination (NCP/ESF#10)
- Perform and coordinate radiological monitoring and assessment
  - Assist DOE (in the emergency and intermediate phase) and lead the Federal Radiological Monitoring and Assessment Center (FRMAC) in the long-term phase
- Develop Protective Action Guides (PAGs)
- Provide “Special Teams” emergency response expertise and support
- Serve as Coordinating Agency under the NRF’s Nuclear/Radiological Incident Annex if unowned/unlicensed sources, foreign incidents with impacts on the U.S.

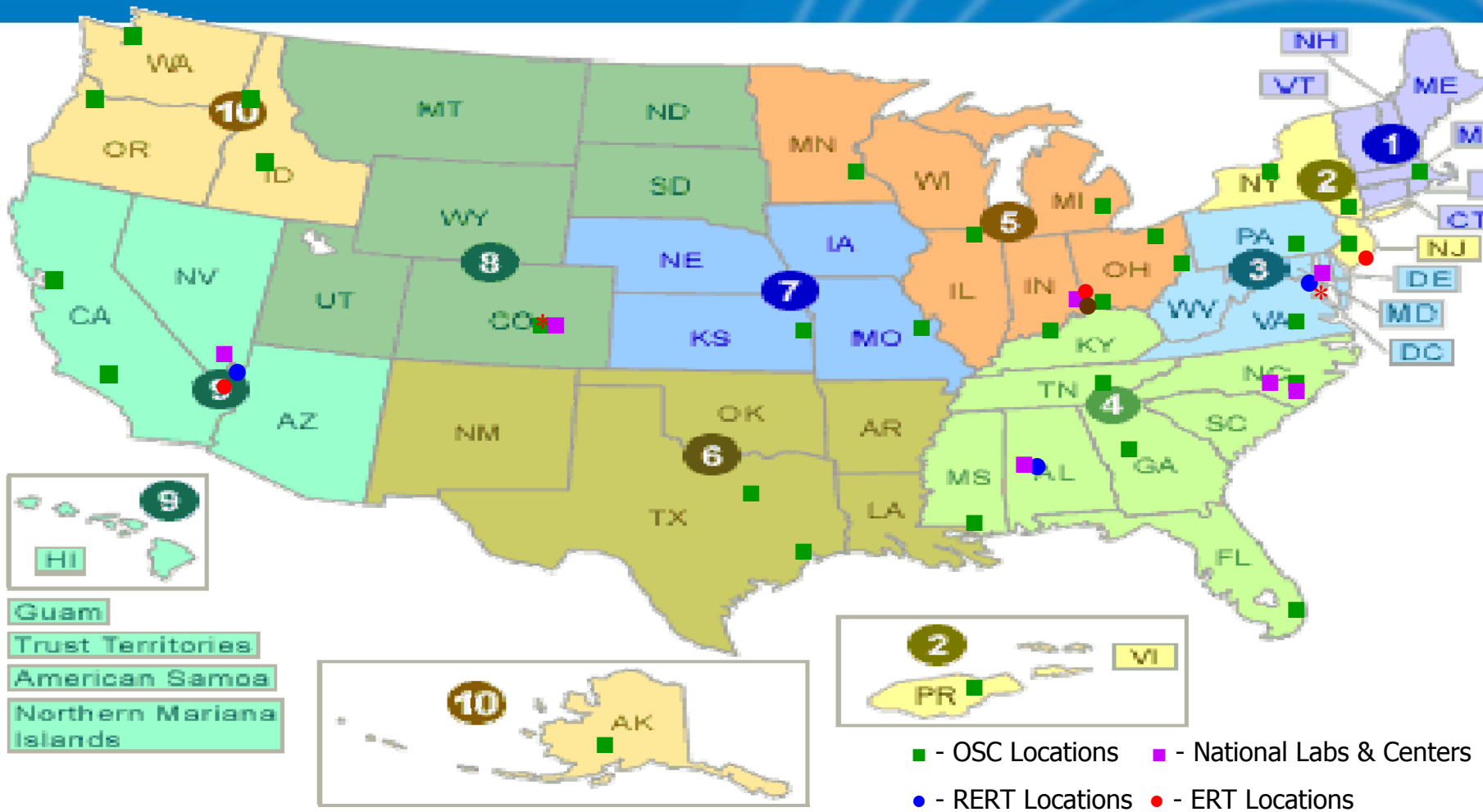
Annex Coordinating Agency Roles & Responsibilites

TYPE OF INCIDENT	COORDINATING AGENCY
a. Radiological terrorism incidents (e.g., RDD/IND or radiological exposure device):	
1) Material or facilities owned or operated by DOD or DOE	1) DOD or DOE
2) Material or facilities licensed by NRC or Agreement State	2) NRC
3) All others *Note: lead transitions to EPA for cleanup*	**3) DOE** ***(to EPA for cleanup)***
b. Nuclear Facilities:	
1) Owned or operated by DOD or DOE	1) DOD or DOE
2) Licensed by NRC or Agreement Stat	2) NRC
3) Not licensed, owned, or operated by a Federal agency or an Agreement State, or currently or formerly licensed facilities for which the owner/operator is not financially viable or is otherwise unable to respond	**3) EPA**
c. Transportation of radioactive materials:	
1) Materials shipped by or for DOD or DOE	1) DOD or DOE
2) Shipment of NRC or Agreement State-licensed materials	2) NRC
3) Shipment of materials in certain areas of the coastal zone that are not licensed or owned by a Federal agency or Agreement State (see USCG list of responsibilities for further explanation of "certain areas")	3) DHS/USCG
4) All others	**4) EPA**
d. Space vehicles containing radioactive materials:	
1) Managed by NASA or DOD	1) NASA or DOD
2) Not managed by DOD or NASA impacting certain areas of the coastal zone	2) DHS/USCG
3) All others	**3) EPA**
e. Foreign, unknown or unlicensed material:	
1) Incidents involving foreign or unknown sources of radioactive material in certain areas of the coastal zone	1) DHS/USCG
2) All others	**2) EPA**
f. Nuclear weapon accident/incident (based on custody at time of event)	DOD or DOE
Other types of incidents not otherwise addressed above	DHS designates

EPA Experience

- Large-scale Incidents
  - Three Mile Island
  - Chernobyl
  - DOE Site Fires
- Small-scale Incidents
  - Lost Sources
  - Removal Sites
  - DOE Site Investigations

EPA Response Assets



EPA On-Scene Coordinators (OSCs)

- Coordinate all Federal HAZMAT response efforts & resources
- Direct, coordinate, and provide technical assistance to all response efforts at an incident or site
- Bring full authority of the NCP
- Can call upon EPA's Special Teams:
  - NCERT
  - ERT
  - NDT
  - RERT

EPA's Role in Threat Response and Incident Assessment

Law Enforcement/Forensic Support

Criminal Investigation Division

- Fully authorized law enforcement officers
- 235 special agents
- Memorandum of Understanding (MOU) with FBI for Environmental Crimes; WMD MOU in Draft

National Enforcement Investigations Center (NEIC)

- Chemical analytical capabilities
- Forensic and rapid public health assessments
- Accredited and nationally recognized in forensic environmental analysis

National Counter-terrorism Evidence Response Team

- High Hazard Evidence Recovery for Chemical, Biological, and Radiological Incidents
- Nationwide team of EPA Special Agents integrated with criminal investigative and science/field expertise and fixed lab support from NEIC

Environmental Response Team (ERT)

- Provides experienced technical and logistical assistance in responding to environmental emergencies
  - Emergency response, site characterization and assessment, verification, cleanup, and disposal of radiologically contaminated wastes or release events
- Response capabilities include:
  - Air Monitoring
  - Alpha, Beta, Gamma, Neutron Detection and Quantification
  - Clean-Up Verification or Final Status Surveys (MARSSIM)
  - Contamination Containment
  - Disposal Option Determination
  - Environmental Monitoring and Sampling Design and Implementation
  - Isotopic Characterization
  - Decontamination

National Decontamination Team (NDT)

- Technical resource for decontamination science to provide support for actions that contribute to the protection of human health, the environment, and national security
- Provides unique, immediate response capabilities to safely and effectively support decon activities related to chemical, biological, and radiological events
- Provides expertise in radiological, chemical, and biological decontamination (for buildings, transportation, agriculture, food, open space, etc.)
- ASPECT provides 24/7 emergency response chemical/radiological plume mapping capability

ASPECT

Radiological Emergency Response Team (RERT)

- Provide guidance & on-scene assistance at Superfund and ER sites to OSCs and in the FRMAC
- Field-Deployable RERT:
  - Focus is on identifying and assessing potential impacts of low-level contamination
  - Field monitoring instruments and sample collection equipment
  - Mobile laboratories and capabilities
- Two “fixed” laboratories capable of providing comprehensive environmental analytical services

Detection and Monitoring

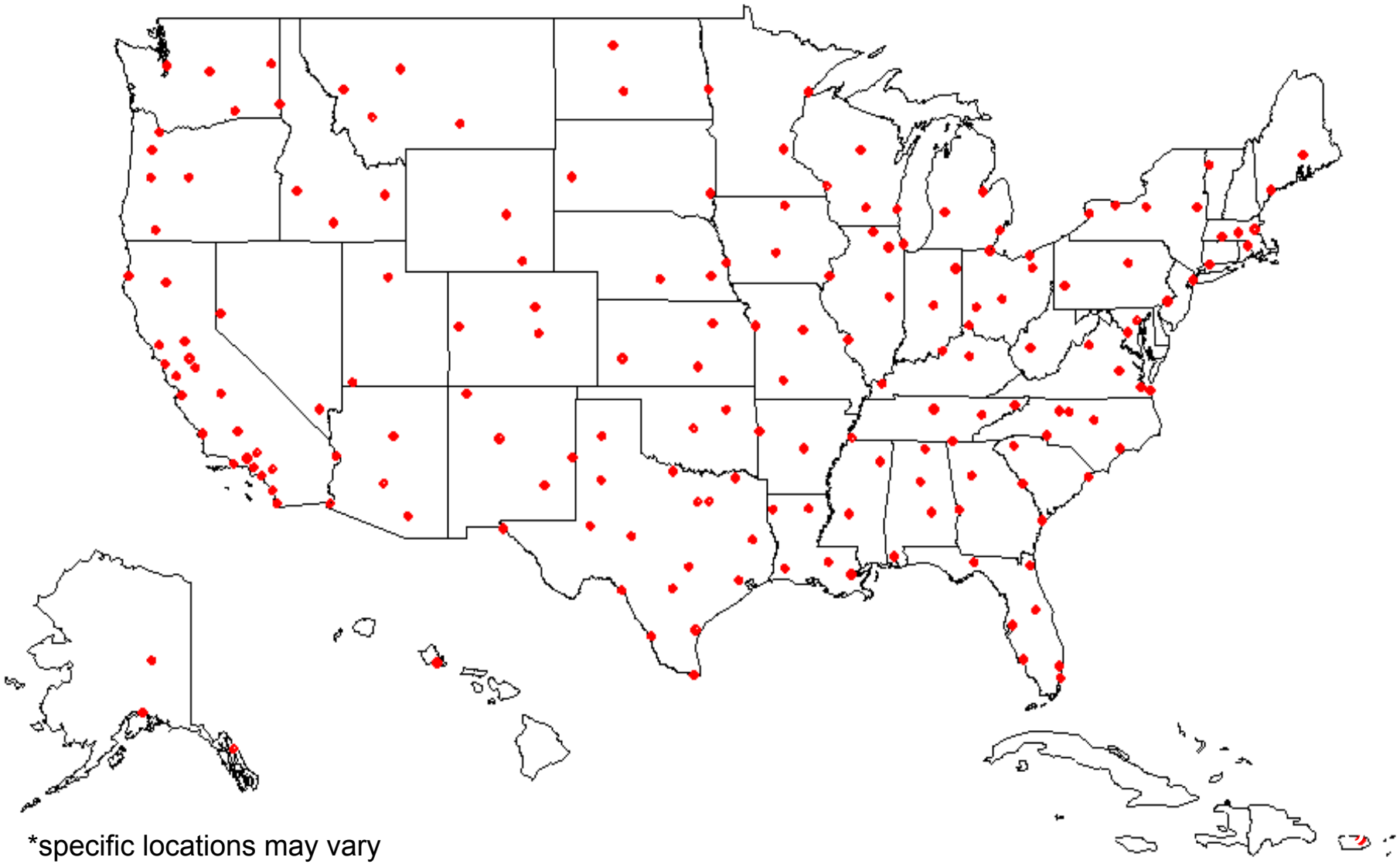
RADNET
Tracking Environmental Radiation Nationwide

EPA is upgrading its air monitoring
because air the most likely pathway of exposure following a terrorist incident

- Previously known as the Environmental Radiation Ambient Monitoring System (ERAMS)
- Nationwide, continuously operating environmental radiation monitoring system
  - Currently upgrading system to include both fixed and deployable components
  - Air monitoring will provide near real-time gamma spectroscopy & beta detection
  - Milk, precipitation, and drinking water also routinely monitored
- Helps decision-makers estimate the effects of radioactive releases on human health and the environment
- Developing system to meet data quality objectives based on response timeline

National Coverage of Future Fixed Air Monitor Locations*

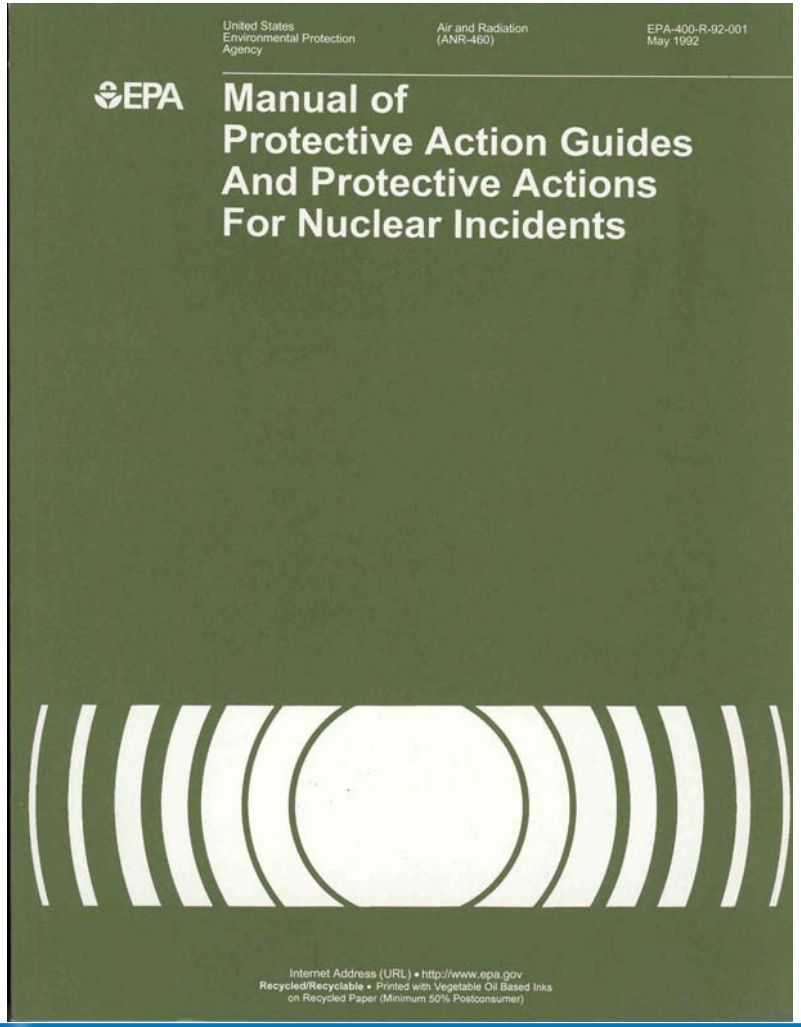
RADNET
Tracking Environmental Radiation Nationwide



*specific locations may vary

The 1991 EPA PAG Manual

- Evolved from previous editions
- Included updates and revisions
- Based on 1970s science
- Promised Water and Recovery Phase



Late Phase Guidance

- DHS RDD/IND document provided the guidance for late phase - cleanup
- Based on EPA Framework for Environmental Risk Management
- Optimization – a process rather than a cleanup number

RDD/IND Cleanup Guidance

- Because of the extreme range of potential impacts, the Subgroup determined that a numerical approach was not useful

- The Subgroup determined that site-specific remediation and recovery strategies should be developed using principals of optimization

Optimization

- A process used to determine the societal objectives for expected land uses, develop and evaluate options and approaches, and select the most acceptable criteria

- Flexible process that employs quantitative and qualitative assessments applied at each stage of site restoration decision-making, from evaluation of remedial options, to implementation of the chosen alternative

Factors in the Optimization Process

- Nature of the incident—size, contaminants, location, special consideration items
- Technical feasibility—waste generation and disposal
- Adverse effects of the cleanup activities
- Effectiveness and permanence

- Areas impacted
- Types of contamination
- Other hazards present
- Human health
- Public welfare
- Ecological risks
- Actions already taken
- Projected land use
- Preservation or destruction of significant places
- Technical feasibility
- Wastes generated
- Disposal options
- Applicable resources
- Potential adverse impacts
- Long-term effectiveness
- Timeliness
- Public acceptability
- Economic effects

Questions?