ROSS Quarterly Call

19 December 2023

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Agenda

- Welcome from FEMA Office of Emerging Threats (OET) Branch Chief and ROSS Program Manager – Jonathan Gill, PhD
- Welcome to new ROSS – Bill Irwin, ScD, CHP, FEMA Type 1 ROSS, CRCPD ROSS Program Manager
- RadResponder/ROSS Nationwide Drill – Christine Allston; Chainbridge Technologies
- CRCPD HS/ER-Updates- - Bill Irwin, ScD, CHP, FEMA Type 1 ROSS
- MissionEdge Updates – Angela Leek, PhD, CHP, FEMA Type 1 ROSS, SummitET
- Planning Guidance for Responding to and Recovering from Radiological Dispersal Device Incidents – Grace Adams, CHP, CIH (CTR); FEMA Office of Emerging Threats
- Closing Remarks – Jonathan Gill, PhD

FEMA Office of Emerging Threats

Opening Remarks

Jon Gill, PhD

Source: GAO. | www.gao.gov

https://www.gao.gov/products/gao-19-164 accessed 2/23/23.

FEMA OET Updates

- Growth in training opportunities PER-388 and the VEST
- HS/ER-4 Activity
- Draft ROSS Program Plan
- Recently published “Planning Guidance for Responding to and Recovering from Radiological Dispersal Device Incidents, December 2023”
- Upcoming visualization products, i.e. videos, to go alongside the “Nuclear Detonation Response Guidance Planning for the First 72 Hours, March 2023”

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Welcome to New ROSS Candidates Finishing PER-388

Bill Irwin, ScD, CHP, FEMA Type 1 ROSS

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Any Questions:

Contact: william.Irwin@vermont.gov

Welcome to New Initial ROSS Training Course Graduates!

- Seventy-five new people, mostly from California, connecting to the ROSS Program.
  - PER-388 is the initial step that nearly 320 people have taken.
  - Documenting training and experience in the in the ROSS Position Task Book (PTB) is where the fuller ROSS development occurs.
- We are grateful to the folks in California, particularly FEMA ROSS Juan Garcia, who planned and prepare for this and the ROSS who trained the new folks!
- We will invite all the new ROSS to a ROSS Orientation course to be scheduled for January 2023. We will invite previously trained ROSS, the State ROSS Coordinators and the State Authorities Having Jurisdiction, too.

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The Next Steps

- A reminder to send your certificates for ROSS Type 4 Training to FEMA-ROSS@fema.dhs.gov: IS-100, IS-200, IS-700, IS-800, IS-836 or equivalents and PER-388.
- You will then be invited as a Type 4 ROSS to join MissionEdge and get assigned your Type 3 PTB to work on so to can work independently as a ROSS.
- We are doing our best to provide opportunities where you can advance in type:
  - The ND and RDD Virtual Evaluation Scenario Tool (VEST), tabletop and full-scale exercises, the Department of Energy Nuclear Emergency Support Team Reserve Corp, and quarterly ROSS problem sets.
  - Historical recognition to document competencies demonstrated in the past.

RadResponder/Radiological Operations Support Specialist Nationwide Drill

Christine Allston, Chainbridge Technologies

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Any Questions:

Contact: callston@chainbridgetech.com

The RadResponder/ROSS Nationwide Drill

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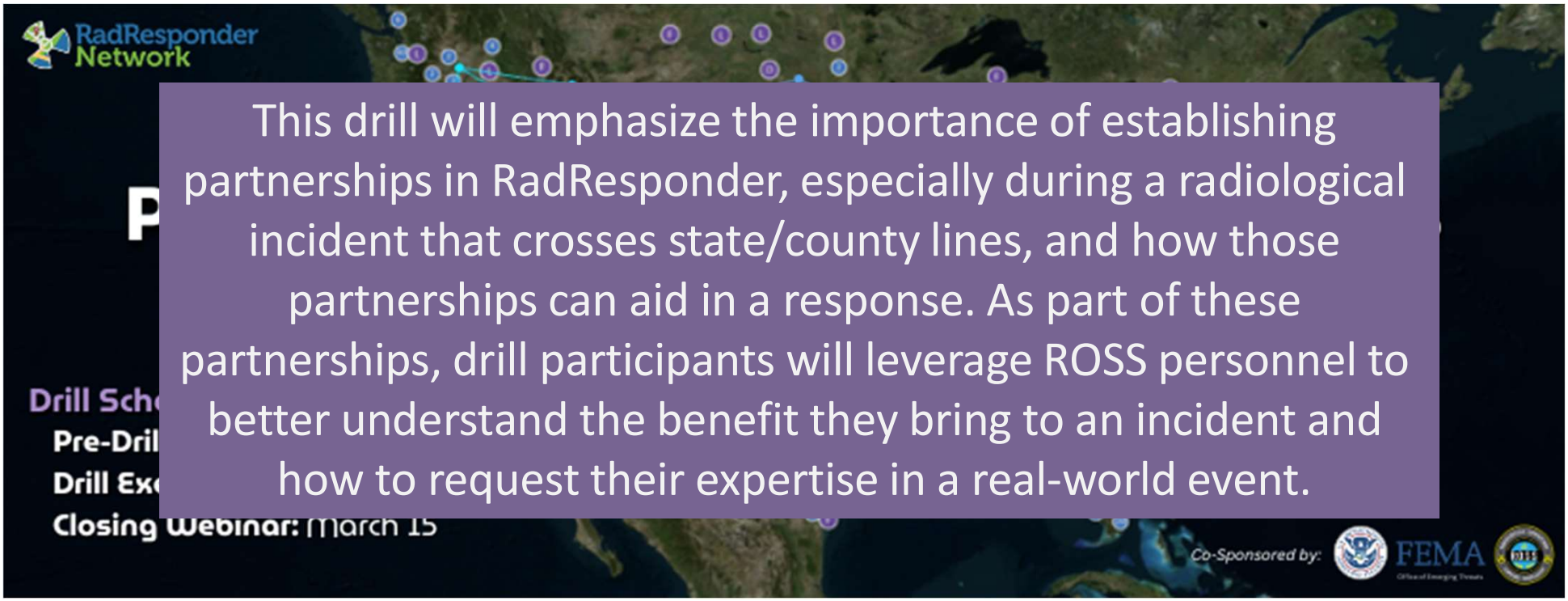
The RadResponder/ROSS Nationwide Drill



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The RadResponder/ROSS Nationwide Drill

- Open to all RadResponder users and organizations
- Players will be grouped based on geographic region and will “respond” to a fictional radiological incident affecting multiple counties/states
- ROSS will make recommendations to decision-makers in response to injects
- Injects over multiple days will link to tasks in the Position Task Books
- Main goal of the drill is to leverage the partnership functionality in RadResponder and having organizations decide on how to set up those partnerships outside of RadResponder (i.e. setting up agreements/procedures)

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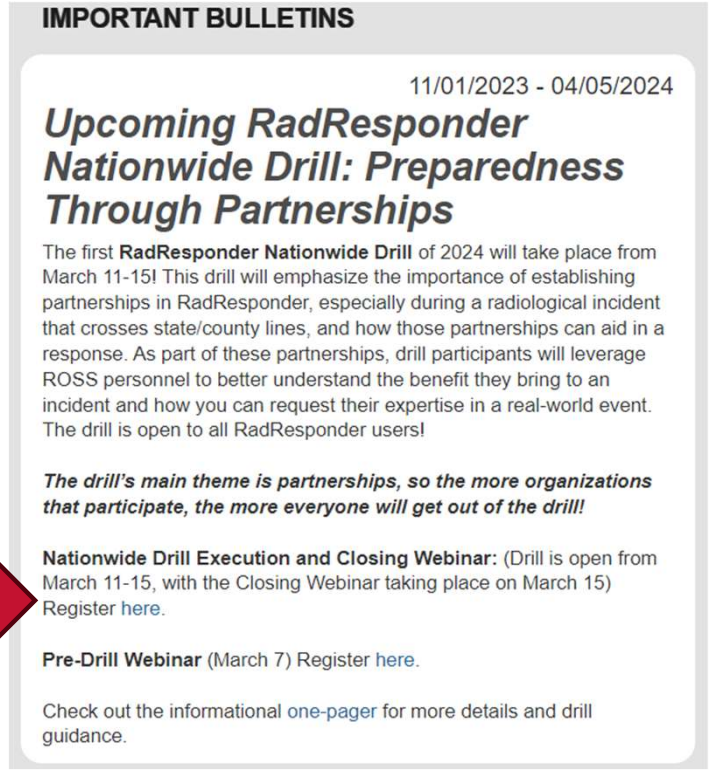
The RadResponder/ROSS Nationwide Drill



IMPORTANT BULLETINS

11/01/2023 - 04/05/2024

Upcoming RadResponder Nationwide Drill: Preparedness Through Partnerships

The first **RadResponder Nationwide Drill** of 2024 will take place from March 11-15! This drill will emphasize the importance of establishing partnerships in RadResponder, especially during a radiological incident that crosses state/county lines, and how those partnerships can aid in a response. As part of these partnerships, drill participants will leverage ROSS personnel to better understand the benefit they bring to an incident and how you can request their expertise in a real-world event. The drill is open to all RadResponder users!

The drill's main theme is partnerships, so the more organizations that participate, the more everyone will get out of the drill!

Nationwide Drill Execution and Closing Webinar: (Drill is open from March 11-15, with the Closing Webinar taking place on March 15) Register here.

Pre-Drill Webinar (March 7) Register here.

Check out the informational one-pager for more details and drill guidance.

- RadResponder homepage has all drill-related links
- Registration: https://register.gotowebinar.com/register/8916141435788291415

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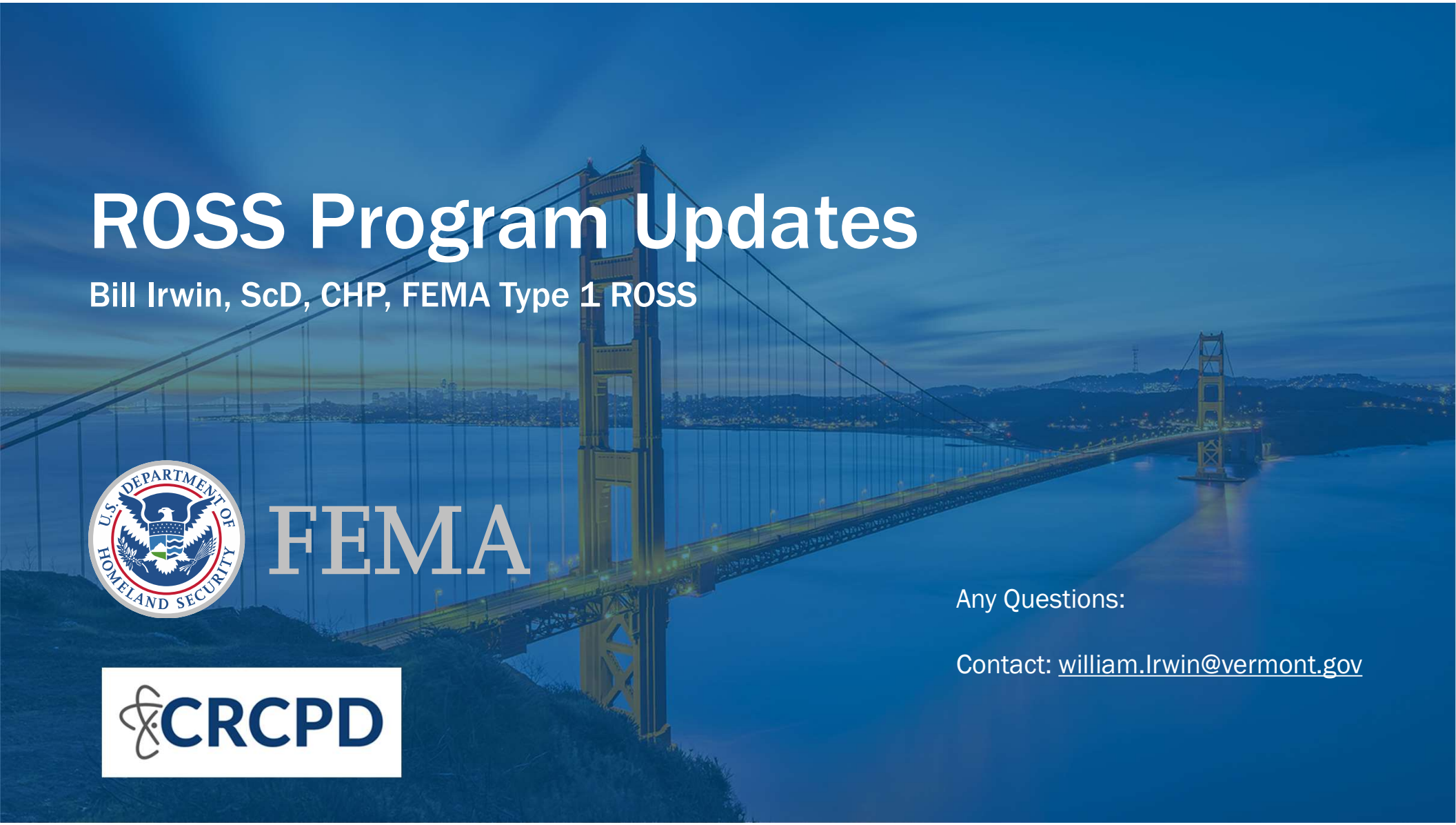

ROSS Program Updates

Bill Irwin, ScD, CHP, FEMA Type 1 ROSS

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Any Questions:

Contact: william.Irwin@vermont.gov

Training and Exercises for 2024

- Our team that taught at NREP, CRCPD and HPS the last three years has submitted abstracts for eight-hour training on nuclear power plant emergencies for:
  - The National Radiological Emergency Preparedness scheduled for 29 April 2024in Santa Cruz, California, and
  - The Conference of Radiation Control Program Directors scheduled for 19 May 2024 in Jacksonville, Florida
- The Department of Energy Office of Radiological Security has a slate of Silent Thunder tabletop exercises again this year.
- Iowa has arranged for ROSS in their nuclear power plant exercises 30 January 2024 and 27 February 2024.
- Working with the Planning Committee on Cobalt Magnet 2025 (CM 25).

Date	Program	Location
7 February 2024	St. John Medical Center Silent Thunder	Tulsa, OK
28 February 2024	CURRIE Miami	Miami, FL
27 March 2024	Kansas University Medical Center Silent Thunder	Kansas City, KS/MO
10 April 2024	Providence Portland Medical Center Silent Thunder	Portland, OR
26 June 2024	Brown University Silent Thunder	Providence, RI
24 July 2024	Auburn University Silent Thunder	Auburn, AL
25 August 2024	University of Tennessee Memphis Silent Thunder	Memphis, TN
TBD 2024	Monmouth University Medical Center Silent Thunder	Long Branch, NJ

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The NEST Reserve Corp

- I am a member of the DOE NEST Reserve Corp leadership and have obtained permission to invite ROSS to apply to the Reserve Corp.
- Like other Reserve Corp, that for the NEST is comprised of people to supplement and support active-duty NEST personnel.
- Reserve Corp. members must meet the requirements of the position they fill, or have sufficient education, training and experience to support, but not relieve, other NEST employees or to support NEST special projects.
- You must be retired or take vacation from your full-time job to take training of at least two weeks per year.
- If you are interested, please send me your resume with a cover letter (william.Irwin@doerer.us).
- If you are accepted, you may be hired as contract support and paid for your training time.

ROSS Within the NEST Reserve Corp

- We recognize that ROSS will learn a great deal from their experiences qualifying as NEST Reserve Corp members.
  - ROSS may learn new skills that match up well with Position Task Book tasks.
  - ROSS will learn more about the NEST as they train, exercise and deploy with DOE NEST staff.
  - Reserve Corp members will recognize the advanced knowledge and skills ROSS have learned in training and exercises or on the job or on deployments.
  - It furthers our national goal to have a unified response and recovery force among federal, state, local, tribal and territorial jurisdictions. with similar skills, knowledge and abilities.
- Policy is needed to describe, among other things, how ROSS can support the Reserve Corp. and not compromise preparedness in their home jurisdiction.

Other CRCPD HS/ER-4 Work for the ROSS

- Angela and Chainbridge Technologies provided MissionEdge training first for State ROSS Coordinators and Authorities Having Jurisdiction and then to the whole ROSS community.
- Working now to incorporate all PER-388 students into the roster, and assign PTBs to Type 2, 3 and 4 ROSS.
- A major task is to help State ROSS Coordinators gradually take a leading role with ROSS in their states starting with MissionEdge and moving on to integrating ROSS into emergency organizations, plans and training activities.

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- The Student Recruitment Subcommittee is working with POCs in Michigan, Ohio, Utah, Massachusetts and Nebraska to get 40 of the best potential ROSS in each class in 2024.
- The networking Subcommittee continues to expand ROSS information through a variety of social media channels while reinforcing traditional channels like the ROSS Portal at www.crcpd.org and HSIN.
- Records Management working to ensure an accurate ROSS roster and to develop metrics that define our community activities.
- Exercise and EMAC Deployment is filling out NEMA templates to make use by AHJ simpler.

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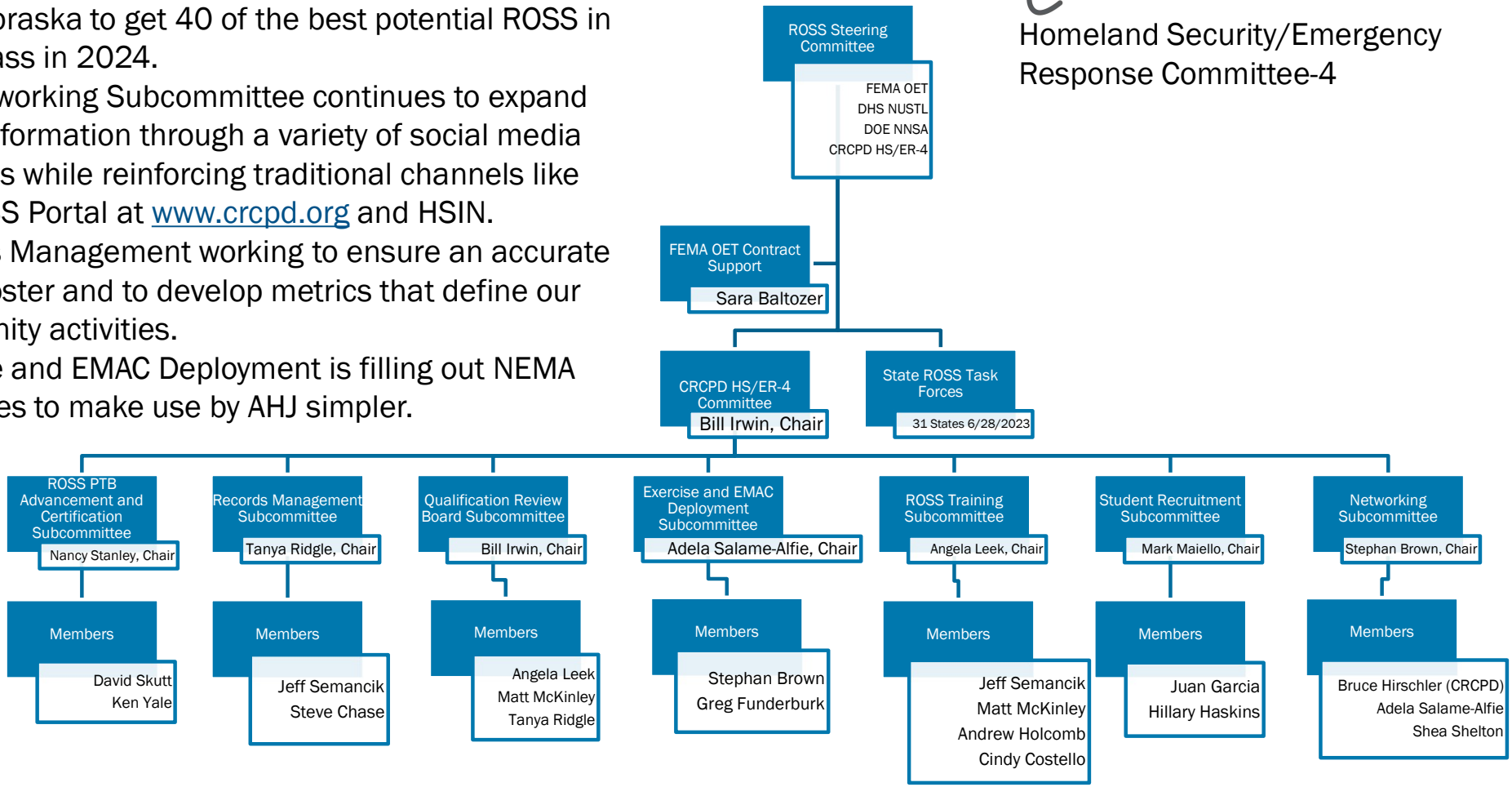
Homeland Security/Emergency Response Committee-4



MissionEdge Updates

Angela Leek, CHP, FEMA Type 1 ROSS, Summit ET

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Any Questions:

Contact: angelaleek@summitet.com

MissionEdge Update – Angela Leek, CHP, FEMA Type 1 ROSS

MissionEdge is ROSS qualification tracking system

Each ROSS, State ROSS Coordinator, and Authority Having Jurisdiction has an account –
PLEASE ACCEPT IF YOU HAVEN'T ALREADY

Two training sessions available online:

- https://youtu.be/944kBte05FQ - MissionEdge Portal Training All ROSS, AHJ, and SRC 20231103
- https://youtu.be/PPJ-Sa7_S3k - MissionEdge Training AHJ and State ROSS Coordinators 20231030

Additional training videos will be developed

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Planning Guidance for Responding to and Recovering from Radiological Dispersal Device Incidents (December 2023)

Grace Adams, CHP, CIH (CTR) FEMA Office of Emerging Threats

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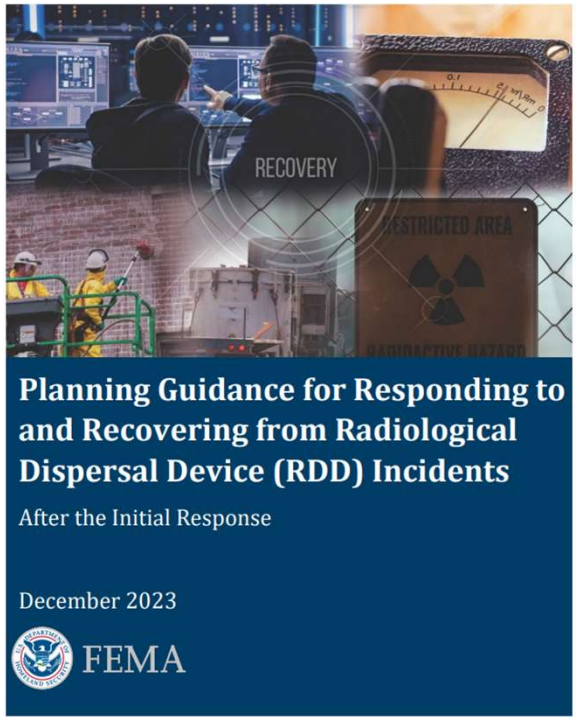
Any Questions:

Contact: grace.adams@associates.fema.dhs.gov

Introduction

- Radiological dispersal devices (RDDs) represent an unlikely but potentially hazardous incident
  - Specialized guidance required to effectively prepare, respond, and recover
  - Preparedness for RDDs also enhances preparedness for accidental releases
- Existing guidance provides tactical-level info on initial response actions for local responders
  - 2017 *Radiological Dispersal Device (RDD) Response Guidance: Planning for the First 100 Minutes*
- This new guidance extends the previous guidance beyond the "First 100 Minutes," encompassing both sustained response and long-term recovery
  - Developed in collaboration between FEMA Office of Emerging Threats (OET) and DHS Science and Technology Directorate, National Urban Security Technology Laboratory (NUSTL)



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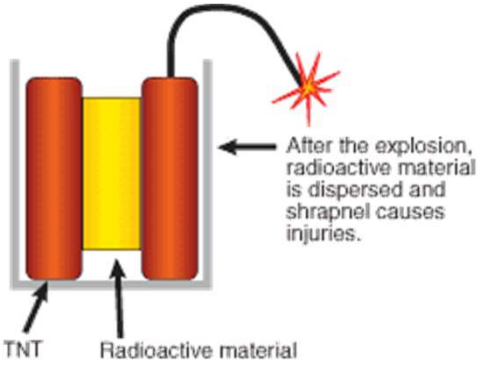
Radiological Dispersal Devices – What Are They?

- **An RDD is any device that disperses radioactive material over an area**
  - The typical scenario involves an *explosive* RDD, which use conventional explosives as a method to disperse radioactive material.
  - Most initial injuries and fatalities on scene will be due to shrapnel, blast, and/or burns from the explosive
- **The dispersed radioactive material can be categorized as either:**
  - **BB/ fragmentation**: When a large fraction of the radioactive material in the device disperses as large particles (~100-500 µm) and/or ballistic fragments (> 1 cm). These travel shorter distances, are less likely to rapidly spread contamination under adverse environmental conditions (wind) but may produce stronger radiation fields than a "smoke" RDD.
  - **Smoke/ aerosol:** When a device converts a large fraction of the radioactive material into aerosol (< 100 µm), which deposits locally and at long distance by a plume in accordance with the meteorological conditions at the time of the release.



Document Introduction

- **Scope**
  - Flexible framework that can be adapted to a wide range of potential RDD scenarios and are intended to be adaptable to any level or size of jurisdiction or geographic area – **large or small, urban or rural**.
- **Audience**
  - Emergency planners, responders, and leaders representing a variety of multi-jurisdictional emergency management, public safety/first responder (e.g., law enforcement, fire, emergency medical services, and hazardous materials), environmental protection, engineering, public health, public works, crisis communications, disaster recovery, and other organizations that plan, conduct, oversee, and/or are legally responsible for RDD incident response and recovery.
- **Overarching Conceptual Structure**
  - "**Strategies**" represent high-level outcomes that the responding jurisdiction(s) should be striving to accomplish throughout RDD incident response and near-term recovery.
  - "**Focus Areas**" refer to operational response activities that must be executed in order to achieve a strategic objective.

Document Structure

Strategy 1: Characterize, Map, and Model radiological hazards to establish the maximum extent of contamination spread; provide data for remediation activities and determine the potential risk radiation exposure poses to people and the environment within the contaminated area.

Strategy 2: Communicate radiation exposure risks to responders and the public throughout the response and recovery effort.

Strategy 3: Monitor and Assist affected populations to reduce their radiation exposure and enable continuity of disaster services amid a contaminating incident.

Strategy 4: Restore the Environment by reducing and removing radioactive hazards to the public, including radiological waste generated by the incident and subsequent cleanup activities.

Strategy 5: Reopen and Recover impacted areas to enable public reoccupation, re-use and equitable rehabilitation of communities.

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1

Characterize, Map, and Model

- **Focus Area 1:** Survey Radiological Hazards
- **Focus Area 2:** Implement Radiation Exposure Mitigation

2

Communicate

- **Focus Area 3:** Public Communications

3

Monitor and Assist

- **Focus Area 4:** Conduct Phased Evacuation
- **Focus Area 5:** Screen and Decontaminate

4

Restore the Environment

- **Focus Area 6:** Restore and Sustain Critical Infrastructure and Buildings
- **Focus Area 7:** Remediate
- **Focus Area 8:** Manage and Dispose of Waste

5

Reopen and Recover

- **Focus Area 9:** Reopen
- **Focus Area 10:** Enable Long Term Recovery

Critical Considerations

- Mode of dispersal
- Amount of material involved
- Isotope involved
- Particle size and solubility
- Nature of the area(s) impacted
- Population of the area(s) impacted
- Geography and weather
- Concurrent response, recovery, and law enforcement investigations
- Resource and capability gaps

Radiation Emitted	Harm to Humans	Ease of Detection	Example Isotopes
Gamma	Can cause harm at a distance, protective clothing largely ineffective. Respiratory PPE is critical	Easy to detect with common personal detectors	Cesium-137, Cobalt-60, Iridium-192
Beta	Most dangerous if ingested or on skin or clothes, also represents an inhalation hazard	Moderately difficult to detect, requires Geiger-Mueller (GM) detector of personal beta detection equipment	Strontium-90, tritium (Hydrogen-3)
Alpha	Only dangerous if inhaled or ingested	Difficult to detect, requires specialized equipment and potentially sample processing	Americium-241, Uranium-238, Radium-226

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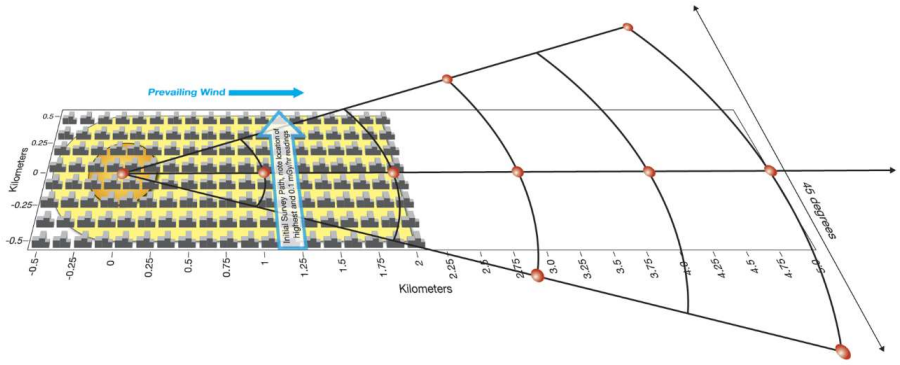
Focus Area 1: Survey Radiological Hazards

Focus Area 2: Implement Radiation Exposure Mitigation

Initial Shelter in Place (500 m in all directions and 2,000 m downwind)

Initial Hot Zone (250 m from release)



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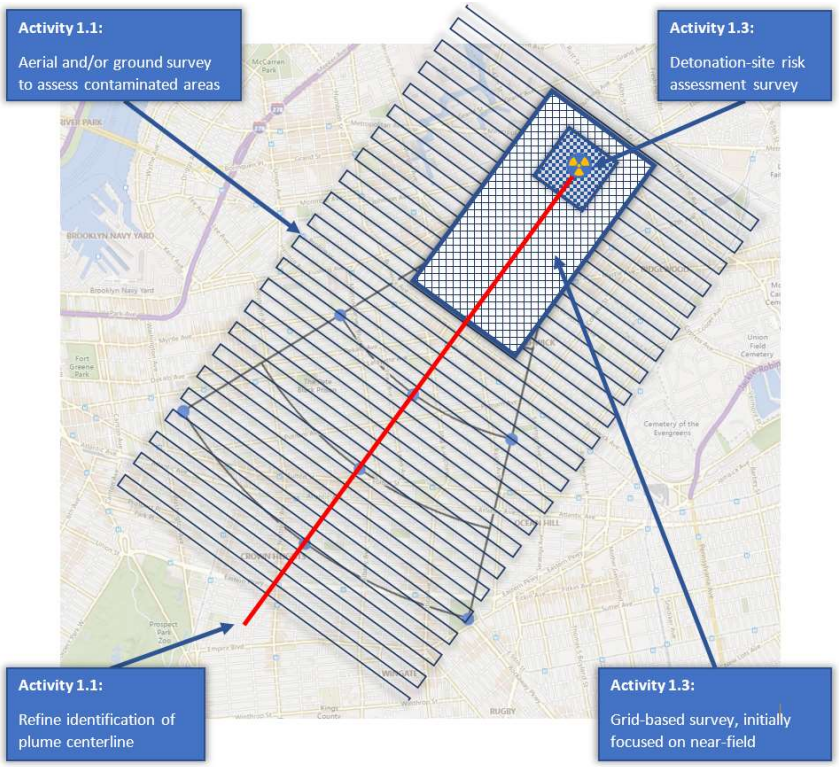
Strategy 1

CHARACTERIZE, MAP AND MODEL radiological hazards to establish the maximum extent of contamination spread, provide data for remediation activities, and determine the potential risk radiation exposure poses to people and the environment within the contaminated area.

Focus Area 1: Survey Radiological Hazards

- **Setting the Stage**
  - Shelter-In-Place issued for an area 500m x 2000m downwind
  - 10-Point Monitoring Survey conducted
  - Wide-spread contamination and localized Dangerous Radiation Zone "hot spots" expected in the near field
  - Hundreds of individuals impacted, dozens of life-threatening injuries, 10-20 fatalities (all highly contaminated)
- **Major Challenges**
  - Limited resources for radiation detection and dosimetry
  - Identification and isolation of a large contaminated area
  - Deposition of highly radioactive debris in vicinity of detonation site
- **High-level Objectives**
  - Perform a detailed Radiological Characterization and Assessment
  - Establish, refine, and maintain a formal contaminated area boundary
  - Coordinate with law enforcement regarding evidence collection and identification of secondary devices



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Focus Area 2: Implement Radiation Exposure Mitigation

- **Setting the Stage**
  - Contaminated area boundary has been identified
  - Specific surveys to support protective action decisions a priority
  - Broader radiological characterization ongoing
- **Major Challenges**
  - Resuspension and migration of residual radioactivity is possible
  - The contaminated area is large, but a consensus is needed to determine exposure/contamination thresholds for excluding public access and drawing boundaries
  - A significant magnitude of individuals and property impacted
- **High-level Objectives**
  - Identify exposure pathways & dose estimates for people at risk
  - Implement radiation exposure mitigation

Hazard Mitigation – As Low as Reasonably Achievable (ALARA)

Time – Minimizing exposure time within a radiation field directly reduces radiation dose. Dose rate is the rate at which the radiation is absorbed.

Distance – Increasing the distance between you and the radiation source lowers exposure very quickly. Radiation exposure goes down by a factor of four when you double the distance and by a factor of nine if the distance is tripled.

Shielding – Lead or lead-equivalent shielding for x-rays and gamma rays effectively reduces radiation exposure.

Focus Area 3: Public Communications

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Strategy 2

COMMUNICATE radiation exposure risks to responders and the public throughout the response and recovery effort.

Focus Area 3: Public Communications

Key Terminology: *Trusted Sources* are members of the community who can help disseminate information and act as a feedback mechanism to facilitate bidirectional communication (e.g., religious leaders, community organizers, union leadership)

- **Setting the Stage**
  - Unified Command and Joint Information Centers (JIC) have been activated
  - Initial alert messages distributed to public:
    - "A radiation emergency has occurred"
    - Shelter-in-Place message
    - Self-decontamination instructions
    - Notification of ad hoc screening and decontamination sites open / to-open
- **High-level Objectives**
  - Evolve messaging as new information arrives, leveraging radiological subject matter experts and trusted sources
  - Plan and implement strategy for long-term messaging & public outreach
- **Major Challenges for Public Communications**
  - Radiological risks are unfamiliar, invisible, and frightening
  - Need people to abide by protective actions, but some may resist (expect misinformation and/or distrust in government)
  - Incomplete information initially and evolving guidance as the incident progresses

Focus Area 4: Conduct Phased Evacuation

Focus Area 5: Screen and Decontaminate

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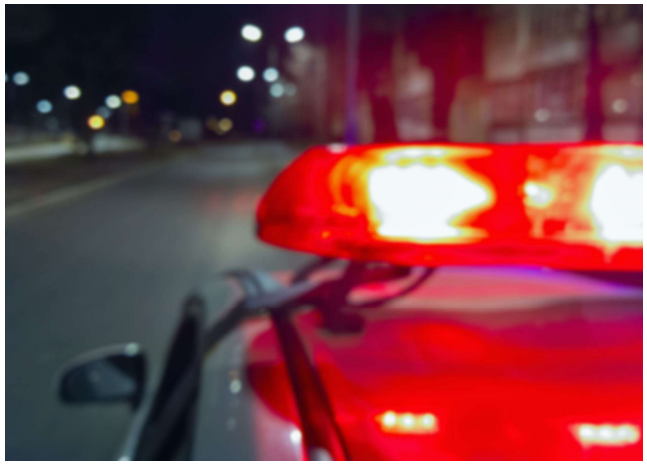
Strategy 3

MONITOR AND ASSIST affected populations to reduce their radiation exposure and enable continuity of disaster services amid a contaminating incident.

Focus Area 4: Conduct Phased Evacuation

- Setting the Stage
  - Individuals in the immediate vicinity of the explosion have been evacuated and shelter-in-place (SIP) orders have been issued for those in the surrounding area
  - Actions to establish the contaminated area boundary are in progress (Focus Area 1)
  - Exposure pathways are being assessed and a dose assessment for people in the contaminated areas is being conducted using the survey and sampling data
- Major Challenges
  - Critical information, such as the full extent of contamination spread, is still incomplete and being assessed
  - Contamination is detected in areas outside of the initial SIP area.
  - High dose rate debris in vicinity of the detonation site
- High-level Objectives
  - Identify areas requiring additional shelter and evacuation
  - Mobilize a phased evacuation



Focus Area 5: Screen and Decontaminate

- Setting the Stage
  - The affected area is being evacuated in stages (Focus Area 4) – evacuees may be contaminated
  - Response workers are entering and exiting contaminated areas, carrying out essential missions
  - The extent and type of contamination may still be undergoing evaluation
- Major Challenges
  - Multiple screening and decontamination sites will need to be stood up quickly
  - These sites will need to accommodate families, children, people with access and functional needs, and pets
  - Decedents may require screening, decontamination, and special handling
- High-level Objectives
  - Provide screening and decontamination services to response workers and the public

Focus Area 6: Restore and Sustain Critical Infrastructure and Buildings

Focus Area 7: Remediate

Focus Area 8: Manage and Dispose of Waste

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Strategy 4

RESTORE THE ENVIRONMENT by reducing and removing radioactive hazards to the public, including radiological waste generated by the incident and subsequent cleanup activities.

Focus Area 6: Restore and Sustain Critical Infrastructure and Select Buildings

- **Setting the Stage**
  - The affected area has been evacuated and secured
  - Cleanup and remediation plans are being developed
  - The spread of contamination is well-characterized through intermediate and late-phase activities in Strategy 1.
- **Major Challenges**
  - Potential for infrastructure degradation
  - Large number of uninhabited structures
  - Need specialized teams to survey and maintain buildings
  - Some areas may be uninhabited for years
  - Access needed to both public and private property
- **High-level Objectives**
  - Prevent evacuated areas from degrading to a point where it delays, complicates, or deters remediation or reoccupation

Focus Area 7: Remediate

- Setting the Stage
  - Contaminated areas have been evacuated and secured (Focus Area 4)
  - Geographic extent of contamination and the Contaminated Area boundaries are well understood (Focus Area 1)
  - Exposure pathways are generally well understood (Focus Area 2)
- Major Challenges
  - Residences, businesses, public buildings, and/or parks are contaminated
  - Regulatory standards for cleanup levels may not be applicable to a wide-area urban contamination incident due to technical, economic, time, and social repercussions.
  - Public expectations may not align with measurable health-risk or feasibility of cleanup.
  - May require iterating activities if cleanup levels are not acceptable, or if technical challenges prevent cleanup of some areas
  - Clean up from an urban RDD has never been performed (although there have been exercises and partially-analogous incidents)
- High-level Objectives
  - Hire experienced radiation remediation contractors
  - Identify/determine cleanup levels and prioritize areas for cleanup
  - Develop remediation plans and perform cleanup
  - Verify cleanup levels are met, and release the area/site

Focus Area 8: Manage and Dispose of Waste

- **Setting the Stage**
  - Contaminated areas have been evacuated and secured
  - Radiologically contaminated waste (solid and aqueous) is generated from emergency response activities (e.g., decontamination, personal effects, medical/triage waste, CRC activities, etc.)
  - Cleanup activities are being planned, which will be influenced by waste estimations (and generate waste once initiated)
- **Major Challenges**
  - Radioactive waste will be generated and will require storage or disposal
  - Requires specialized contractors and disposal sites are limited
- **High-level Objectives**
  - Establish temporary radiologically-contaminated waste storage sites
  - Estimate waste generated from area remediation activities
  - Work with regional and federal partners to implement a waste transportation and long-term disposal strategy

Focus Area 9: Reopen

Focus Area 10: Recover

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Strategy 5

REOPEN AND RECOVER impacted areas to enable public reoccupation, re-use and equitable rehabilitation of communities.

Focus Area 9: Reopen

- Setting the Stage
  - The contaminated areas have been evacuated and secured (Focus Area 4)
  - Cleanup and remediation plans are nearing completion in some areas and the remediated area is ready for release (Focus Area 7)
  - Waste management and waste disposal operations are under way (Focus Area 8)
- Major Challenges
  - Timely communication about reopening schedule
  - Managing repairs and inspections in a timely manner to ensure safety and address population needs
- High-level Objectives
  - Establish the criteria for reopening buildings and other structures
  - Conduct repairs and prepare for reopening
  - Prioritize reopening decisions

Focus Area 10: Enable Long Term Recovery

- **Setting the Stage**
  - Contaminated areas have been evacuated and critical infrastructure has been sustained (Focus Areas 4 and 6)
  - Cleanup and remediation plans continue to be executed and the remediation effort is some is completed (Focus Area 7)
  - Waste management and waste disposal continues steadily (Focus Area 8)
  - Remediation is ongoing (Focus Area 9)
- **Major Challenges**
  - Estimating and obtaining adequate resources for long term recovery
  - Restoring economic and community vitality
  - Establishing a “new normal” for the community
- **High-level Objectives**
  - Assessing radiological-related issues and assessing cost of rebuilding
  - Managing resources to address large-scale recovery activities

Last Thoughts

- This new document provides guidance on response and recovery activities that occur after the initial response (as described in the 2017 100-Minute Guidance)
  - The strategies and their associated focus areas described in the new guidance are designed to walk planners through a variety of RDD-specific information and operational activities essential to effective response and recovery
- Document is action-oriented, tactical-level guidance
  - Each item in the focus areas is an instruction of what needs to happen
- Document is newly available at Tools Sponsored by the Office of Emerging Threats | FEMA.gov

Closing Remarks

Jon Gill, PhD, FEMA Office of Emerging Threats

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Any Questions:

Contact FEMA-ROSS@FEMA.DHS.GOV