Welcome to the CLU-IN Internet Seminar

OSC Readiness Presents...RAD Emergency Response Plan

Sponsored by: U.S. EPA, Office of Superfund Remediation and Technology Innovation

Delivered: August 25, 2011, 2:00 PM - 4:00 PM, EDT (18:00-20:00 GMT)

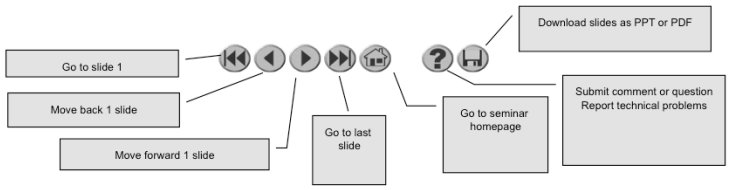
Instructor:
Sara DeCair, EPA Office of Radiation and Indoor Air (Decair.sara@epa.gov or 202-343-9713)
Kathryn Snead, EPA Office of Radiation and Indoor Air (Snead.kathryn@epa.gov or 202-343-9228)
Moderator:
Michele Mahoney, U.S. EPA Technology Innovation and Field Services Division (mahoney.michele@epa.gov or 703-603-9057)

Visit the Clean Up Information Network online at www.cluin.org

1

Housekeeping

- Please mute your phone lines, Do NOT put this call on hold
  - press *6 to mute #6 to unmute your lines at anytime
- Q&A
- Turn off any pop-up blockers
- Move through slides using # links on left or buttons



- This event is being recorded
- Archives accessed for free **http://cluin.org/live/archive/**

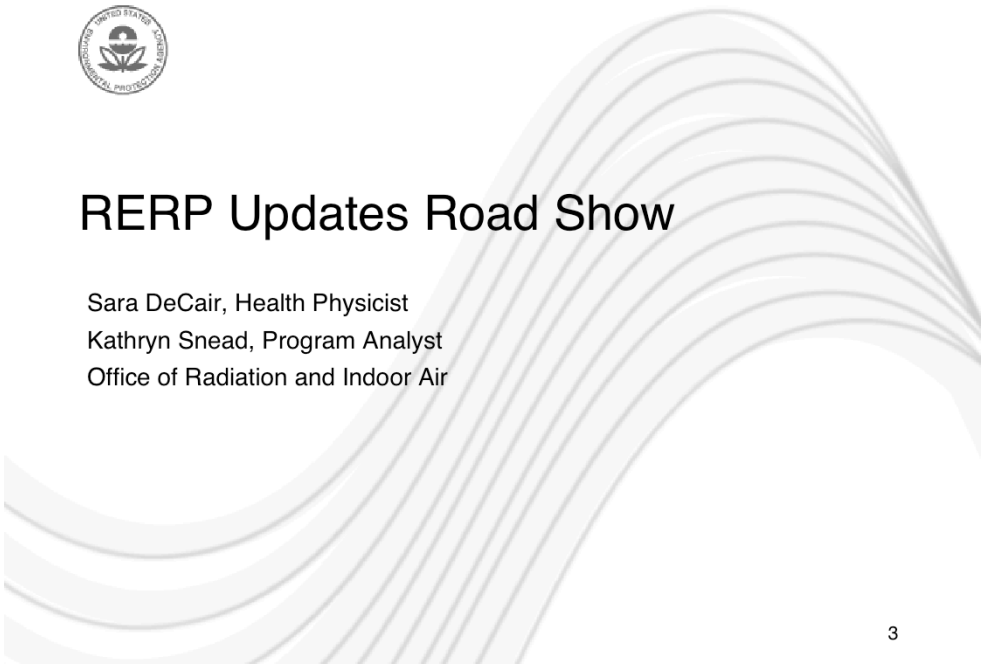
2

Although I'm sure that some of you have these rules memorized from previous CLU-IN events, let's run through them quickly for our new participants.

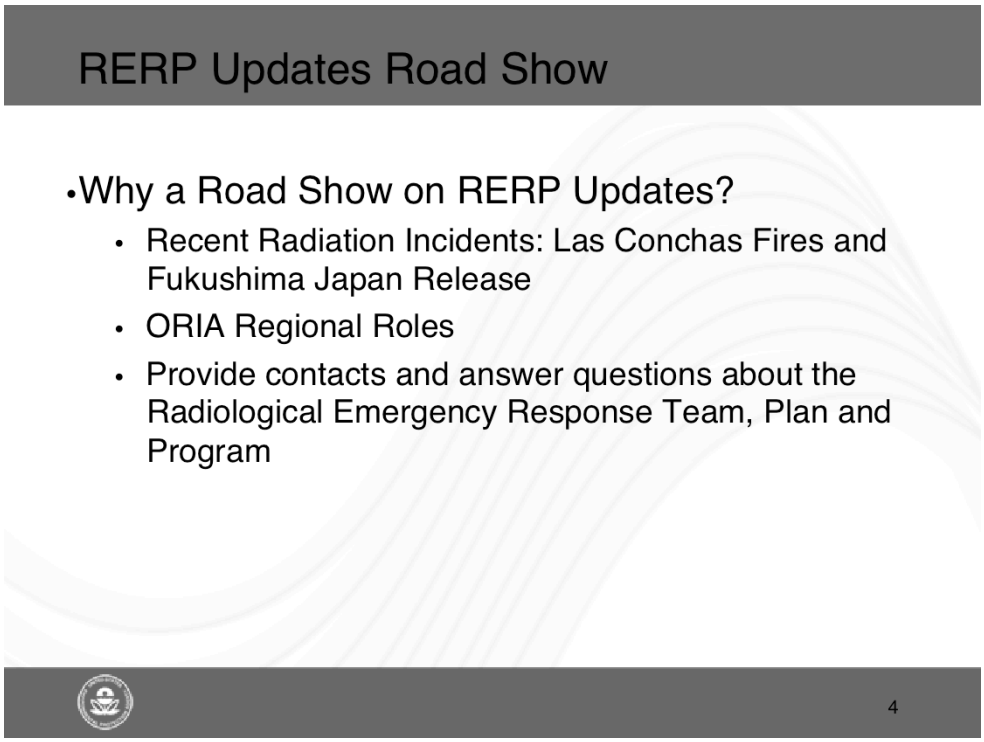
Please mute your phone lines during the seminar to minimize disruption and background noise. If you do not have a mute button, press *6 to mute #6 to unmute your lines at anytime. Also, please do NOT put this call on hold as this may bring delightful, but unwanted background music over the lines and interupt the seminar.

You should note that throughout the seminar, we will ask for your feedback. You do not need to wait for Q&A breaks to ask questions or provide comments. To submit comments/questions and report technical problems, please use the ? Icon at the top of your screen. You can move forward/backward in the slides by using the single arrow buttons (left moves back 1 slide, right moves advances 1 slide). The double arrowed buttons will take you to 1st and last slides respectively. You may also advance to any slide using the numbered links that appear on the left side of your screen. The button with a house icon will take you back to main seminar page which displays our agenda, speaker information, links to the slides and additional resources. Lastly, the button with a computer disc can be used to download and save today's presentation materials.

With that, please move to slide 3.



Most people will interpret this as being the RERP (Radiological Emergency Response Plan, more often depicted by EPA-RERP), but it really stands for the Radiological Emergency Response Program, which encompasses those portions of ORIA that contribute to emergency response (Most of RPD, NAREL and R&IE, as well as parts of the ORIA front office) and most regional personnel that work in the radiation program within their region. This is a bigger group than those who are part of the RERT, which consists of specific rostered positions with H&S requirements, etc.



Definition of Road Show:

road show

noun

1. a show, as a play or musical comedy, performed by a touring group of actors.

2. an important motion picture, usually presented only twice daily on a reserved-seat basis and at increased prices.

3. any traveling exhibit, as one promoting a company's products or a government program.

4. Informal . any group traveling about the country for a specific purpose, as a political candidate together with his or her entourage.

Recent Radiation Incidents: Las Conchas Fires and Fukushima Japan Release

Las Conchas Fire Response

6

Region 6 took the lead for the Las Conchas Fire Response. The Las Conchas Fire began in late June and continued into July 2011. It currently ranks as the largest wildfire in New Mexico's history.

The RERT, as a Special Team, deployed in support of Region 6's response and performed air monitoring in several locations. There was some concern that the fire would spread to portions of the Los Alamos National Laboratory, especially areas where radioactive waste and facilities handling radioactive materials, especially plutonium, were located. When the fire was contained to the point where it was clear it would not spread to spread to portions of the Los Alamos National Laboratory containing radioactive materials or waste, the RERT demobilized.

Las Conchas Fire Response

Here you can see the RERT Mobile Command Post under smoky skies. The Region 6 Mobile Command Post is parked right behind.

Las Conchas Fire Response

EPA responders worked closely with the New Mexico Emergency Operations Center to determine EPA activities in support of the overall response.

Las Conchas Fire Response

9

Air samplers were placed on or around available buildings or in publicly controlled spaces near the fire. Pictured here (clockwise from top left) are samplers located at the Cochiti (Coh-che-tee)Town Hall, roof of the Buffalo Thunder Casino near the Pueblo of Pojoqua (Puh-wah-kee), and at Water Sanitation District property in Pena Blanca (Pen-yah Blahn-cah). A medium-volume sampler setting was selected in order to potentially capture radioactive material carried by heavily particulate-laden winds.

Las Conchas Fire Response

10

The eight individuals mobilized as part of the RERT worked out the RERT Mobile Command Post for the several day deployment. Pictured here are (clockwise from top left) Wes Boyd and Natalia Brooks, Gregg Dempsey (RERT Commander for the incident), and Fernando Gomez. The bottom left photo provides information on the status of air samplers deployed for the incident.

Japan Foreign Nuclear Incident 2011

11

A 9.0 earthquake and subsequent tsunami off the coast of Japan on Friday, March 11, 2011. Infrastructure was badly damaged, with one nuclear power station closest to the epicenter severely damaged. Loss of cooling resulted in radiological releases following the tsunami.

U.S. Response: Nuclear experts and response team from the Dept. of Energy, Department of Defense and the Nuclear Regulatory Commission went to Japan to support their nuclear safety and public protection efforts. All federal agencies with responsibility in public health, nuclear safety, transportation, food, and agriculture engaged in monitoring the events to evaluate the possibility of environment or health impacts in the U.S.

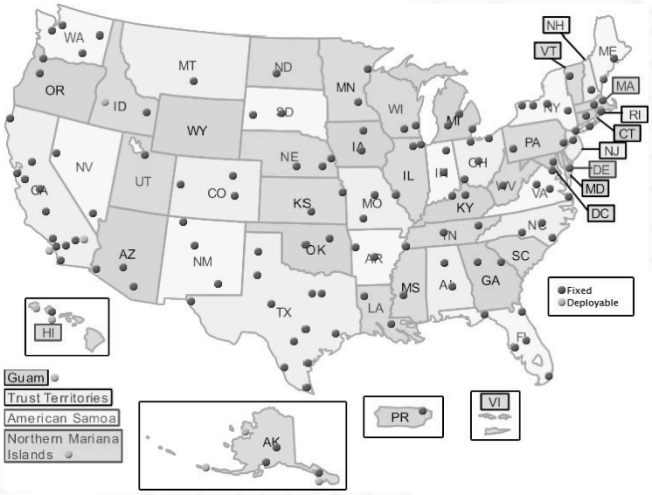
Japan Foreign Nuclear Incident 2011

HQ EOC Activation included:

- Advisory Team for Environment, Food and Health
- Science Tiger Team set up for technical issues
- Public Information
- Enviromental Unit

Photo shows Public Information Officers at work.

Japan Foreign Nuclear Incident 2011



13

Radnet Increased Operations

- Deployable air monitors sent to Alaska, Hawaii, Idaho, California, Guam, Saipan
- Extra round of milk, drinking water, and precipitation samples taken late March & April

Japan Foreign Nuclear Incident 2011

14

Top left photo shows the Nome, Alaska deployable. Bottom right photo shows the Fontana, CA fixed station.

Japan Foreign Nuclear Incident 2011

15

National Air and Radiation Environmental Laboratory (NAREL)

- 24/7 Operation to count samples
- Increased attention to “near-real-time” RadNet data

ORIA Regional Roles

ORIA Regional Program Manager Responsibilities

- An ORIA Program Manager and Regional Radiation Program are present in each region, but resources vary
- Duties include:
  - Development of a Regional Radiation Program
  - Coordination with regional OSCs
  - Leading EPA's involvement in FEMA's REP Program
  - Coordination with RERT Commanders on notifications
  - Maintaining staff readiness

17

EPA's 10 regions typically are responsible for conducting radiological emergency response activities with the support of ORIA Headquarters and the RERT. While each region has an ORIA Program Manager, the Regional Radiation Program may be housed in multiple and varying programs in the regions, and each program has different resources in terms of the number and capabilities of radiation staff.

They are: 1 – Tony Honnellio, 2 – Paul Giardina, 3- Carol Febbo, 4- Todd Rinck, 5- Jack Barnette, 6- Regina Milbeck, 7- Bob Dye, 8- Deborah Lebow-Aal, 9- Mike Bandrowski, and 10 – Davis Zhen.

Specifically, the ORIA Program Managers are responsible for the following:

•Developing Regional Radiation Programs

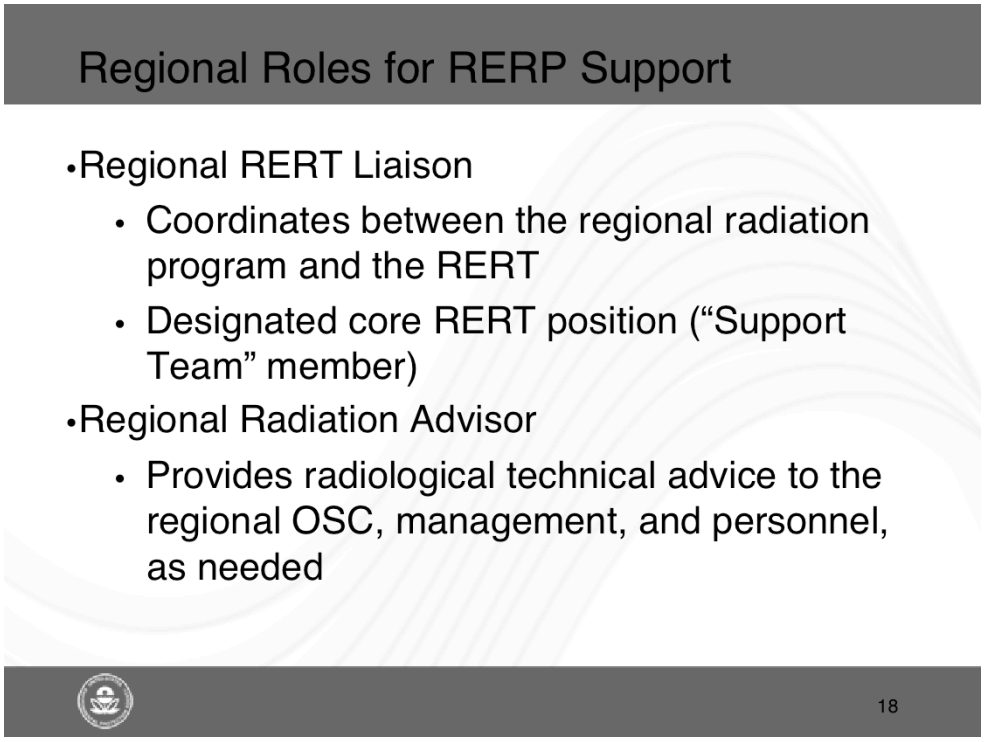
•Coordinating with OSCs and the states

•Lead EPA's involvement in the DHS/FEMA Radiological Emergency Preparedness Program to ensure preparedness for incidents involving nuclear power plants, including participation on the Radiological Advisory Committee (RAC) and evaluating REP exercises

•Developing regional emergency response contacts for support with other federal agencies, state and local governments, and the private sector

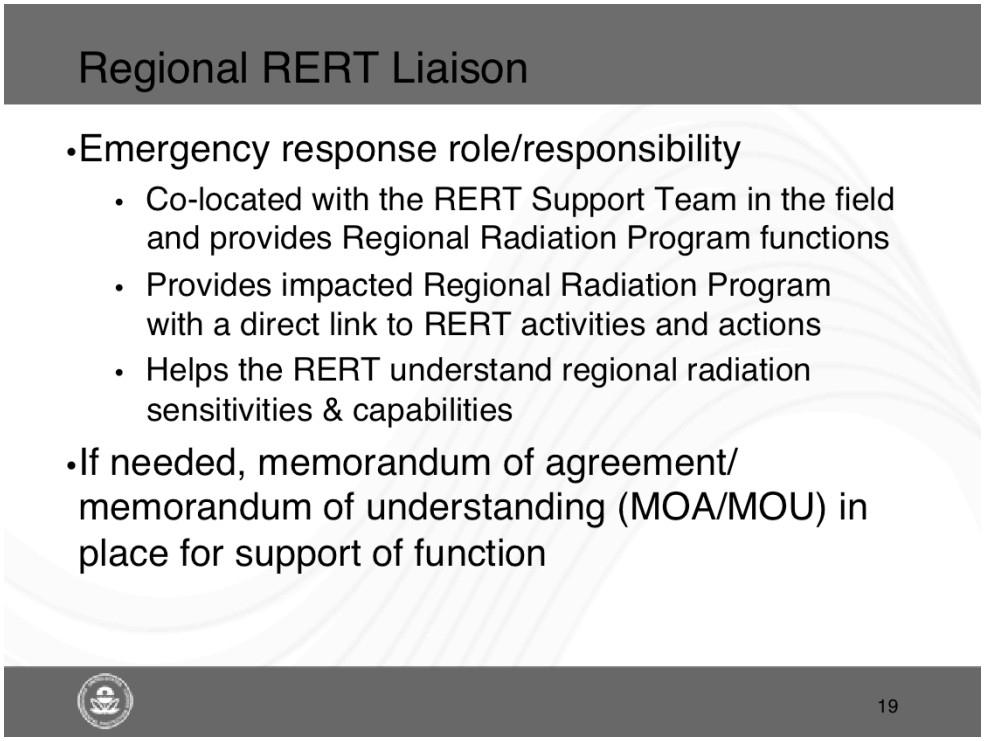
•Coordinating with the RERT Commander

•Maintaining staff readiness



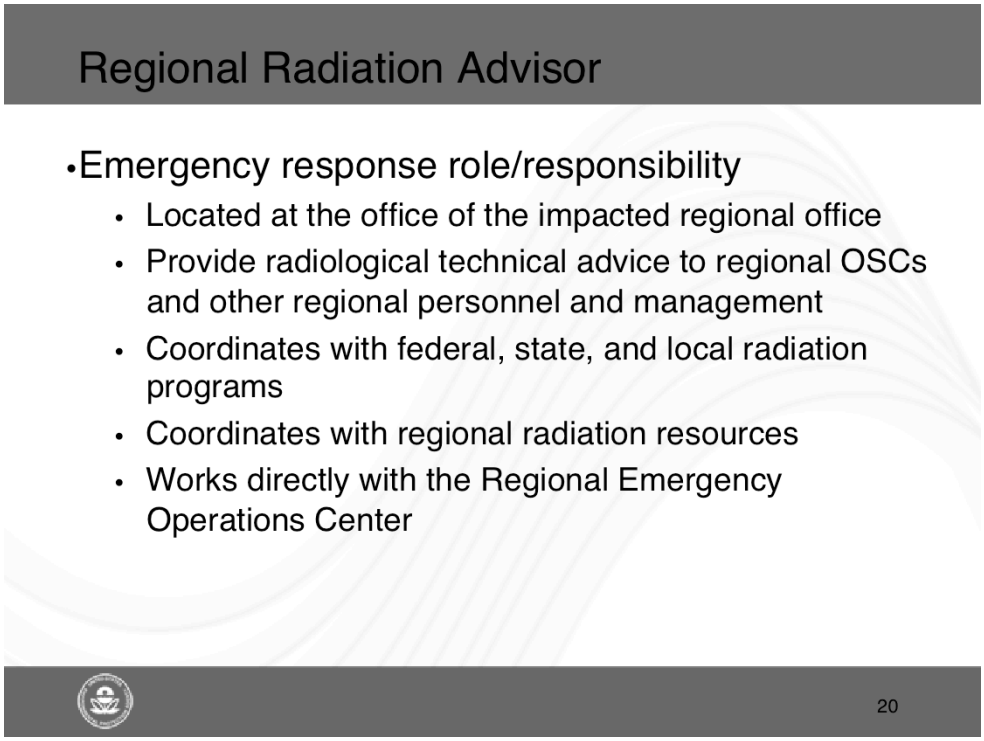
Regional radiation personnel will primarily serve as Regional RERT Liaisons and Regional Radiation Advisors. Functional descriptions have been developed as job aides to describe the specific responsibilities and requirements of these roles. They describe the emergency response role and responsibility, or function, of the position; the core and specialized knowledge/skills/abilities that the position requires; training requirements; potential work hours and conditions; and any other special requirements.

If an incident expands to require all the potential roles of the RERT, sufficient personnel may not be available to fulfill each potential RERT role, especially if each of these roles requires a full-time commitment (prior to that time, each RERT member will likely fill multiple roles at once during a response). Therefore, ORIA has prioritized a number of positions as core competencies over other demands, including the position of Regional RERT Liaison.



The Regional RERT Liaison is most likely co-located with the RERT as part of the RERT Support Team to provide regional radiation program functions in the context of an RERT response. The Regional RERT Liaison provides the impacted Regional Radiation Program with a direct link to the RERT and keeps it updated on RERT activities and actions. The Regional RERT Liaison serves as a representative for the impacted region and the Regional Radiation Program with the rest of the RERT. The main intent of the Regional RERT Liaison is to help the RERT Commander by providing any information needed about the impacted area, including relationships with the state radiological program.

If the impacted Regional Radiation Program has sufficient staff, a member of that program should serve in this role. Prior to an incident, each region typically identifies one staff person who can serve in this position, as well as at least one backup to ensure that the position can be filled at any time. If necessary, the program can use the national MOU to identify the staff to fill this role if the impacted region cannot do so.



The Regional Radiation Advisor will most likely be located at the office of the impacted region to provide in-office radiological technical advice to regional management, the EPA OSCs, and other regional personnel as needed. This person may also provide Regional Radiation Program functions in the context of RERT response and radiological technical assistance to regional management. The advisor coordinates with both affected and unaffected federal, state, and local radiation programs; coordinates regional radiation resources, if applicable; and works directly with the Regional Response Center during emergencies.

If the impacted Regional Radiation Program has sufficient staff, a member of that program should serve in this role. Prior to an incident, each region typically identifies one staff person who can serve in this position, as well as at least one backup to ensure that the position can be filled at any time. If necessary, the program can use the national MOU to identify the staff to fill this role if the impacted region cannot do so.

Contacts

- Sara DeCair, decair.sara@epa.gov
  - 202-343-9108 Desk
  - 202-738-2871 Cell
- Kathryn Snead, snead.kathryn@epa.gov
  - 202-343-9228 Desk
  - 202-536-7896 Cell

Questions

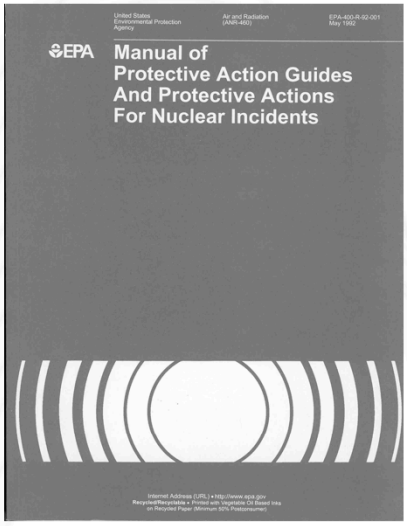
PAGs MANUAL UPDATE

August 2011

Sara D. DeCair
Environmental Protection Agency

1992 EPA PAGs Manual

- Still useful!
- Focused on nuclear power plant incidents
- A 1992 symposium expanded scope to other rad incidents



What is a Protective Action Guide?

- A **value** against which to compare the **projected dose** to a defined individual from a release of radioactive material at which a specific protective action to reduce or avoid that dose is warranted. **Projected dose** is dose that can be averted by protective action.
- Guidance for public officials.
- Protective Action Guides are called ‘PAGs’

Incident Response Phases

- Early Phase: The first hours to days until the release has stopped, when protective actions decisions must be made with little to no information
- Intermediate Phase: The weeks to months when more information is available, protective actions are more restrictive, and cleanup planning begins
- Late Phase: No longer an emergency response; activities shift to long term recovery and cleanup

Early Phase

- Evacuation/Shelter 1-5 rem (10-50 mSv)
- KI 5 rem (250 mSv) child thyroid dose
- Worker 5, 10, 25+ rem (50, 100, 250+ mSv)

Intermediate Phase

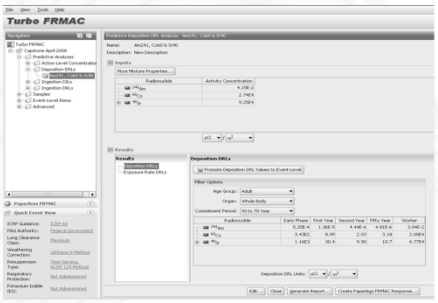
- Relocate population
  - ≥ 2 rem (20 mSv) first year (projected dose)
  - 0.5 rem (5 mSv) any subsequent year
- Apply dose reduction techniques
  - < 2 rem (20 mSv)
- Food (FDA 1998): Most limiting of
  - 0.5 rem (5 mSv) whole body or
  - 5 rem (50 mSv) to most exposed organ or tissue

Late Phase

- 'Late Phase' is the cleanup and restoration phase
- Not part of emergency response, so not addressed in the PAGs Manual

Use the Best Available Guides & Tools

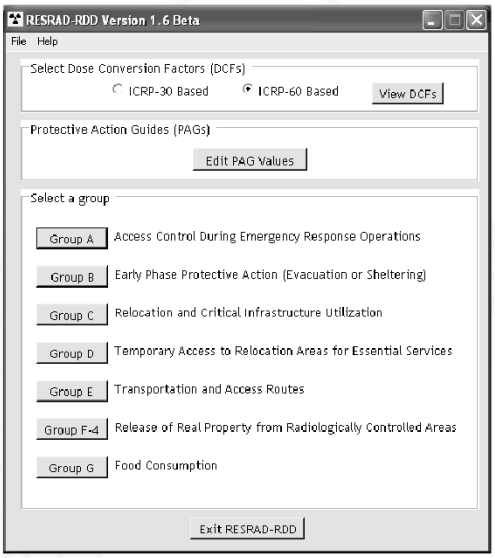
- PAGs are simply guidance!
- Use more current, improved, or more locally appropriate guides when available
- So, what guidance might be used?



Use the Best Available Guides & Tools

- Operational Guidelines
- Numeric guides to implement PAGs in an RDD response
- Software called RESRAD-RDD was developed at Argonne

http://ogcms.energy.gov/review.html



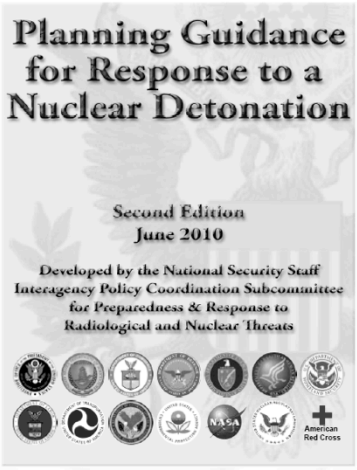
What Guidance Should We Use?

- "Planning Guidance for Protection and Recovery Following Radiological Dispersal Device (RDD) and Improvised Nuclear Device (IND) Incidents"
- Multi-agency guide issued by DHS/FEMA
- Finalized in 2008
- http://www.fema.gov/good_guidance/download/10260

32

This one validates using the existing EPA PAGs for RDDs, INDs…

What Guidance Should We Use?



"Planning Guidance for Response to a Nuclear Detonation"

Multi-agency guidance published by the Homeland Security Council

2nd edition published in 2010 includes improved guidance informed by ongoing research

http://www.epa.gov/rpdweb00/docs/er/planning_guidance_for_response_to_a_nuclear_detonation_%202n_dedition_final.pdf

33

This one gives specific advice for planners thinking about unique challenges for response in the first days after an urban nuclear detonation…

What Guidance Should We Use?

- Potassium Iodide (KI) guidance
- Issued by the Food and Drug Administration in 2001 http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/ucm080542.pdf
- Frequently Asked Questions about KI http://www.fda.gov/Drugs/EmergencyPreparedness/BioterrorismandDrugPreparedness/ucm072265.htm

34

This KI guidance is more current than what is reprinted in the 1992 PAGs Manual – so many of you already use it.

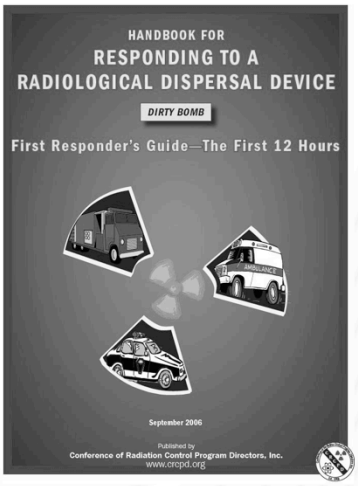
What Guidance Should We Use?

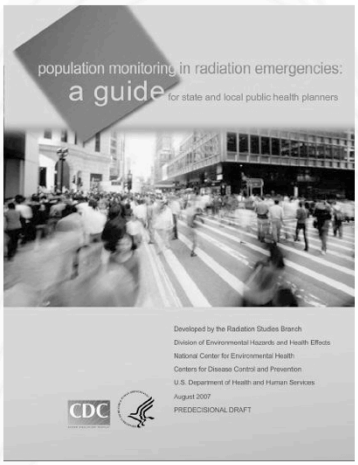
- Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies
- Published by the Food and Drug Administration in 1998
- http://www.fda.gov/cdrh/dmqrp/1071.pdf

35

This Food PAG guidance is more current than what is reprinted in the 1992 PAGs Manual – so many of you already use it.

What Guidance Should We Use?





36

Here are some practical implementation guides for operations in a radiation response!

Questions?

MARSSIM Revision 2

August 25, 2011
Kathryn Snead
MARSSIM Workgroup Chair

Document Overview

EPA Region 2 Superfund Site.

MARSSIM Workgroup

Independently-chartered Workgroup

- Under the ISCORS Umbrella since 2007

Four Federal Agencies

- Department of Defense (Air Force, Army, and Navy representatives)
- Department of Energy
- Environmental Protection Agency
- Nuclear Regulatory Commission

CRCPD Participation

40

Workgroup operates by consensus. Three agencies must be present to serve as a quorum for meetings and conference calls, and all four federal agencies must agree to the resolution of concerns.

Document Overview

Family of Three Multi-Agency Documents

- MARSSIM – Published 1997, Updated 2001
- MARSAME – Published 2009
- MARLAP – Published 2004

- Technical Documents - Not Policy

41

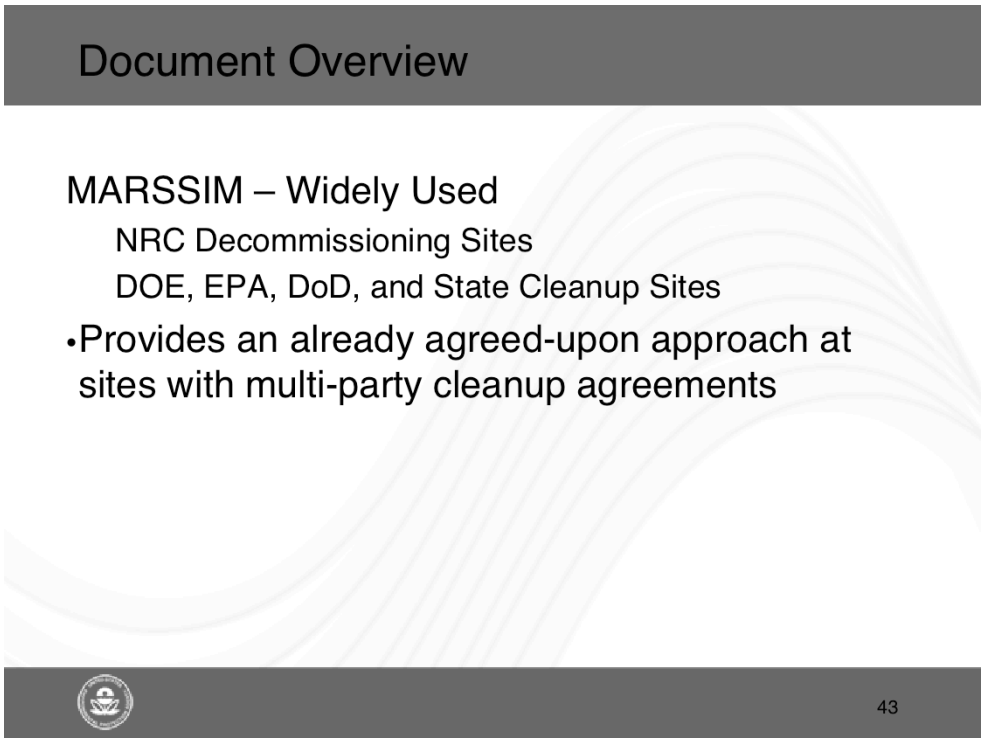
MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual).

MARLAP (Multi-Agency Radiation Laboratory Analytical Protocols). John Griggs, NAREL, is the lead for MARLAP.

MARSAME (Multi-Agency Radiation Survey and Assessment of Materials and Equipment): a supplement to MARSSIM.

Document Overview

- MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual)
  - Covers real property (surface soils and building surfaces)
  - Provides defensible and rigorous surveys for cleanup, especially Final Status Surveys
  - Incorporates historical site knowledge and a graded approach to survey effort
  - Recommends a two-tiered approach for surveys using scanning and direct measurements or samples



This guidance went final in 1997 and has seen extensive use throughout its fourteen-year lifetime.

Document Overview

- MARSAME (Multi-Agency Radiation Survey of Materials and Equipment)
  - Supplement to MARSSIM
  - Provides defensible and rigorous radiation surveys for cleanup, operations, or interdiction
  - Incorporates process knowledge and a graded approach
  - Addresses surficial and volumetric contamination and difficult-to-measure areas

44

This guidance is much more complicated than MARSSIM for a few reasons:

1. Different geometries of contamination
2. Difficult-to-measure areas
3. Inhomogeneous materials
4. Different dispositions
5. Multiple survey types available

As a result, the guidance is less prescriptive and more flexible than MARSSIM. There are benefits and disadvantages to this.

MARSSIM could be done on paper. MARSAME requires software (unless you remember your calculus), and relatively little peer-reviewed freeware is available to assist.

Document Overview

- MARLAP (Multi-Agency Radiation Laboratory Analytical Protocols)
  - Provides defensible and rigorous protocols for radiation measurements performed in a laboratory setting
  - Issued by a separate workgroup (MARLAP Workgroup) with specialized knowledge
  - Included additional agencies: USGS, DHS, FDA, and NIST

45

The publication of MARLAP added to both the scientific rigor and the difficulty of the statistical protocols to be followed for assessing the validity of radiation measurements.

Planned Revisions

Picture courtesy of EPA R&IE – Coastal Bayou site.

Planned Revisions

- MARSSIM not updated since 2001
  - Mostly errata and typos corrected before that date

Planned Revisions

- Update treatment of measurement uncertainty
- Update measurement methods
- Scenario B (“assumed to pass until proven otherwise”)
- Increase emphasis on regulator interface during survey design
- User comments (“lessons learned”)
- Definitions/terms consistent with related documents
- Better discussion of “hotspots” and UMTRCA standards

Planned Revisions

Update treatment of measurement uncertainty

- MARSAME and MARLAP in line with the state of the science regarding measurement uncertainty
- Complies with current guidance from ISO and NIST

Planned Revisions

Update measurement methods

- MARSSIM written with the current (~1995) measurement technology in mind
- The state of radiation instrumentation improved
- MARSAME includes additional flexibility to take that into account

Planned Revisions

Scenario B ("assumed to pass until proven otherwise")

- MARSAME allows the use of Scenario B
- Already in use in some states for MARSSIM

Planned Revisions

Increased emphasis on regulator interaction during survey design

Planned Revisions

User comments ("lessons learned")

- Both regulators and contractors submitted comments regarding the useful or confusing parts of MARSSIM
- Ten years of use generated significant lessons learned on both sides

Planned Revisions

Definitions/terms consistent with related documents

- User comments led to changes in some key terms for the issuance of MARLAP and MARSAME

Planned Revisions

Better discussions of hotspots and UMTRCA standards

- MARSSIM didn't explicitly address UMTRCA
- Hotspot discussion underway

Next Steps

- Updates on the MARSSIM Revisions will be posted to the MARSSIM Workgroup website: http://www.epa.gov/radiation/marssim/

- Feedback on the comments received will be posted as part of the Federal Register Notice announcing the availability of MARSSIM, Revision 2.

Questions

Resources & Feedback

- To view a complete list of resources for this seminar, please visit the **Additional Resources**
- Please complete the **Feedback Form** to help ensure events like this are offered in the future

Need confirmation of your participation today?

Fill out the feedback form and check box for confirmation email.

58