



Operational Guidelines for Consequence Management of Radiological Dispersal Device Incidents

Presentation to Interagency Steering Committee on Radiation Standards

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Role of Operational Guidelines



■ Protective Actions

Activities that should be conducted in response to an RDD to reduce or eliminate exposure of the public to radiation or other hazards.

■ Protective Action Guides (PAGs)

A projected dose to a reference individual at which a specific protective action to reduce or avoid that dose is recommended.

Operational Guidelines

- ***Prederived levels of radiation that can be compared to field radiation measurements to quickly determine if PAGs are exceeded and actions for protection of the public need to be implemented.***



Operational Guidelines Development History



- Fiscal Year 2003 appropriations language directed DOE “*to develop standards for the cleanup of contamination resulting from a potential RDD event.*”
- Department of Homeland Security Interagency Consequence Management Subgroup (CMS) developed *Planning Guidance* for response to RDD/IND incidents (Federal Register Notice, 2008).
- Operational Guidelines Task Group (OGT, established in 2003):
 - ✓ Provided interagency technical support to the CMS;
 - ✓ Chaired by DOE Office of Health, Safety and Security (HSS);
 - ✓ Developed methodology and Operational Guidelines; and
 - ✓ Provided guidelines & tools to support Federal and State needs.



OGT Guiding Principles



- Consistency with PAGs developed through consensus by the CMS.
- Consistency with PAGs incorporated into EPA's revision of the Manual of Protective Action Guides and Protective Actions (EPA, 1992).
- Consistency with Federal Radiological Monitoring and Assessment Center (FRMAC) methods. Document the rationale and benefits of approaches that may be different from or represent refinements to FRMAC methodologies.
- Application of the current state of the science in radiation protection appropriate for addressing an RDD.
- Use of a consensus-based process supported by independent technical peer review and public comment on key products.



Operational Guidelines Considerations



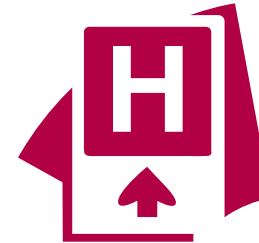
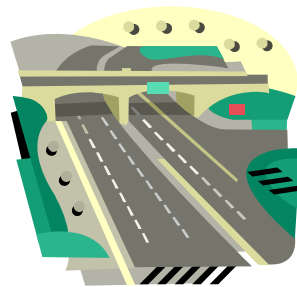
■ Real and Personal Property:

- ✓ buildings
- ✓ roads and bridges
- ✓ vehicles



■ Critical Infrastructure & Resources:

- ✓ hospitals
- ✓ transportation
- ✓ power & water
- ✓ food



■ Receptors-Scenarios:

- ✓ workers and general public
- ✓ urban, suburban, and rural environments





Contamination Pathways and Routes of Exposure






OGT Development Approach



- Addressed 11 radionuclides.
- Applied a consistent methodology & parameters across groups as appropriate.
- Calculated dose-to-source ratios (DSR) (e.g., mrem/yr per pCi/m²); DSRs applied to applicable PAGs to obtain Operational Guidelines.
- Produced Guidelines in the form of look-up tables:
 - ✓ **Stay Times** (e.g., gross alpha; gamma exposure rates);
 - ✓ **Radionuclide Concentrations** (e.g., on surfaces and in soils).

Operational Guideline Groups

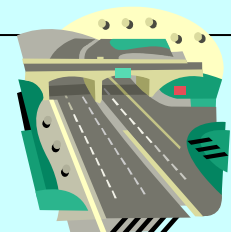
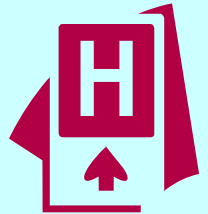
Early Phase

<i>Groups</i>	<i>Subgroups</i>
A. Access Controls During Emergency Response	(1) Life and property-saving measures (2) Emergency worker demarcation 
B. Early Phase Protective Actions	(1) Evacuation (2) Sheltering

Operational Guideline Groups



Intermediate Phase

Groups	Subgroups
C. Critical Infrastructure Utilization in Relocation Areas	(1) Residential areas (2) Commercial and industrial areas (3) Other areas such as parks & monuments (4) Hospitals and health care facilities (5) Critical transport facilities (6) Water and sewer facilities (7) Power and water facilities
D. Temporary Access to Relocation Areas for Essential Services	(1) Worker access to businesses for essential actions (2) Public access to residences for retrieval
E. Transportation and Access Routes	(1) Bridges (2) Streets and thoroughfares (3) Sidewalks and walkways



Operational Guideline Groups

Recovery Phase

Groups	Subgroups
<p>F. Release of Property from Radiologically Controlled Areas</p>	<ul style="list-style-type: none"> (1) Personal property except wastes (2) Waste (3) Hazardous waste (4) Lands and buildings 
<p>G. Food Consumption</p> 	<ul style="list-style-type: none"> (1) Derived Intervention Levels (early phase) Planning Values (PVs) (2) Soil Concentrations for crops in place (PVs) (3) Soil Concentrations (intermediate phase) for growing new crops (PVs) (4) Soil Concentrations (recovery phase) for land use restrictions (PVs)

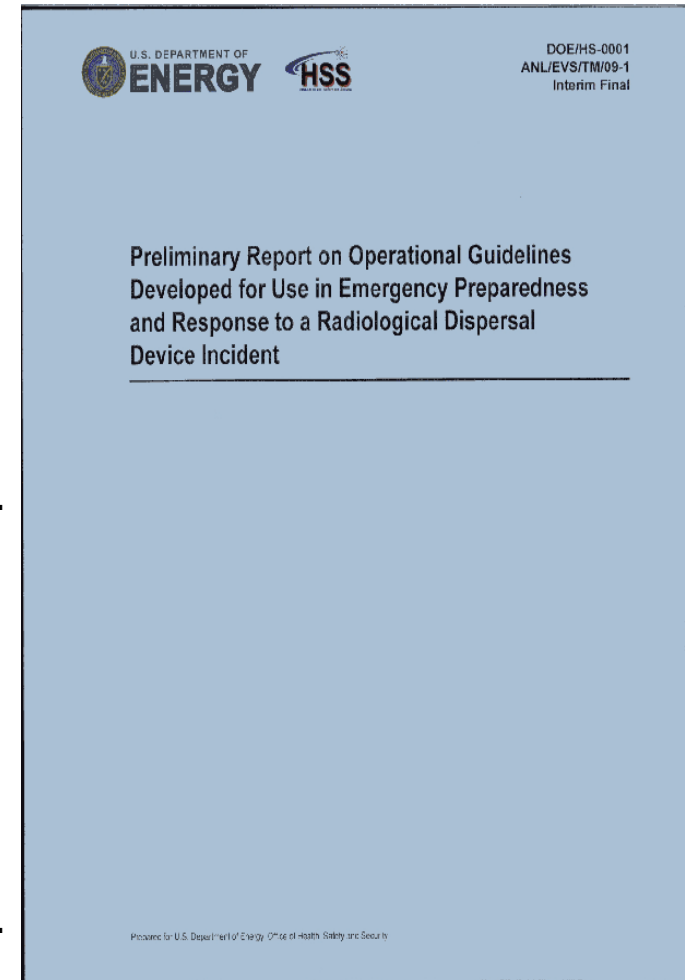


Products and Their Pilot Application



- **Preliminary Report on Operational Guidelines** available for trial use and comment (Feb. 2009); supports implementation of DHS Planning Guidance released in 2008:
 - ✓ Provides methodology, Operational Guidelines, and some end-user guidance.

- **RESRAD-RDD software** available for trial use and comment (Feb. 2009):
 - ✓ Companion assistance tool for implementing Guidelines; allows for calculation of incident-specific Guidelines.





Products and Their Pilot Application (cont'd)



- Successful application of Operational Guidelines during EMPIRE 09 RDD Exercise (June 2009; Albany, NY)
 - ✓ On-scene integration of OGT Team within FRMAC Assessment Group; Federal Advisory Team.
 - ✓ Operational Guidelines and RESRAD-RDD were used to answer many questions asked by the State and other agencies.
 - ✓ Responsive to questions on release of bridges and roads; vehicles; buildings and soils; re-entry stay times; and impacts of cleanup (e.g., street flushing).



Path Forward



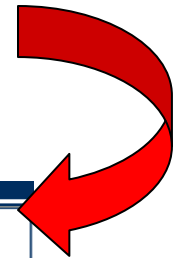
- Continue outreach, review, trial use, and information exchange:
 - ✓ Complete end-user review by Conference of Radiation Control Program Directors (CRCPD) Task Group;
 - ✓ Respond to comments on Preliminary Report and address lessons-learned from users;
 - ✓ Release updated version of RESRAD-RDD in response to end-user comments and lessons-learned from EMPIRE 09;
 - ✓ Offer RESRAD-RDD training course in response to user interest; and
 - ✓ Continue collaboration with FRMAC, the Federal Radiological Preparedness Coordinating Committee (FRPCC), and other organizations.



Guidelines and Support Tools Should Prove Useful in the Evaluation of RDD Remediation Options & Impacts



2. Contaminant Transport to STP



1. Surface Cleaning of RDD Contaminants

3. Potential Doses to Workers; Impacts to Natural and Commercial Resources





OGT Web Site

<http://ogcms.energy.gov>



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Overview

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Operational Guidelines

Welcome to the Operational Guidelines Public Web Site. This Web Site provides information and resources concerning the development of Operational Guidelines as part of planning guidance for protection and recovery following Radiological Dispersal Device (RDD) and Improvised Nuclear Device (IND) incidents. Operational Guidelines will be posted here for communication with Federal agencies, State and local governments, emergency management officials, and the general public.

- Operational Guidelines
 - Overview
 - Detailed Description (currently unavailable)
 - Operational Guidelines for Review and Comment
 - Proposed Protective Action Guides for RDD / IND Incidents
 - Federal Register Notice

<http://www.energy.gov/> Trusted sites

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