

# The Office of Radiation and Indoor Air

## Radiation Protection Division

Protecting  
Public  
Health and  
Safety



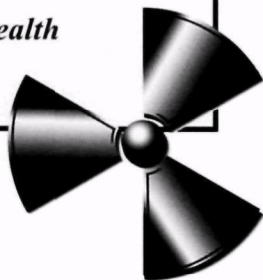
## Radiation Protection Division

*Protecting Public Health and Safety*

### Technology Support Objective

*Partnering with other EPA offices, federal agencies, industry, and academic groups to provide:*

- *Technical and engineering support for radiation site cleanup*
- *Innovative technologies*
- *Waste management*
- *Applied risk assessment*
- *Radiation health and safety*



stration of chemical barrier technologies for abandoned mine lands that has the potential to significantly reduce remedial cost and increase treatment efficiency.

### Containment Technology Project

RPD is part of a working group of industry, government, and academic representatives working to assess the scientific state and application of containment and related barrier or control technology systems. The focus is on identifying and evaluating technologies (such as walls, barriers, floors, and caps) for containment of pollutants, and on using verification and monitoring techniques to demonstrate their effectiveness.



### Technology Transfer

#### Technology Screening Guide for Sites Contaminated with Radiation

RPD is developing the guide *Technology Screening Guide for Radioactively Contaminated Sites*, to provide site managers with easy access to critical information on radioactive contamination cleanup technologies for soil, surface water, and ground water. The guide serves site managers as a user-friendly tool for applying technical information to management decisions.

#### Radiation Exposure and Risk Assessment Manual (RERAM)

RERAM describes the methodology developed by ORIA to derive ingestion, inhalation, and external exposure radionuclide cancer slope factors for use in a radiation risk assessment at a Superfund site. Potential users of RERAM are those involved in the remedy selection and implementation process, including risk assessors, risk assessment reviewers, remedial project managers, and other decision-makers.

### Technical Support

RPD staff provides technical support and expertise in radiological contamination to the Superfund Program, private companies, and states. The Division supports Superfund remedial technology projects, participates in interagency workgroups, conducts peer review of documents, and designs and develops technical information products for those involved in cleanup.



### Technology Innovation

#### Stabilization/Solidification Processes for Mixed Wastes

RPD is working in partnership with DOE's Office of Environmental Restoration (EM-40) and EPA's Superfund Program to investigate technical issues related to treatment processes for low-level radioactive and mixed wastes. This project is evaluating the applicability of various stabilization/solidification technologies for specific types of waste and assessing their performance in terms of present and projected regulatory requirements. As part of this project, RPD is validating methodologies and protocols for evaluating the leachability of radionuclides and organic waste, and the long-term durability of stabilization/solidification. Information about our publications is listed on the back of this brochure.

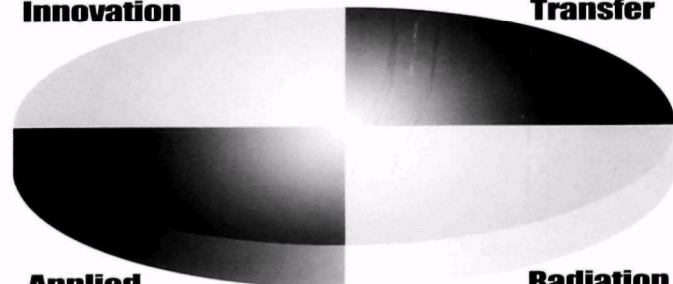
#### In Situ Uranium Chemical Barrier Demonstration Project

Potable ground-water supplies worldwide are contaminated or threatened by advancing plumes containing radionuclides and metals. Drainage from abandoned and inactive mines has contaminated ground water with uranium, radium, molybdenum, arsenic, selenium, chromium, and vanadium, as well as other radionuclides and metals. RPD is working with the USGS, DOE, and the Bureau of Land Management to conduct a field demon-

### RPD Technical Program Areas

**Technology Innovation**

**Technology Transfer**



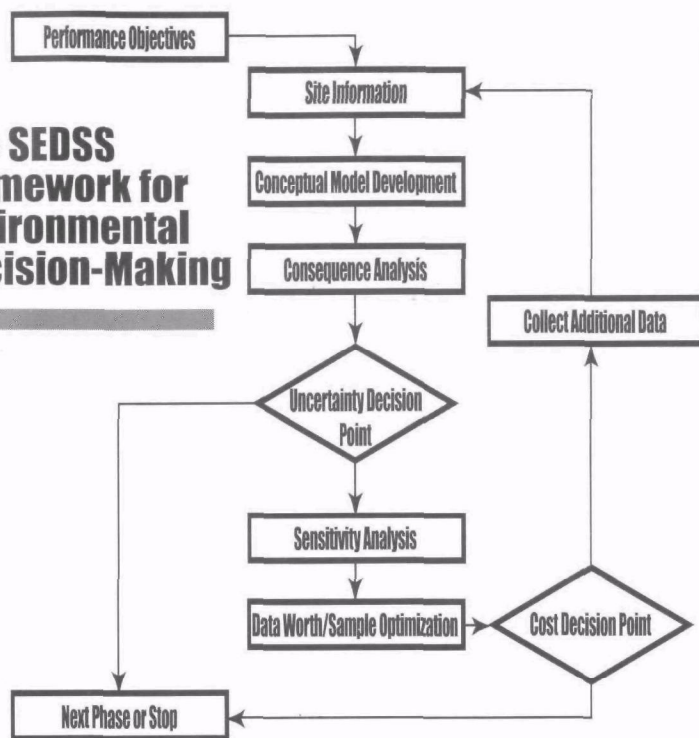
**Applied Computer Tools**

**Radiation Health and Safety**



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## The SEDSS Framework for Environmental Decision-Making



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## Applied Computer Tools

### Sandia's Environmental Decision Support System (SEDSS)

The SEDSS system is being designed to provide a technically sound environmental decision-making framework for federal and private environmental restoration and waste management problems. EPA, DOE, and NRC are working together to develop this system which will provide environmental pathways for both radionuclide and hazardous contaminants, and will be integrated with site characterization tools.

### Selection of $K_d$ Values in Contaminant Transport and Remediation

RPD is working to provide a documented discussion of the key geochemical processes affecting sorption and the use of partition coefficients ( $K_d$  values) in calculations regarding the fate and transport of radionuclide and hazardous metal contaminants. The emphasis is on evaluating the best methods for choosing  $K_d$  values and providing a resource document for EPA, DOE, and NRC technical staff.

### Joint EPA/DOE/NRC Modeling Guidance

The Interagency Environmental Pathway Modeling Working Group (EPA/RPD, EPA/OSWER, NRC, DOE) has developed a series of consensus documents as part of an overall joint program concerned with the selection and use of models that simulate the environmental behavior and impacts of radionuclides. See the back of this brochure for information on obtaining these documents.



## Radiation Health and Safety

### EPA Radiation Health and Safety Protection Program

Providing technical support for EPA's Radiation Health and Safety program.

- Radiation Health and Safety Training Course
- EPA Badging (Dosimetry) Program
- Radiation Safety Information Management System (RADSIMS)

### Radiological Emergency Preparedness and Response

RPD serves as EPA's focal point for radiological emergency preparedness and planning.

- Supports On-Scene Coordinators through the National Contingency Plan.
- Sets Protective Action Guidelines (PAGs) to protect the public in the event of a radiological emergency that may require evacuation or relocation of citizens.
- Monitors and assesses radioactivity in the environment. Three radiological laboratories maintain the personnel and equipment to respond to an emergency through two Radiological Emergency Response Teams (RERT).

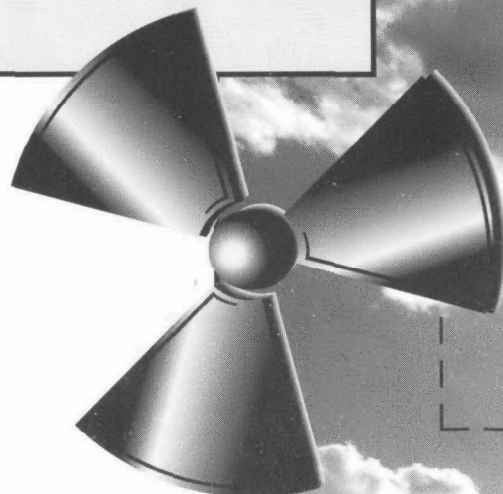
### Internet Access

#### RPD Home Page

<http://www.epa.gov/radiation/>

#### Mixed Waste Team Home Page

<http://www.epa.gov/radiation/mixed-waste/>



**For more information, document requests, questions, or comments,  
please contact us at:**

## **Technology Support Programs**

**Remediation Technology and Tools Center  
Radiation Protection Division**

**401 M St., SW (6603J)  
Washington, DC 20460**

**Phone: (202) 233-9350**

**Fax: (202) 233-9650**

**Risk Modeling and Emergency  
Response Center**

**401 M St., SW (6603J)  
Washington, DC 20460**

**Phone: (202) 233-9222**

**Fax: (202) 233-9650**

## **Related RPD Publications**

<b>Publication Title</b>	<b>Publication Date</b>	<b>EPA Document Number</b>
Profile and Management Options for EPA Laboratory Generated Mixed Waste	8/96	EPA 402-R-96-015
Stabilization/Solidification Processes for Mixed Waste	6/96	EPA 402-R-96-014
Documenting Ground Water Modeling at Sites Contaminated with Radioactive Substances	1/96	EPA 540-R-96-003
Three Multimedia Models Used at Hazardous and Radioactive Waste Sites	1/96	EPA 540-R-96-004
A Technical Guide to Ground Water Model Selection at Sites Contaminated with Radioactive Substances	6/94	EPA 402-R-94-012
Incineration of Low-Level Radioactive and Mixed Wastes: Waste Handling and Operational Issues	4/93	EPA 402-R-93-012
Computer Models Used to Support Cleanup Decision-Making at Hazardous and Radioactive Waste Sites	3/93	EPA 402-R-93-005
Environmental Pathway Models - Ground Water Modeling	3/93	EPA 402-R-93-009
Environmental Characteristics of EPA, NRC, and DOE Sites Contaminated with Radioactive Substances	3/93	EPA 402-R-93-011
Manual of Protective Action Guides and Protective Actions for Nuclear Incidents	5/92	EPA 400-R-92-001
EPA's Radiological Emergency Preparedness and Response Team	2/92	EPA 520/1-91-027
Radiation and Mixed Waste Incineration - Vol. 1	5/91	EPA 520-1-91-010-1
Radiation and Mixed Waste Incineration - Vol. 2	5/91	EPA 520-1-91-010-2
Assessment of Technologies for the Remediation of Radioactively Contaminated Superfund Sites	1/90	EPA 540-2-90-001



**United States  
Environmental Protection Agency**