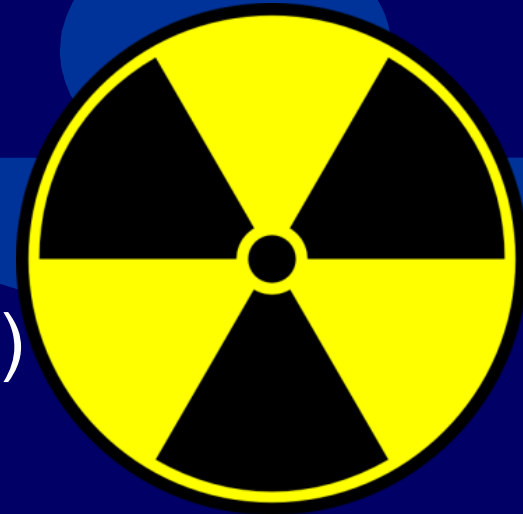


U.S. EPA Superfund Remedial Program's Addressing of Radioactive Contamination

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Science Policy Branch (SPB)



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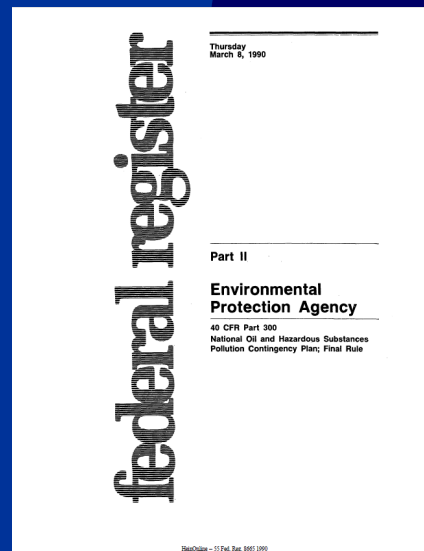
DISCLAIMER

- ◆ The views of the author of this presentation are those of the author and do not represent Agency policy or endorsement.
- ◆ Mention of trade names of commercial products should not be interpreted as an endorsement by the U.S. Environmental Protection Agency.



EPA Addresses Site Cleanup Under Several Laws, Programs

- ◆ This talk discusses only the Comprehensive Environmental Response, Compensation & Liability Act, CERCLA or “Superfund”
- ◆ National Contingency Plan (NCP) is regulation for CERCLA
- ◆ National Priorities List (NPL) guides EPA’s remedial program on which sites need further attention



Purpose

- ◆ Describe EPA framework for addressing radioactively contaminated Superfund sites, including:
 - » Provide brief description of CERCLA remedial program process
 - » Provide overview and comparison of key EPA CERCLA remedial program guidance and tools that specifically address radionuclides
- ◆ Note -- Radionuclides are also addressed with other hazardous substances under general EPA CERCLA guidelines



CERCLA Programs

- ◆ Removal actions – short-term response actions
 - » Emergency
 - » Time-Critical
 - » Non-Time Critical
(addressed by remedial program)
- ◆ Remedial – long-term response actions
(focus of this talk)



What does a Superfund Site look like?

- ◆ There are many different types of Superfund sites.
 - » See following 4 pages for examples of radioactively contaminated sites.



Nuclear Metals Inc. - Massachusetts



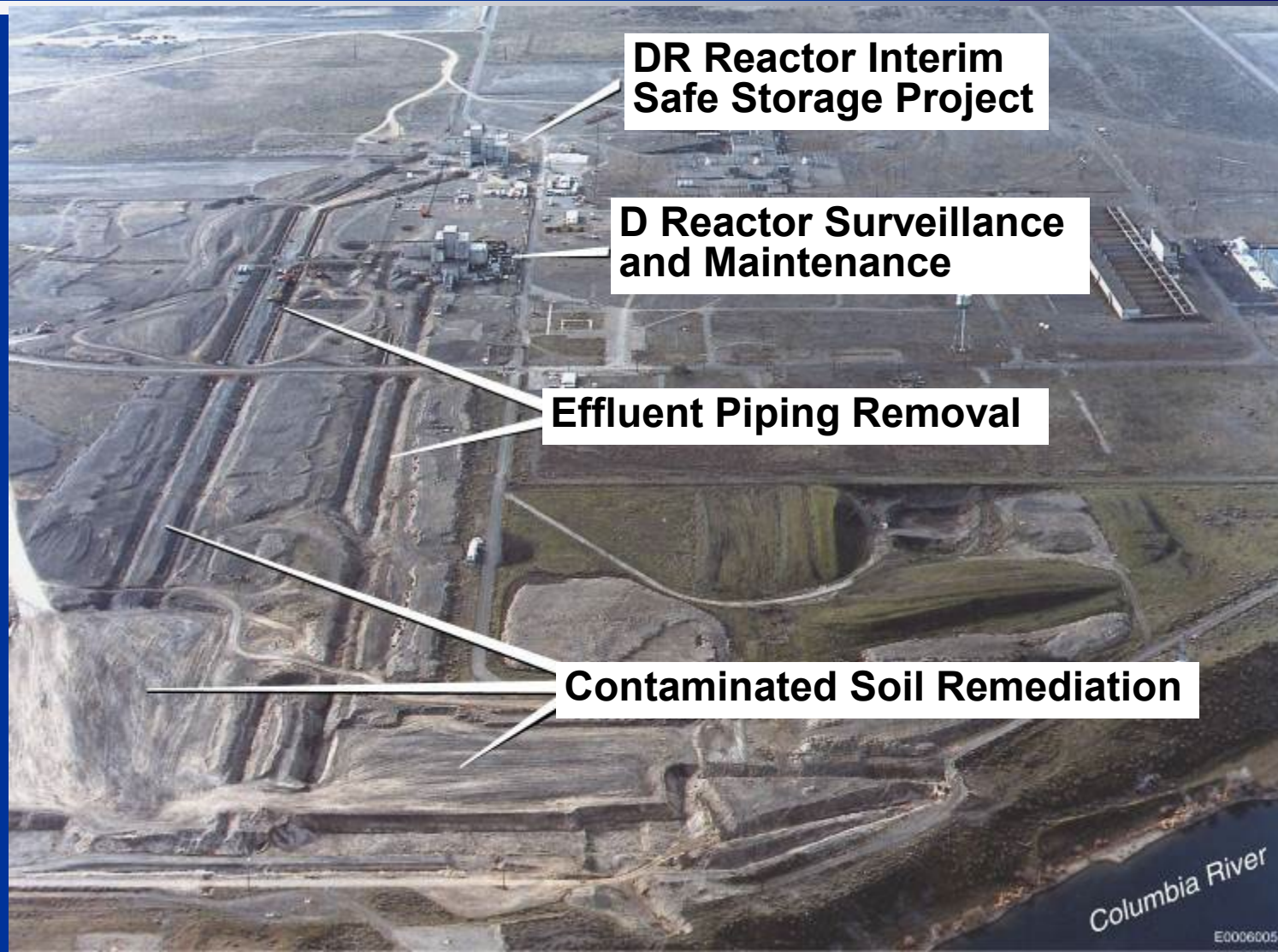
Abandoned Uranium Mines Project – Navajo Nation



Welsbach/General Gas Mantle – New Jersey



Hanford – D Reactor / DR Reactor Remediation



How to Address Radiation in a Chemical Program?

- ◆ With only approximately 66 radioactively contaminated NPL sites out of 1,789 total, the focus of the Superfund remedial program has been on chemicals.
- ◆ Question: How best address radiation?
- ◆ Answer: Address radiation in a consistent manner with chemicals, except to account for the technical differences posed by radiation.
 - » Radiation easily fits within Superfund framework
 - » Improves public confidence by taking mystery out of radiation
 - » Radioactively contaminated NPL sites also have chemical contamination



Why Does Radiation Easily Fit within the Superfund Remedial Program's Framework?

- ◆ Primary effect is cancer
- ◆ People ingest, inhale, eat, same amount of contaminated dust and food whether it is chemical or radioactive contamination
- ◆ Dust gets resuspended the same whether it is chemically or radioactively contaminated
- ◆ Inorganic elements move through the subsurface whether they are radioactive or not



Part 1.

Regulatory Framework



Nine CERCLA Remedy Selection Criteria

- ◆ Two threshold criteria (both must be met)
 1. Protect human health and the environment
 2. Comply (attain or waive) with other federal and state laws:
Applicable or Relevant and Appropriate Requirements (ARARs)
 - Protect current or future sources of drinking water (e.g., attain MCLs or more stringent state standards)



Nine CERCLA Remedy Selection Criteria (continued)

- ◆ 6 CERCLA ARAR waivers
 1. Interim Measure
 2. Greater Risk to Health and the Environment
 3. Technical Impracticability
 4. Equivalent Standard of Performance
 5. Inconsistent Application of State Requirements
 6. Fund Balancing



Nine CERCLA Remedy Selection Criteria (continued)

- ◆ Five balancing criteria (used to evaluate between potential remedies that meet threshold criteria)
 1. Long-term effectiveness and permanence
 2. Reduction of waste toxicity, mobility, or volume
 3. Short-term effectiveness
 4. Implementability
 5. Cost



Nine CERCLA Remedy Selection Criteria (continued)

- ◆ Two modifying criteria (information from public comment period that may modify remedial action)
 1. State acceptance
 2. Community acceptance



CERCLA Cleanup Levels

- ◆ ARARs often determine cleanup levels
- ◆ Where ARARs are not available or protective, EPA sets site-specific cleanup levels that
 - » For carcinogens, represent an increased cancer risk of 1×10^{-6} to 1×10^{-4}
 - 10^{-6} used as “point of departure”
 - PRGs are established at 1×10^{-6}
 - » For non-carcinogens, will not result in adverse effects to human health (hazard index (HI) <1 is protective)
- ◆ Address ecological concerns
- ◆ To-be-considered (TBC) material may help determine cleanup level



CERCLA Cleanup Levels Are **NOT** Based On

- ◆ NRC decommissioning requirements (e.g., 25, 100 mrem/yr dose limits) 10 CFR 20 Subpart E
 - » If used as an ARAR, 10^{-6} still used as point of departure, and 10^{-4} to 10^{-6} risk range must be met
- ◆ Guidance outside risk range and/or if expressed as a dose (# mrem/year). This includes:
 - » DOE orders, NRC guidance (e.g., NUREGs), ICRP guidance, IAEA guidance, NCRP guidance, ANSI/HPS guidance, EPA/DHS PAGs, and Federal guidance



Common Rad ARARs

- ◆ Radium and thorium in soil (40 CFR Part 192 (UMTRCA))
 - » 5 pCi/g [0.185 Bq/g] *over* background
 - » risk is probably used for radium/thorium sites than this ARAR
- ◆ Radon in buildings (40 CFR Part 192 (UMTRCA))
 - » 0.02 working levels of radon-220 and -222 decay products
- ◆ Outdoor radon (40 CFR Part 192 (UMTRCA) 40 CFR Part 61 (CAA))
 - » 20 pCi/m²-s [0.74 Bq/m²-s] of radon-222



Common Rad ARARs (continued)

◆ NRC Low Level Waste (10 CFR Part 61 (AEA))

» 25 mrem/yr [0.25 mSv/yr] whole body, 75 mrem/yr [0.75 mSv/yr] to the thyroid, and 25 mrem/yr [0.25 mSv/yr] to any critical organ other than the thyroid

—This is different dose methodology than 25, 100 mrem/yr [0.25, 1 mSv/yr] NRC decommissioning standard

◆ State water quality standards



Common Rad ARARs (continued)

- ◆ Federal drinking water MCLs (40 CFR Part 141 (SDWA))
 - » 5 pCi/l [0.185 Bq/l] of radium-226 and -228 combined
 - » 4 mrem/yr [0.04 mSv/yr] from beta particles and photon emitters to total body or any internal organ
 - » 15 pCi/l [0.555 Bq/l] for gross alpha particle activity (excluding radon and uranium)
 - » 30 micrograms per liter of uranium
- ◆ Uranium in groundwater (40 CFR Part 192 (UMTRCA))
 - » 30 pCi/l [1.11 Bq/l] of uranium-234 and -238 combined
- ◆ State MCLs if more stringent than federal



Part 2.

Guidance and Models for EPA staff



Site consistency

- ◆ To help facilitate compliance with NCP and cleanup sites, EPA Headquarters provides:
 - » Guidance documents
 - » Models (calculators)
 - » Training (on-line developed with U.S. State led ITRC workgroups, classroom with ORNL)
 - » 16 Annual Meetings with EPA Regions
- ◆ Guidance, models, training are available for free on the internet



Guidance: CERCLA Cleanup

- ◆ *Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination (8/22/97) OSWER Directive 9200.4-18*
- ◆ Radioactive contaminants at CERCLA sites are governed by the NCP like all other contaminants
 - » Cleanups based on ARARs or risk range
 - » Groundwater restored to beneficial reuse
 - » Use reasonably anticipated land use



Guidance: UMTRCA Soil ARAR

- ◆ *Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA sites (2/12/98) OSWER Directive 9200.4-25*
- ◆ Guidance on radium and thorium subsurface soil cleanup levels
- ◆ Attain 5 pCi/g [0.185 Bq/g], not 15 pCi/g [0.555 Bq/g], in subsurface
 - » 15 pCi/g [0.555 Bq/g], is “finding tool” for UMTRCA sites where subsurface contamination is high,
 - » and was expected to achieve 5 pCi/g [0.185 Bq/g] or less, therefore
 - » 15 pCi/g [0.555 Bq/g], is “relevant and appropriate” at CERCLA sites only when it will achieve 5 pCi/g [0.185 Bq/g] or less



Risk-based Cleanup Levels for Radioactive Contamination

- ◆ Radiation cleanup levels expressed as risk levels, **not** mrem [mSv]
- ◆ Superfund uses “slope factors” (risk coefficients) instead of dose conversion tables to estimate cancer risk from radioactive contaminants
 - » Use slope factors that are in the EPA PRG risk assessment models



2014 Risk Assessment Q&A

- ◆ *Radiation Risk Assessment at CERCLA Sites: Q&A (5/2014)*
OSWER Directive 9200.4-40
- ◆ Provides overview of **current** EPA guidance for radiation risk assessment
- ◆ Written for users familiar with Superfund but not radiation



Update Policies Based on Newer Science, cont.

- ◆ To comply with UMTRCA indoor radon standard as an ARAR, users may assume the following concentrations correspond to 0.02 Working Levels:
 - » 5 pCi/l of Rn-222
 - » 7.5 pCi/l of Rn-220
 - » This policy has been superseded by the RVISL calculator
- ◆ The methodology for making these conversions is discussed in ICRP “Lung Cancer Risk from Radon and Progeny”



More consistency on Risk Assessments (Rad & Chem)

- ◆ Reiterate more strongly that risk assessments (e.g., models used) should be consistent with chemicals at site and with other regional sites
- ◆ **Don't use** a steady state model for chemicals and a transfer/dynamic model for radionuclides
 - » **Don't use** RSL calculator for chemicals and RESRAD for radionuclides



More consistency on Surveys (Rad & Chem)

- ◆ Reiterate more strongly that site surveys (e.g., characterization and confirmation) should be consistent with chemicals at a site and with other regional sites
- ◆ **Don't use** not-to-exceed (NTE) for chemicals and area averaging (AA) for radionuclides for residential
 - » **Don't use** NTE for residential cleanup of chemicals but AA approach like MARSIMM for the radionuclides



Guidance: Rad SSG

- ◆ Soil Screening Guidance for Radionuclides [rad SSG] documents (10/00) OSWER Directives 9355.4-16A and 9355.4-16
 - » User Guide
 - » Technical Background Document
- ◆ Guidance to screen out areas, pathways, and/or radionuclides early in the process
- ◆ Consistent with 1996 chemical SSG
 - » 1×10^{-6} and MCLs (leaching from soil)
 - » Residential land use
 - » Survey procedures for site characterization
 - » Evaluates 5 soil to groundwater models
 - » Accounts for technical differences of radiation



Guidance: Rad PRG Calculator

- ◆ Calculator to establish PRGs, when:
 - » ARAR is either not available or sufficiently protective (e.g., 25 mrem/yr [0.25 mSv/yr] or more)
- ◆ Electronic equations (risk and leaching to groundwater) also are on the Internet
 - » 1×10^{-6} and MCLs (leaching from soil)
 - » Accounts for technical differences of radiation (e.g., gamma, plant uptake)



Guidance: Rad PRG Calculator (continued)

◆ Ten scenarios/land uses available

1. Residential
2. Agricultural
3. Indoor workers
4. Outdoor workers
5. Fish ingestion
6. Tap water
7. Soil to groundwater
8. Air
9. Recreator
10. Construction worker

◆ Chemical RSL equations should be used for chemical toxicity of uranium

◆ EPA developed Internet-based training with States (ITRC) on calculator and radiation risk assessment

» http://www.clu-in.org/conf/itrc/rads_051507/



Guidance: ARAR Dose Calculator

- ◆ Calculator to establish Dose Compliance Concentrations (DCC) for single dose limit ARARs requiring a dose assessment
- ◆ Ten scenarios/land uses available
 1. Residential
 2. Agricultural
 3. Indoor workers
 4. Outdoor workers
 5. Fish ingestion
 6. Tap water
 7. Soil to water
 8. Air
 9. Recreator
 10. Construction worker
- ◆ Equations similar to those for the PRG calculator, except dose conversion factors are used instead of slope factors



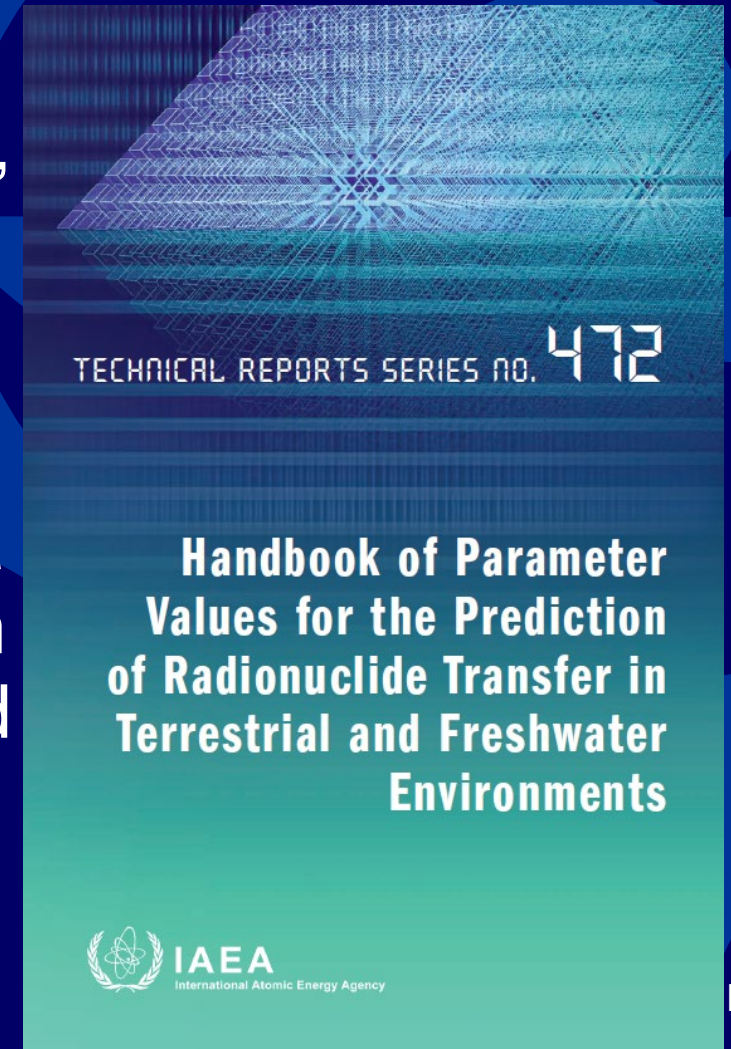
PRG and DCC – Farmer and Resident Produce Categories

- ◆ 25 specific subcategories of produce. 23 are used in default mode.
 - » Apples, Asparagus, Beets, Berries, Broccoli, Cabbage, Carrots, *Cereal Grains*, Citrus Fruits, Corn, Cucumbers, Lettuce, Lima Beans, Okra, Onions, Peaches, Pears, Peas, Peppers, Potatoes, Pumpkin, *Rice*, Snap Beans, Strawberries, Tomatoes
- ◆ Mass loading factors (MLFs) for each produce subcategory (25 MLFs)
- ◆ Child and Adult ingestion rates for all 25 categories
 - » Both for fresh weight (if site has sensitive populations) and more typical ingestion rate with cooking and preparation loss



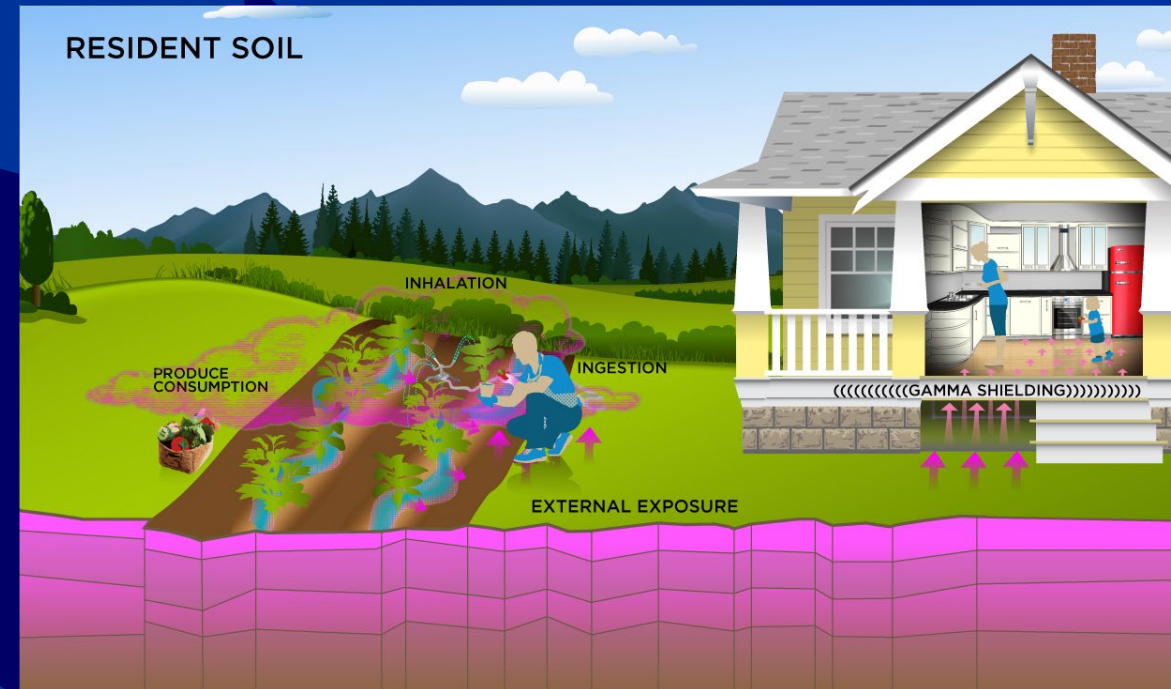
PRG and DCC – Farmer and Resident Produce Categories, cont.

- ◆ User is able to select:
 - » four climate zones (temperate, subtropical, tropical, humid).
 - » Seven soil (default, sand, loam, clay, organic, coral sand, other)
- ◆ If climate/soil specific transfer factors for that element/produce category are available from IAEA, then the correct factor will be selected



PRG and DCC – Farmer and Resident Produce Categories, cont.

- ◆ Users are able to select “Show Individual Produce PRG Output”
 - » This shows results for PRGs for every produce category selected
 - Enables user to see which categories are driving produce results



PRG and DCC – Farmer Animal Categories

◆ Ten animal products

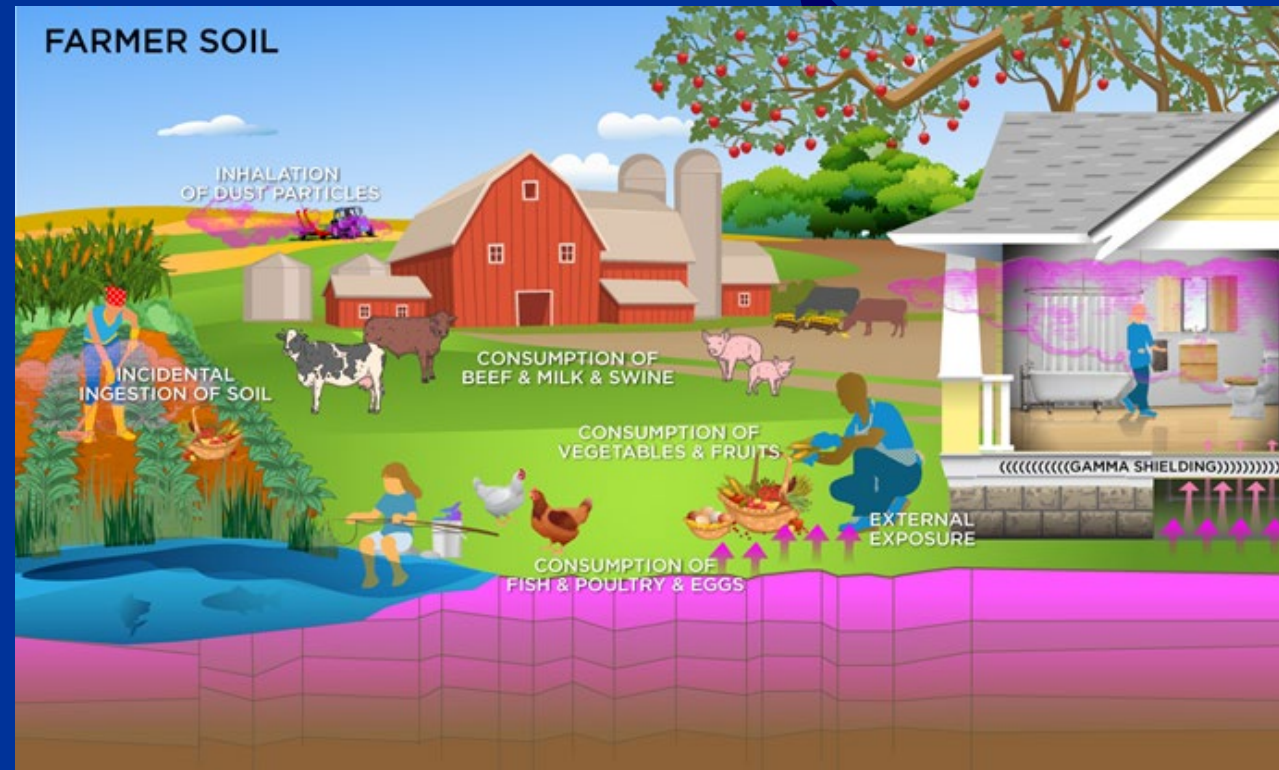
- » beef, dairy, swine, poultry, eggs, finfish, shellfish, goat milk, sheep milk, goat meat, sheep meat
- » Child and Adult ingestion rates for all 10 categories
 - Both for fresh weight (if site has sensitive populations) and more typical ingestion rate with cooking and preparation loss



PRG and DCC – Farmer Poultry sub Categories

- ◆ In the farmer scenario, four types of poultry (chicken, duck, turkey, or goose) may be selected.
 - » This changes the ingestion intake rates for the farm animal

- Fodder
- Water
- Soil



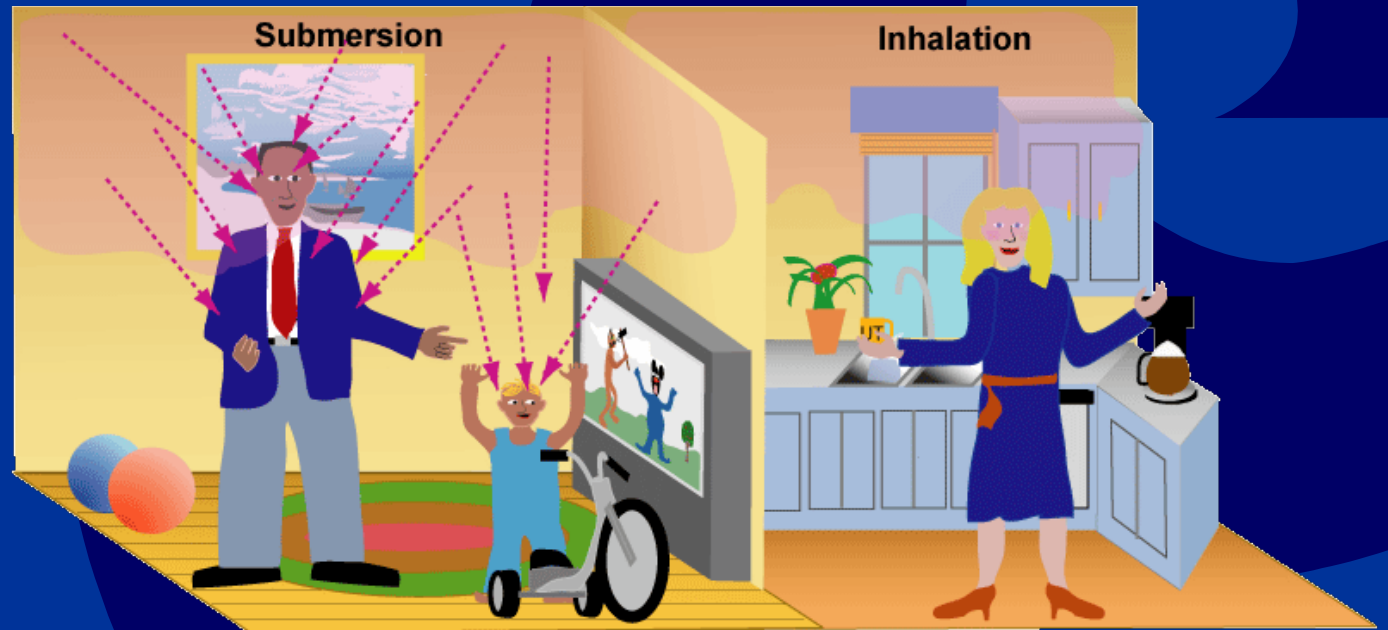
Guidance: Building PRG (BPRG) Calculator

- ◆ Calculator to establish 1×10^{-6} risk based PRGs for the reuse of radioactively contaminated buildings.
- ◆ Equations and parameters are derived from latest EPA chemical methodology (e.g., assessment at WTC)
 - » Adjusted to account for technical differences posed by radiation
- ◆ EPA and ITRC Internet-based training on BPRG calculator and D&D
 - » http://www.clu-in.org/conf/itrc/radsdd_040308/



Guidance: Building PRG (BPRG) Calculator (continued)

- ◆ BPRG calculator includes 2 land use scenarios
 - » Residential
 - » Indoor worker
- ◆ Both land uses include 3 exposure media
 - » Settled dust
 - » Ambient air
 - » Direct external exposure
 - 5 Room sizes and 4 receptor locations, both
 - Surface



Building Dose Cleanup Concentrations (BDCC) ARAR Dose Calculator

- ◆ BDCC Purpose: to establish BCCs for Inside Buildings for single dose limit ARARs (# mrem/yr)
- ◆ BDCC includes 2 land use scenarios (Residential, Indoor Worker)
- ◆ 2 land uses include 3 exposure media (Settled dust, Fixed Direct External 3-D, Ambient Air)
- ◆ Equations similar to those used for BPRG calculator, except dose conversion factors used instead of slope factors



BPRG/BDCC Surface Factors for Rooms (F_{surf}) – Room Material

- ◆ 7 Room Materials for each receptor locations and room sizes
 - » Adobe
 - » Composite 1 room material = drywall room, glass window, wooden doors, drywall walls, concrete floor, drywall ceiling
 - » Composite 2 room material = concrete room, wooden doors, concrete floor, drywall ceiling
 - » Concrete
 - » Drywall
 - » Glass
 - » Wood



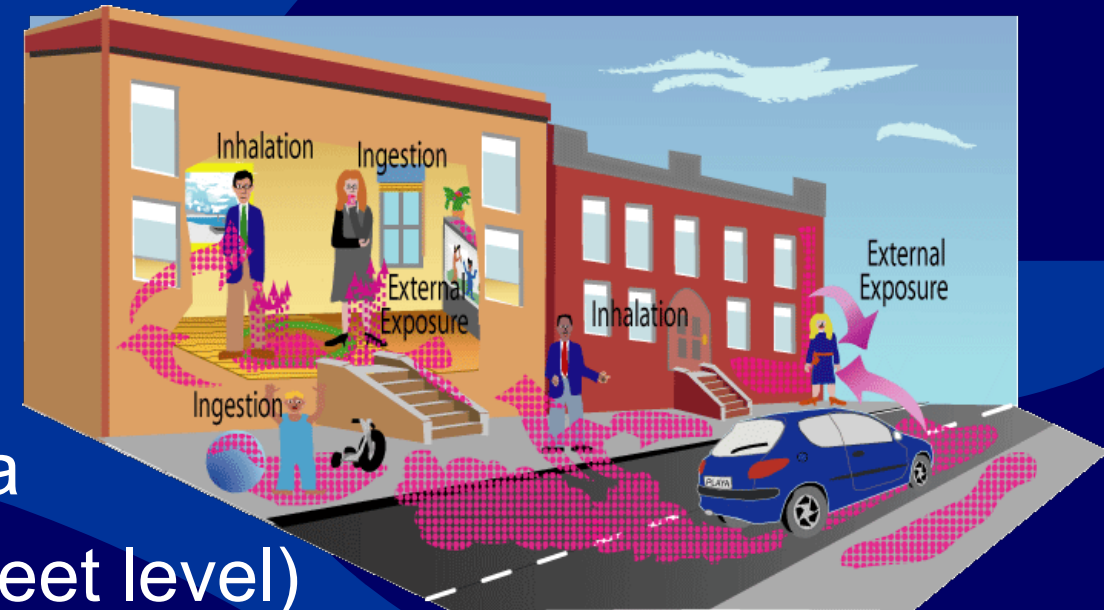
Surfaces PRG (SPRG) Calculator

- ◆ Establish 1×10^{-6} risk based PRGs for radioactively contaminated **outside** hard surfaces (e.g., slabs, pavement, sidewalks, sides of buildings)
- ◆ Derived from rad PRG and BPRG calculators



SPRG Exposure Scenarios

- ◆ SPRG includes 3 land use scenarios
 - » Residential
 - » Indoor Worker
 - » Outdoor Worker
- ◆ 3 land uses include 3 exposure media
 - » Settled dust (pave and unpaved street level)
 - » Fixed Direct External 3-D (street level)
 - Surface and Volumetric
 - » Fixed Direct External 2-D (slabs)
 - Surface and Volumetric



Surface Dose Cleanup Concentrations (SDCC) ARAR Dose Calculator

- ◆ SDCC Purpose: to establish DCCs for Outside Hard Surfaces for single dose limit ARARs (# mrem/yr)
- ◆ SDCC includes 3 land use scenarios (Residential, Indoor Worker, Outdoor Worker)
- ◆ 3 land uses include 3 exposure media (Settled dust, Fixed Direct External 3-D, Fixed Direct External 2-D (slabs))
- ◆ Equations similar to those used for SPRG calculator, except dose conversion factors used instead of slope factors



Mechanically Driven PEF

- ◆ Default based on California Urban Highway, other choices
 - » State specific
 - » Site-specific
 - Paved
 - Unpaved



Mechanically Driven PEF: State-Specific

- ◆ Select a state
- ◆ Select a geographic setting (urban or rural)
- ◆ Select a roadway class (6 choices)

Urban

1. Interstate
2. Freeways and Expressways
3. Other Principal Arterial
4. Minor Arterial
5. Collector
6. Local

Rural

1. Interstate
2. Other Principal Arterial
3. Minor Arterial
4. Major Collector
5. Minor Collector
6. Local Collector



Determining Road Class: DOT MAP

HEPGIS Highway Maps

U.S. Department of Transportation
Federal Highway Administration
Planning, Environment, Realty (HEP)

[FHWA Home](#) | [Feedback](#)
[FHWA](#) | [HEP](#) | [HEPGIS](#)

HEPGIS

General Information | Highway Information | Boundaries | Federal Lands

General Maps:
NHS

Change Location

Change Layers

NHS Map
North America
State (low)
Interstate Hwy
0 200 400
Miles

Select by Query

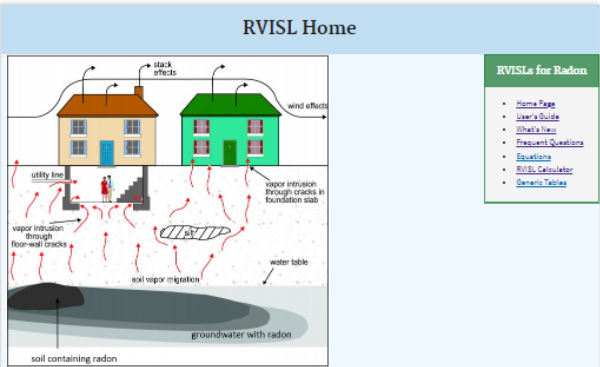
Print Map
Save Map Image
Save Legend Image

Initial Map | Zoom Out | Zoom In | Pan | Info



Radon Vapor Intrusion Screening Level (RVISL) Calculator

- ◆ Internet calculator tool developed to provide concentrations of radon and thoron in soil and groundwater that will not result in radon intrusion into buildings that exceed target levels
- ◆ Indoor Rn-222, Rn-220, and Rn-219 target level concentrations based on:
 - » Risk (default to 1×10^{-6})
 - » UMTRCA (only Rn-222 and Rn-220) correspond to 0.02 Working Levels
 - » Dose (default to 1 mrem/yr)



The screenshot shows the 'RVISL Home' page. On the left, a diagram illustrates radon migration from soil and groundwater into buildings. Labels include: 'soil containing radon', 'groundwater with radon', 'water table', 'soil vapor migration', 'vapor intrusion through floor-wall cracks', 'vapor intrusion through cracks in foundation slab', 'utility line', 'stack effects', and 'wind effects'. On the right, a navigation menu titled 'RVISLs for Radon' includes links for Home Page, User's Guide, What's New, Frequently Asked Questions, Equations, RVISL Calculator, and Generic Tables.

This figure depicts the migration of radon (Rn) in soil gas from radioactively contaminated soil and groundwater into buildings at a Superfund site. Radon in soil gas is shown to enter buildings through cracks in the foundation and openings for utility lines similar to other forms of contamination. Atmospheric conditions and building ventilation are shown to influence radon soil gas intrusion.

Welcome

Welcome to the "Radon Vapor Intrusion Screening Level (RVISL) Calculator Home Page for Radionuclide Contaminants at Superfund Sites". This website was developed with the Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL) under an Interagency Agreement with the U.S. Environmental Protection Agency (EPA). The main purpose of this guidance is to provide a RVISL calculation tool to assist risk assessors, remedial project managers, and others involved with risk assessment and decision-making at Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites in developing RVISLs or preliminary remediation goals (PRGs) for indoor Rn-222, Rn-220, and Rn-219 that are risk or dose based and for showing compliance with the UMTRCA indoor radon standards for Rn-222 and Rn-220.

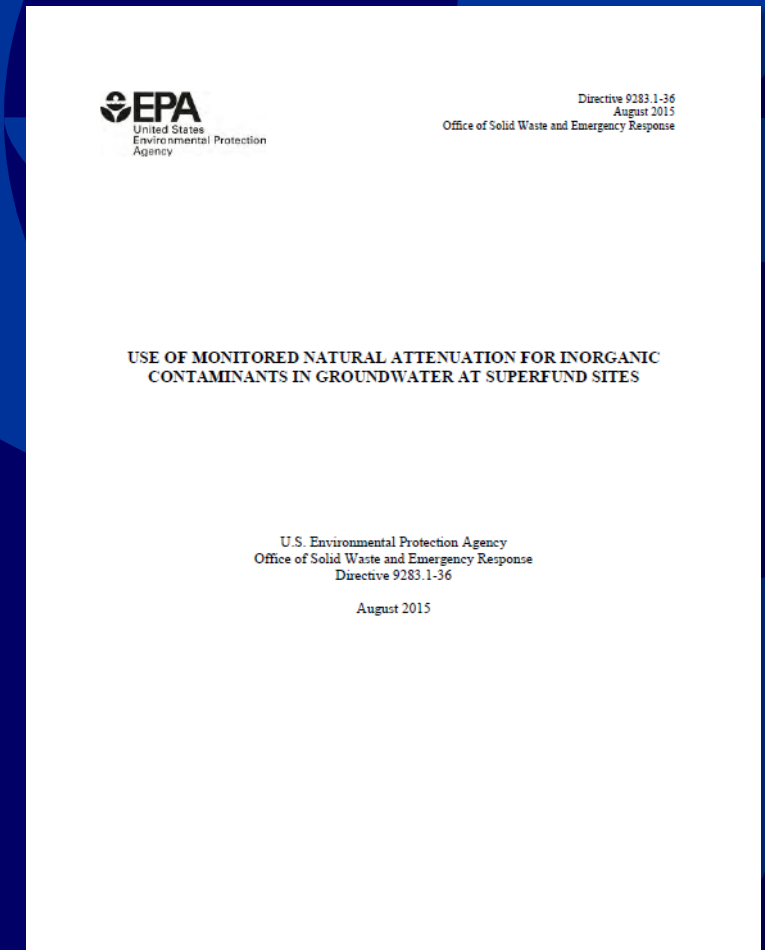
The RVISL website is now the generally recommended source of indoor radon screening levels (SLs) from radioactive contaminants at Superfund sites for all EPA regions. The RVISL calculator output provides screening values and risk and dose estimates for residential and commercial/industrial exposures to radon in soil gas, air, and groundwater. The unified use of the RVISLs to screen radon at Superfund sites promotes national consistency. The RVISL uses the same database of toxicity values, chemical parameters, and inhalation exposure equations as the PRGs for Radionuclide Contaminants at Superfund Sites calculator. RVISLs are a type of PRG and both are a specific variety of the broad screening level (SL) category.

Note that for CERCLA remedial actions, dose assessment is generally done only to show compliance with a dose-based Applicable or Relevant and Appropriate Requirement (ARAR). EPA would recommend, where possible, Regions use measurements of radon indoors rather than rely on the transport portions of the RVISL. In particular, testing of groundwater or soil gas is not required to demonstrate compliance with RVISL Working Levels (WL), risk, or dose targets.

The RVISL calculator provides default parameters that can be modified to reflect site-specific conditions. In addition, the calculator presents the option to compare the indoor air concentration, entered by the user or derived from groundwater or soil gas activities, to state standards or Uranium Mill Tailings Radiation Control Act (UMTRCA) standards, which also may be potential ARARs. Below is a general description of SLs for radon. If the calculator is used with non-default inputs in a decision on a Superfund site, it is recommended that the inputs be clearly identified and justified by the user.

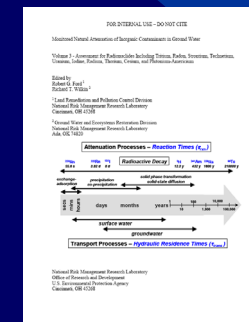
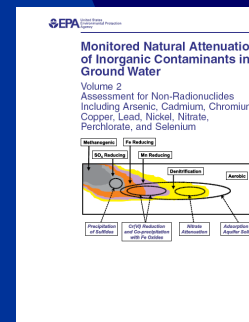
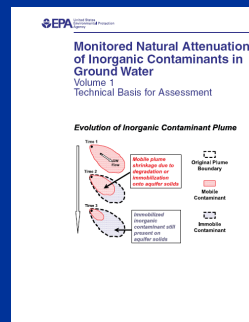
EPA MNA for Inorganics Policy document – Issued 2015

- ◆ Complement 1999 overall MNA policy document
 - » Helps clarify policy issues unique to inorganics not addressed in 1999
- ◆ Volume 3 ORD MNA for radionuclides serves as a technical support document for this policy document



EPA MNA Technical Guidance for Inorganics

- ◆ 3 Technical Reports “Monitored Natural Attenuation of Inorganic Contaminants in Ground Water”
 - » “Volume 1 - Technical Basis for Assessment” 2007
 - » “Volume 2 - Assessment for Non-Radionuclides Including Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Nitrate, Perchlorate, and Selenium” 2007
 - » “Volume 3 - Assessment for Radionuclides Including Americium, Cesium, Iodine, Plutonium, Radium, Radon, Strontium, Technetium, Thorium, Tritium, Uranium” 2010



Guidance: Uranium in Groundwater

- ◆ *Use of Uranium Drinking Water Standards Under 40 CFR 141 and 40 CFR 192 as Remediation Goals for Groundwater at CERCLA Sites (11/6/01) OSWER Directive 9283.1-14*
- ◆ Guidance on the use of MCL and UMTRCA uranium standards as ARARs for groundwater
- ◆ When both standards are ARARs, must attain or waive both
 1. 30 micrograms per liter of total uranium
 2. 30 pCi/l [1.11 Bq/l] of uranium-234 and 238 combined
- ◆ Use MCL ARAR point of compliance for UMTRCA
- ◆ Includes a list of radionuclides under 4 mrem/year beta and 15 pCi/l [0.555 Bq/l] alpha MCLs



Part 3. Involving Stakeholders



Community Involvement

- ◆ EPA has many tools to facilitate meaningful involvement by communities near sites
- ◆ EPA has 2 tools designed specifically for use at radiation sites
 - » EPA works with stakeholders to develop site-specific tools for local communities

Díí baa' ádahotłchijh!
Water from these wells* in Baca-Prewitt-Haystack is NOT safe to drink



16B-38
Paddy Martinez Well

16T-317
Sam Long Well

16T-521 Platero Well

16T-552
Helen Martinez Well

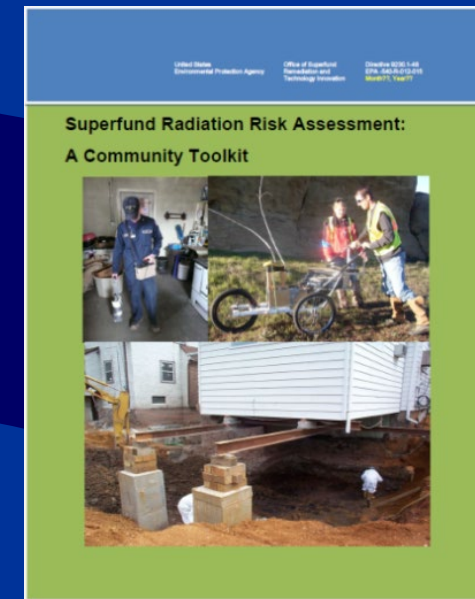
Advisory issued jointly by DINEH Project and NNEPA-PWSSP
Dec. 2007, Rev. Feb., Mar. 2008
Call 505-262-1862 or 928-871-7755
or visit www.navajopublicwater.org

**Navajo Nation policy is that these wells are for livestock use only and are not to be used for human drinking water.*



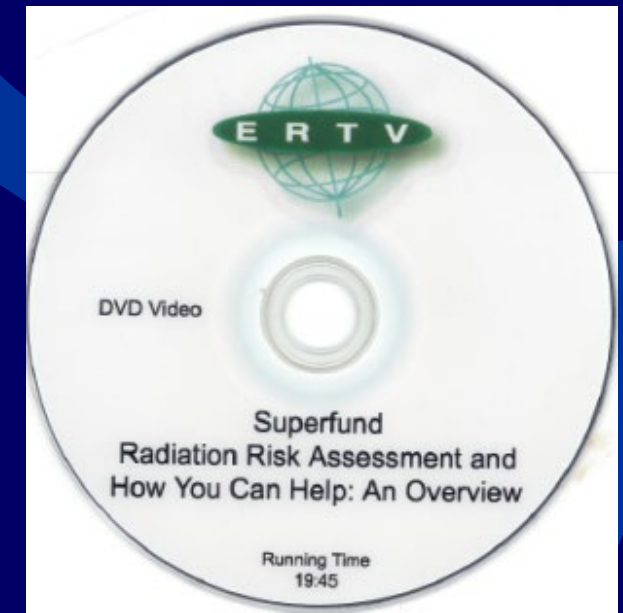
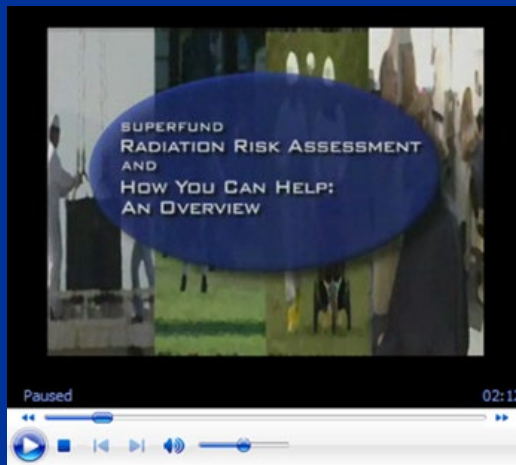
Toolkit: Radiation Risk Assessment

- ◆ *Superfund Radiation Risk Assessment: A Community Toolkit* (issued June 2014)
- ◆ Collection of 22 fact sheets for the general public. It contains fact sheets on
 - » Superfund and Radiation
 - » Superfund risk assessment process at radiation sites
 - » Each of the 6 PRG and DCC calculators
 - RVISL fact sheet is on Home page for calculator
 - » Replacement for the Common Rad booklet fact sheets



Video: Radiation Risk Assessment

- ◆ *Superfund Radiation Risk Assessment and How you can Help, an Overview (3/05) OSWER Directive 9200.4-37*
- ◆ Video for the general public. It contains information on:
 - » The Superfund risk assessment process when addressing radioactive contamination
 - » How the public is involved site-specifically



For More Copies or Information

- ◆ Guidance documents are on Superfund Radiation Webpage:
 - » <https://www.epa.gov/superfund/radiation-superfund-sites>
- ◆ For further information or questions, contact Stuart Walker at
 - » Phone: (202) 566-1148
 - » Email: Walker.Stuart@epa.gov



Questions



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