



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUN 13 2014

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

OSWER 9285.6-20

**MEMORANDUM**

**SUBJECT:** Distribution of the “Radiation Risk Assessment At CERCLA Sites: Q&A”

**FROM:** *for* Robin H. Richardson, Acting Director *Robin Richardson*  
Office of Superfund Remediation and Technology Innovation

**TO:** Superfund National Policy Managers, Regions 1–10

**Purpose**

The purpose of this memorandum is to transmit the final guidance “Radiation Risk Assessment At CERCLA Sites: Q&A.” This new final guidance will replace a previous version of the “Radiation Risk Assessment At CERCLA Sites: Q&A” issued in 1999.

**Role of the Guidance**

The Office of Superfund Remediation Technology Innovation (OSRTI) developed this document to present an overview of current EPA guidance for risk assessment and related topics for radioactively contaminated Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial sites. It provides answers to several commonly asked questions regarding risk assessments at radioactively contaminated CERCLA remedial sites.<sup>1</sup> The purpose of this document is to provide answers to commonly asked questions regarding risk assessment for radioactive contamination, describe how to analyze levels of radioactive contamination and explain how to assess the risks from radioactive

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<sup>1</sup> The document transmitted by this memorandum provides guidance on risk assessment under CERCLA and is consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). It does not alter the NCP’s general expectations for remedial actions, such as those regarding treatment of principal threat waste and the use of containment and institutional controls for low-level threat waste. Consistent with CERCLA and the NCP, remedial actions need to attain or waive Applicable or Relevant and Appropriate Requirements (ARARs); potential ARARs for contaminated ground water at radiation sites typically include Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act.

This document provides guidance to U.S. Environmental Protection Agency (EPA) staff on how to conduct risk assessments for radioactively contaminated CERCLA sites. The guidance is designed to be consistent with EPA’s national guidance on these issues. This guidance does not, however, substitute for EPA’s statutes or regulations, nor is it a regulation itself. Thus, it cannot impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA may change this guidance in the future, as appropriate.

contamination as part of a remedy for a radioactively contaminated CERCLA remedial site. This guidance is intended to help health physicists, risk assessors, remedial project managers, and others involved with risk assessment and decision making at CERCLA remedial sites with radioactive contamination.

## **Background**

The EPA issued guidance entitled “Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination” (OSWER No. 9200.4-18, August 22, 1997). This 1997 guidance provided clarification on establishing protective cleanup levels for radioactive contamination at CERCLA sites. The guidance reiterated that cleanups of radionuclides are governed by the risk range for all carcinogens established in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) when Applicable or Relevant and Appropriate Requirements (ARARs) are not available or are not sufficiently protective. Cleanups generally should achieve a level of risk within the  $10^{-4}$  to  $10^{-6}$  carcinogenic risk range based on the reasonable maximum exposure for an individual. In calculating cleanup levels, one should include exposures from all potential pathways, and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.) The guidance also provides a listing of radiation standards that are likely to be used as ARARs to establish cleanup levels or to conduct remedial actions.

The EPA previously issued “Radiation Risk Assessment At CERCLA Sites: Q&A” (OSWER No. 9200.4-31P, December 1999). The 1999 Risk Q&A provided an overview of the then current EPA guidance for risk assessment and related topics for radioactively contaminated CERCLA sites. This guidance provided answers to several commonly asked questions regarding risk assessments at radioactively contaminated CERCLA sites. In addition, it recommended that dose assessments only be conducted under CERCLA where necessary to demonstrate compliance with ARARs. Today’s Risk Q&A guidance updates the 1999 version of the Risk Q&A by summarizing and citing guidance that was developed after the 1999 version. This new guidance explains how to convert radon measurements to demonstrate compliance with indoor radon standards that are potential ARARs using a methodology based on international guidance, and it changes the Superfund recommendation on what is considered a protective dose-based ARAR from 15 to 12 millirem per year (mrem/yr). The new recommendation of 12 mrem/yr regarding what dose-based ARARs are protective is based on using an updated risk assessment to achieve the same  $3 \times 10^{-4}$  cancer risk as the previous recommendation using 15 mrem/yr.

The Radiation Risk Q&A guidance is part of a continuing effort by OSRTI to provide updated guidance for addressing radioactively contaminated remedial Superfund sites consistent with our guidance for addressing chemically contaminated sites (while accounting for the technical differences between radionuclides and chemicals). OSRTI intends for this effort to facilitate remedial cleanups that are consistent with the NCP at radioactively contaminated sites and to incorporate new information based on improvements to the Superfund program.

## **Implementation**

For questions regarding radiation site policy and guidance for CERCLA cleanup actions, readers are referred to the Superfund Radiation Webpage at <http://www.epa.gov/superfund/health/contaminants/radiation/index.htm>. The subject matter specialist for this guidance is Stuart Walker of OSRTI. He can be reached by e-mail at [walker.stuart@epa.gov](mailto:walker.stuart@epa.gov) or by telephone at (703) 603-8748.

Attachment

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