NRC FORM 658
(9-1999)

U.S. NUCLEAR REGULATORY COMMISSION

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DATE OF MEETING
11/05/2002

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s): **N/A**

Plant/Facility Name: **N/A**

TAC Number(s) (if available): **N/A**

Reference Meeting Notice: **See ML022950328**

Purpose of Meeting (copy from meeting notice): **Public Meeting to discuss the NRC-EPA Memorandum of Understanding**

NAME OF PERSON WHO ISSUED MEETING NOTICE	TITLE
Eric R. Pogue	**Project Manager**

OFFICE: **NMSS**

DIVISION: **DWM**

BRANCH: **DCB**

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DF01

AGENDA
NRC-EPA MOU Public Meeting

12:30-1:00	Meet and Greet (Poster Session)
1:00-1:15	Welcome and Opening Remarks
1:15-2:15	Overview of MOU (NRC/EPA)
2:15-2:45	Public Questions
2:45-3:00	NRC Next Steps/Guidance
3:00-3:15	EPA Next Steps/Guidance
3:15-3:30	Closing Remarks
3:30-3:45	Public Questions
3:45-4:30	Staff Available for Additional Discussion

Attachment

2002 MOU between NRC and EPA

Bruce Means
Office of Emergency and Remedial Response, USEPA
(Superfund)
November 5, 2002

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Purpose

- Describe MOU Status and History
- Provide Overview of MOU

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MOU Status

- NRC and EPA have completed MOU on how two agencies will coordinate during NRC decommissioning
- Under development since 2000

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MOU intent

- Minimize potential for site-specific issues due to inconsistent cleanup approaches
  - EPA expects vast majority of NRC cleanups to meet CERCLA standards
- MOU should result in:
  - More efficient use of federal dollars
  - Greater stakeholder confidence
  - Better working relationship between EPA and NRC

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Background

- Since 1983, EPA has generally deferred NRC sites from listing on Superfund's NPL
  - Agreement States and NRC license-terminated sites not covered
- In 1997, EPA raised possibility of withdrawing deferral policy during disagreement between EPA and NRC over acceptable cleanup levels

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Congressional direction

- House Appropriation Committee FY 2000 directed EPA and NRC to work on an MOU.
  - Subsequent reports have continued this direction.

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MOU Overview

- MOU focuses on coordination between EPA CERCLA authority and NRC decommissioning or previously license-terminated sites
  - One section refers back to EPA's existing policy under RCRA at NRC sites

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MOU Overview (continued)

- MOU provides consultation procedures for EPA and NRC
- EPA reaffirms 1983 deferral policy
  - Expanded to now cover previously licensed, in addition to currently licensed sites

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Consultation Triggers

- NRC will contact EPA when:
  1) Radionuclide MCLs will be exceeded in groundwater
  2) Residual soil levels will exceed concentrations in Table 1

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Consultation Triggers (continued)

- NRC will contact EPA when:
  3) NRC contemplates future use of site will be restricted by conditions in license termination
  4) NRC contemplates use of alternative criteria for license termination (i.e., site-specific dose greater than 25 mrem/yr may be allowed)

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MOU Table 1

- Concentrations based on:
  - 1 x 10-4 cancer risk
  - UMTRCA as an ARAR (radium & thorium)
  - Hazard Index of 1 (total uranium)
- Residential and commercial/industrial land uses

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Table 1 & MCLs

- Table 1 and MCLs included since levels may be used by EPA as action levels at CERCLA sites

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MOU limited to NRC

- MOU does not affect how CERCLA actions are conducted
  - Table 1 does not establish cleanup levels
  - CERCLA cleanups should still consider 10-6 risk goal first (not 10-4)
- Agreement States not included
  - EPA would consider similar MOUs

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MOU Contacts

- Designated Contacts
  - NRC, Director, Office of Nuclear Materials Safety and Safeguards (Martin Virgilio)
    - John Greeves, daily contact
  - EPA, Director, Office of Emergency and Remedial Response (Mike Cook)
    - Stuart Walker, daily contact

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Implementation of MOU

Bruce Means
Office of Emergency and Remedial Response, USEPA
(Superfund)
November 5, 2002

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Outreach Plans

- MOU and implementing guidance on Internet
  - http://www.epa.gov/superfund/resources/radiation/mou.htm
- Briefings for interested stakeholders

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EPA Guidance

- EPA implementation guidance to EPA Regions contained in transmittal note
  - Caution: Transmittal note assumes familiarity with CERCLA.
  - Clear, overarching goal: to implement the MOU as written.

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EPA Guidance (continued)

- MOU does not affect CERCLA actions
- Explains rationale for consultation triggers

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New MOU?

- House Report language (10/10/2002) asks for revised MOU
  - Should address EPA involvement "when requested by the NRC"

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Memorandum of Understanding BETWEEN EPA AND NRC

John T. Greeves, Director
Division of Waste Management, NMSS

November 5, 2002

Background

- **1992 MOU**
- **NRC/EPA Controversy**
- **1997 NRC License Termination Rule**
- **1997 EPA Guidance**
- **Risk Management Differences**
- **2000 GAO Report**

DUAL REGULATION

- Leads to Conflicts
- Inefficient Use of Resources
- Lack of Finality
- Erodes Public Confidence

2002 MOU

- Process to eliminate or mitigate dual regulation
- Congress directed language
- Success Between Agencies
- MOU does not relieve Licensees from meeting Part 20 Subpart E

Principles and Implementation

- **Establish a stable and predictable regulatory environment**
- **Implement NRC and EPA responsibilities in a coordinated and consistent manner**
- **Inform Congress and Stakeholders**

Specific MOU Provisions

- **EPA agrees to defer to NRC**
  - Vast majority of NRC terminated licenses will not invoke MOU
- **NRC agrees to consult with EPA when:**
  - Site groundwater contamination exceeds EPA MCLs
  - Site soil concentrations exceed levels defined in MOU
  - NRC contemplates restricted release or alternate use criteria
- **License Termination rule continues a dose criterion that encompasses all pathways.**

COMPARISON OF MOU CONSULTATION VALUES TO NRC'S COMPLIANCE SCREENING CRITERIA

H-3	2.1	Co-57	5.8	Cs-137	0.55	U-234	31
C-14	3.8	Co-60	1.1	Eu-152	0.46	U-235	2.5
Na-22	2.1	Ni-59	3.8	Eu-154	0.63	U-238	5.3
S-35	73	Ni-63	4.5	Ir-192	8.2	Pu-238	120
Cl-36	17	Sr-90	14	Pb-210	17	Pu-239	110
Ca-45	240	Nb-94	0.34	Ra-226	7.1	Pu-241	560
Sc-46	7	Tc-99	1.3	Ac-227	20	Am-241	89
Mn-54	4.6	I-129	120	Th-228	3.2	Cm-242	200
Fe-55	27	Cs-134	2.8	Th-232	4.5	Cm-243	11

Values <1 = NRC's value is larger;
Values >1 = MOU value is larger

EXAMPLE 1

- A site has Sr-90 in Soil
- Requesting License Termination
- Must show compliance with Part 20
- Coordination with EPA
  - Screening Criteria
    - No Consultation with EPA
  - Site-specific modeling
    - No Consultation with EPA if <23 pCi/g

	Sr-90+D
NRC Screening Value	1.7 pCi/g
MOU Residential Value	23 pCi/g

EXAMPLE 2

- A site has Cs-137 in Soil
- Requesting License Termination
- Must show compliance with Part 20
- Coordination with EPA
  - Screening Criteria
    - Consultation with EPA if ACTUAL concentrations >6 pCi/g
  - Site-specific modeling
    - Consultation with EPA if ACTUAL concentrations >6 pCi/g

	Cs-137
NRC Screening Value	11 pCi/g
MOU Residential Value	6 pCi/g

EXAMPLE 3

- Site has Sr-90 in ground water
- Current concentration is 12 pCi/l
- If concentration will be >8 pCi/l <u>at time of license termination</u>, NRC will consult with EPA.
- Must show compliance with Part 20

	Sr-90+D
EPA MCL	8 pCi/l

Path Forward

- **Each agency will revise its guidance to address consultation role**
- **NRC will continue to request legislation to eliminate dual regulation**

Table H.1 Acceptable License Termination Screening Values of Common Radionuclides for Building-Surface Contamination

Radionuclide	Symbol	Acceptable Screening Levels[a] for Unrestricted Release (dpm/100 cm^2)[b]
Hydrogen-3 (Tritium)	^{3}H	1.2E+08
Carbon-14	^{14}C	3.7E+06
Sodium-22	^{22}Na	9.5E+03
Sulfur-35	^{35}S	1.3E+07
Chlorine-36	^{36}Cl	5.0E+05
Manganese-54	^{54}Mn	3.2E+04
Iron-55	^{55}Fe	4.5E+06
Cobalt-60	^{60}Co	7.1E+03
Nickel-63	^{63}Ni	1.8E+06
Strontium-90	^{90}Sr	8.7E+03
Technetium-99	^{99}Tc	1.3E+06
Iodine-129	^{129}I	3.5E+04
Cesium-137	^{137}Cs	2.8E+04
Iridium-192	^{192}Ir	7.4E+04

Notes:

a Screening levels are based on the assumption that the fraction of removable surface contamination is equal to 0.1. For cases when the fraction of removable contamination is undetermined or higher than 0.1, users may assume for screening purposes that 100 percent of surface contamination is removable, and therefore the screening levels should be decreased by a factor of 10. Users may calculate site-specific levels using available data on the fraction of removable contamination and DandD version 2.

b Units are disintegrations per minute (dpm) per 100 square centimeters (dpm/100 cm^2). One dpm is equivalent to 0.0167 becquerel (Bq). Therefore, to convert to units of Bq/m^2, multiply each value by 1.67. The screening values represent surface concentrations of individual radionuclides that would be deemed in compliance with the 0.25 mSv/y (25 mrem/y) unrestricted release dose limit in 10 CFR 20.1402. For radionuclides in a mixture, the "sum of fractions" rule applies (see Part 20, Appendix B, Note 4).

Table H.2 Interim Screening Values[a] (pCi/g) of Common Radionuclides for Soil Surface Contamination Levels

Radionuclide	Symbol	Surface Soil Screening Values[b]
Hydrogen-3	^{3}H	1.1E+02
Carbon-14	^{14}C	1.2E+01
Sodium-22	^{22}Na	4.3E+00
Sulfur-35	^{35}S	2.7E+02
Chlorine-36	^{36}Cl	3.6E-01
Calcium-45	^{45}Ca	5.7E+01
Scandium-46	^{46}Sc	1.5E+01
Manganese-54	^{54}Mn	1.5E+01
Iron-55	^{55}Fe	1.0E+04
Cobalt-57	^{57}Co	1.5E+02
Cobalt-60	^{60}Co	3.8E+00
Nickel-59	^{59}Ni	5.5E+03
Nickel-63	^{63}Ni	2.1E+03
Strontium-90	^{90}Sr	1.7E+00
Niobium-94	^{94}Nb	5.8E+00
Technetium-99	^{99}Tc	1.9E+01
Iodine-129	^{129}I	5.0E-01
Cesium-134	^{134}Cs	5.7E+00
Cesium-137	^{137}Cs	1.1E+01
Europium-152	^{152}Eu	8.7E+00
Europium-154	^{154}Eu	8.0E+00
Iridium-192	^{192}Ir	4.1E+01
Lead-210	^{210}Pb	9.0E-01
Radium-226	^{226}Ra	7.0E-01
Radium-226+C[c]	^{226}Ra+C	6.0E-01
Actinium-227	^{227}Ac	5.0E-01
Actinium-227+C	^{227}Ac+C	5.0E-01
Thorium-228	^{228}Th	4.7E+00

Table H.2 Interim Screening Values[a] (pCi/g) of Common Radionuclides for Soil Screening Surface Contamination Levels (continued)

Radionuclide	Symbol	Surface Soil Screening Values[b]
Thorium-228+C[c]	^{228}Th+C	4.7E+00
Thorium-230	^{230}Th	1.8E+00
Thorium-230+C	^{230}Th+C	6.0E-01
Thorium-232	^{232}Th	1.1E+00
Thorium-232+C	^{232}Th+C	1.1E+00
Protactinium-231	^{231}Pa	3.0E-01
Protactinium-231+C	^{231}Pa+C	3.0E-01
Uranium-234	^{234}U	1.3E+01
Uranium-235	^{235}U	8.0E+00
Uranium-235+C	^{235}U+C	2.9E-01
Uranium-238	^{238}U	1.4E+01
Uranium-238+C	^{238}U+C	5.0E-01
Plutonium-238	^{238}Pu	2.5E+00
Plutonium-239	^{239}Pu	2.3E+00
Plutonium-241	^{241}Pu	7.2E+01
Americium-241	^{241}Am	2.1E+00
Curium-242	^{242}Cm	1.6E+02
Curium-243	^{243}Cm	3.2E+00

Notes:

a These values represent surficial surface soil concentrations of individual radionuclides that would be deemed in compliance with the 25 mrem/y (0.25 mSv/y) unrestricted release dose limit in 10 CFR 20.1402. For radionuclides in a mixture, the "sum of fractions" rule applies; see Part 20, Appendix B, Note 4.

b Screening values are in units of (pCi/g) equivalent to 25 mrem/y (0.25 mSv/y). To convert from pCi/g to units of becquerel per kilogram (Bq/kg), divide each value by 0.027. These values were derived using DandD screening methodology (NUREG/CR-5512, Volume 3). They were derived based on selection of the 90th percentile of the output dose distribution *for each specific radionuclide* (or radionuclide with the specific decay chain). Behavioral parameters were set at the mean of the distribution of the assumed critical group. The metabolic parameters were set at "Standard Man" or at the mean of the distribution for an average human.

c "Plus Chain (+C)" indicates a value for a radionuclide with its decay progeny present in equilibrium. The values are concentrations of the parent radionuclide but account for contributions from the complete chain of progeny in equilibrium with the parent radionuclide (NUREG/CR-5512 Volumes 1, 2, and 3).

Next Steps and Guidance

John T. Greeves, Director
Division of Waste Management, NMSS

November 5, 2002

PUBLIC OUTREACH

- Press Releases and FRNs
- Today's Public Meeting
- Continued participation in State and organizational meetings
  - 10/02 Fuel Cycle Forum
  - 10/02 California State Meeting
  - 5/03 CRCPD Meeting

INITIAL IMPLEMENTATION

- Guidance letter to NRC Staff
  - Overview of MOU
  - Review decommissioning sites against MOU triggers
  - DWM to coordinate communication with EPA Headquarters

NRC GUIDANCE

- In accordance with MOU, NRC will revise guidance within 6 months
- MOU guidance will be incorporated into Consolidated Decommissioning Guidance (i.e., NUREG 1757)

MEMORANDUM OF UNDERSTANDING BETWEEN THE ENVIRONMENTAL PROTECTION AGENCY AND THE NUCLEAR REGULATORY COMMISSION

CONSULTATION AND FINALITY ON DECOMMISSIONING AND DECONTAMINATION OF CONTAMINATED SITES

I. Introduction

The Environmental Protection Agency (EPA) and the Nuclear Regulatory Commission (NRC), in recognition of their mutual commitment to protect the public health and safety and the environment, are entering into this Memorandum of Understanding (MOU) in order to establish a basic framework for the relationship of the agencies in the radiological decommissioning and decontamination of NRC-licensed sites. Each Agency is entering into this MOU in order to facilitate decision-making. It does not establish any new requirements or rights on parties not subject to this agreement.

II. Purpose

The purpose of this MOU is to identify the interactions of the two agencies for the decommissioning and decontamination of NRC-licensed sites and to indicate the way in which those interactions will take place. Except for Section VI, addressing corrective action under the Resource Conservation and Recovery Act (RCRA), this MOU is limited to the coordination between EPA, when acting under its Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) authority, and NRC, when a facility licensed by the NRC is undergoing decommissioning, or when a facility has completed decommissioning, and the NRC has terminated its license. It continues a basic policy of EPA deferral to NRC decision-making in the decommissioning of NRC-licensed sites except in certain circumstances, and establishes the procedures to govern the relationship between the agencies in connection with the decommissioning of sites at which those circumstances arise.

III. Background

An August 3, 1999, report (106-286) from the House Committee on Appropriations to accompany the bill covering EPA's FY1999 Appropriations/FY 2000 budget request states:

> Once again the Committee notes that the Nuclear Regulatory Commission (NRC) has and will continue to remediate sites under its jurisdiction to a level that fully protects public health and safety, and believes that any reversal of the long-standing policy of the Agency to defer to the NRC for cleanup of NRC's licensed sites is not a good use of public or private funds. The interaction of the EPA with the NRC, NRC licensees, and others, with regard to sites being remediated under NRC regulatory requirements--when not specifically requested by the NRC--has created stakeholder concerns regarding the authority and finality of NRC licensing decisions, the duration and costs of site cleanup, and the potential future liability of parties associated with affected sites. However, the Committee recognizes that there may be circumstances at specific NRC licensed sites where the Agency's expertise may be of critical use to the NRC. In

the interest of ensuring that sites do not face dual regulation, the Committee strongly encourages both agencies to enter into an MOU which clarifies the circumstances for EPA's involvement at NRC sites when requested by the NRC. The EPA and NRC are directed to report to the Committee on Appropriations no later than May 1, 2000, on the status of the development of such an MOU.

Since September 8, 1983, EPA has generally deferred listing on the CERCLA National Priorities List (NPL) those sites that are subject to NRC's licensing authority, in recognition that NRC's actions are believed to be consistent with the CERCLA requirement to protect human health and the environment. However, as EPA indicated in the Federal Register notice announcing the policy of CERCLA deferral to NRC, if EPA "determines that sites which it has not listed as a matter of policy are not being properly responded to, the Agency will consider listing those sites on the NPL" (see 48 FR 40658).

EPA reaffirms its previous 1983 deferral policy. EPA expects that any need for EPA CERCLA involvement in the decommissioning of NRC licensed sites should continue to occur very infrequently because EPA expects that the vast majority of facilities decommissioned under NRC authority will be decommissioned in a manner that is fully protective of human health and the environment. By this MOU, EPA agrees to a deferral policy regarding NRC decision-making without the need for consultation except in certain limited circumstances as specified in paragraphs V.C.2 and V.C.3.

One set of circumstances in which continued consultation should occur, pursuant to the procedures defined herein, relates to sites at which the NRC determines during the license termination process that there is radioactive ground-water contamination above certain limits. Pursuant to its License Termination rule, NRC applies a dose criterion that encompasses all pathways, including ground water. In its cleanup of sites pursuant to CERCLA, by contrast, EPA customarily establishes a separate ground-water cleanup standard in which it applies certain Maximum Contaminant Levels (MCLs, found at 40 CFR 141) promulgated for radionuclides and other substances pursuant to the Safe Drinking Water Act. NRC has agreed in this MOU to consult with EPA on the appropriate approach in responding to the circumstances at particular sites with ground-water contamination at the time of license termination in excess of EPA's MCLs or those sites for which NRC contemplates either restricted release or the use of alternate criteria for license termination, or radioactive contamination at the time of license termination exceeds the corresponding levels in Table 1 as provided in Section V.C.2.

IV. Principles

In carrying out their respective responsibilities, the EPA and the NRC will strive to:

1. Establish a stable and predictable regulatory environment with respect to EPA's CERCLA authority in and NRC's decommissioning of contaminated sites.
2. Ensure, to the extent practicable, that the responsibilities of the NRC under the AEA and the responsibilities of EPA under CERCLA are implemented in a coordinated and consistent manner.

V. Implementation

A. Scope

This MOU is intended to address issues related to the EPA involvement under CERCLA in the cleanup of radiologically contaminated sites under the jurisdiction of the NRC. EPA will continue its CERCLA policy of September 8, 1983, which explains how EPA implements deferral decisions regarding listing on the NPL of any sites that are subject to NRC's licensing authority. The NRC's review of sites under NRC jurisdiction indicates that few of these sites have radioactive ground-water contamination in excess of the EPA's MCLs. At those sites at which NRC determines during the license termination process that there is radioactive ground-water contamination above the relevant EPA MCLs, NRC will consult with EPA and, if necessary, discuss with EPA the use of flexibility under EPA's phased approach to addressing ground-water contamination. NRC has agreed in this MOU to consult with EPA on the appropriate approach in responding to the circumstances at particular sites where ground-water contamination will exceed EPA's MCLs, NRC contemplates either restricted release or the use of alternate criteria for license termination, or radioactive contamination at the time of license termination exceeds the corresponding levels in Table 1 as provided in Section V.C.2.

B. General

Each agency will keep the other agency generally informed of its relevant plans and schedules, will respond to the other agency's requests for information to the extent reasonable and practicable, and will strive to recognize and ameliorate to the extent practicable any problems arising from implementation of this MOU.

C. NRC Responsibilities

1. NRC will continue to ensure remediation of sites under its jurisdiction to a level that fully protects public health and safety.

2. For NRC-licensed sites at which NRC determines during the license termination process that there is radioactive ground-water contamination in excess of EPA's MCLs, or for which NRC contemplates either restricted release (10 CFR 20.1403) or the use of alternate criteria for license termination (10 CFR 20.1404), NRC will seek EPA's expertise to assist in NRC's review of a decommissioning or license termination plan. In addition, NRC will consult with EPA if either the planned level of residual radioactive soil concentrations in the proposed action or the actual residual level of radioactive soil concentrations found in the final site survey exceed the radioactive soil concentration in Table 1. With respect to all such sites, the NRC will consult with EPA on the application of the NRC decommissioning requirements and will take such action as the NRC determines to be appropriate based on its consultation with EPA. For example, if NRC determines during the license termination process that there will be radioactive ground-water contamination in excess of EPA's MCLs at the time of license termination, then NRC will discuss with EPA the use of flexibility under EPA's phased approach for addressing ground-water contamination. If NRC does not adopt recommendations provided by the EPA, NRC will inform EPA of the basis for its decision not to do so.

3. NRC will defer to EPA regarding matters involving hazardous materials not under NRC's jurisdiction.

D. EPA Responsibilities

1. If the NRC requests EPA's consultation on a decommissioning plan or license termination plan, EPA will provide, within 90 days of NRC's notice to EPA, written notification of its views on the matter.

2. Consistent with this MOU, EPA agrees to a policy of deferral to NRC decision making on decommissioning without the need for consultation on sites other than those presenting the circumstances described in Sections V.C.2 and V.C.3. The agencies will consult with each other pursuant to the provisions of this MOU with respect to those sites presenting the circumstances described in Sections V.C.2 and V.C.3. EPA does not expect to undertake CERCLA actions related to radioactive contamination at a site that has been decommissioned in compliance with the NRC's standards, including a site addressed under Section V.C.2, despite the agencies decision to engage in consultation on such sites. EPA's deferral policy, and its expectation of not taking CERCLA action, continues to apply to sites that are covered under Section V.C.2.

3. For NRC-licensed sites presenting the circumstances described in Section V.C.2 and for which NRC has not adopted the EPA recommendation, EPA will consult with NRC on any CERCLA actions EPA expects to take if EPA does not agree with the NRC's decision.

4. EPA will resolve any CERCLA concerns involving hazardous substances outside of NRC's jurisdiction at NRC licensed sites, including concerns involving hazardous constituents that are not under the authority of NRC. As provided in Section V.D.2, EPA under CERCLA will defer or consult with NRC as appropriate regarding matters involving AEA materials under NRC's jurisdiction.

E. Other Provisions

1. Nothing in this MOU shall be deemed to establish any right nor provide a basis for any action, either legal or equitable by any person, or class of persons challenging a government action or failure to act.

2. Each agency will appoint a designated contact for implementation of this MOU. The designated individuals will meet at least annually or at the request of either agency to review NRC-licensed sites that meet the criteria for consultation pursuant to Section V.C.2. The NRC designated contact is the Director, Office of Nuclear Materials Safety and Safeguards, and the EPA designated contact is the Director Office of Emergency and Remedial Response, or as each designee delegates.

3. This MOU will remain in effect until terminated by the written notice of either party submitted six months in advance of termination.

4. Within six months of the execution of this MOU, each party will revise its guidance to its Headquarters and Regional Offices to reflect the terms of this MOU.

5. If differences arise that cannot be resolved by senior EPA and NRC management within 90 days, then either senior EPA or NRC management may raise the issue to their respective agency head.

Section VI. Corrective Action under RCRA

Some NRC sites undergoing decommissioning may be subject to cleanup under RCRA corrective action authority. This authority, administered either by EPA or authorized states, requires cleanup of releases of hazardous waste or constituents at hazardous waste treatment, storage or disposal facilities. NRC sites subject to RCRA corrective action will be expected to meet RCRA cleanup standards for chemical contamination within EPA's jurisdiction. EPA Office of Solid Waste's policy is to encourage regional and State program implementers to coordinate RCRA cleanups with decommissioning, as appropriate, at those NRC sites subject to EPA's corrective action authority.[1]

EPA will continue to support coordination of cleanups under the RCRA corrective action program with decommissioning at NRC sites consistent with its March 5, 1997 policy. In addition, under RCRA the majority of States are authorized to implement the corrective action requirements. States are not signatories to this MOU; however, EPA will encourage States to act in accordance with this policy where they have responsibility for RCRA corrective action at NRC sites undergoing decommissioning.

Items 1 and 3 of the "Other Provisions" of Section V.E. apply to this section.

SEP 30 2002

Christine T. Whitman — Date
Administrator
US Environmental Protection Agency

October 9, 2002

Richard A. Meserve — Date
Chairman
US Nuclear Regulatory Commission

[1]See letter from Elizabeth Cotsworth, Acting Director, Office of Solid Waste to James R. Roewer, USWAG, dated March 5, 1997.

MOU Table 1: Consultation Triggers for Residential and Commercial/Industrial Soil Contamination

Except for radium-226, thorium-232, or total uranium, concentrations should be aggregated using a sum of the fraction approach to determine site specific consultation trigger concentrations. This table is based on single contaminant concentrations for residential and commercial/industrial land use when using generally accepted exposure parameters. Table users should select the appropriate column based on the site's reasonably anticipated land use.

Radionuclide	Residential Soil Concentration	Industrial/Commercial Soil Concentration
H-3	228 pCi/g	423 pCi/g
C-14	46 pCi/g	123,000 pCi/g
Na-22	9 pCi/g	14 pCi/g
S-35	19,600 pCi/g	32,200,000 pCi/g
Cl-36	6 pCi/g	10,700 pCi/g
Ca-45	13,500 pCi/g	3,740,000 pCi/g
Sc-46	105 pCi/g	169 pCi/g
Mn-54	69 pCi/g	112 pCi/g
Fe-55	269,000 pCi/g	2,210,000 pCi/g
Co-57	873 pCi/g	1,420 pCi/g
Co-60	4 pCi/g	6 pCi/g
Ni-59	20,800 pCi/g	1,230,000 pCi/g
Ni-63	9,480 pCi/g	555,000 pCi/g
Sr-90+D	23 pCi/g	1,070 pCi/g
Nb-94	2 pCi/g	3 pCi/g
Tc-99	25 pCi/g	89,400 pCi/g
I-129	60 pCi/g	1,080 pCi/g
Cs-134	16 pCi/g	26 pCi/g
Cs-137+D	6 pCi/g	11 pCi/g
Eu-152	4 pCi/g	7 pCi/g
Eu-154	5 pCi/g	8 pCi/g

MOU Table 1: Consultation Triggers for Residential and Commercial/Industrial Soil Contamination

Except for radium-226, thorium-232, or total uranium, concentrations should be aggregated using a sum of the fraction approach to determine site specific consultation trigger concentrations. This table is based on single contaminant concentrations for residential and commercial/industrial land use when using generally accepted exposure parameters. Table users should select the appropriate column based on the site's reasonably anticipated land use.

Radionuclide	Residential Soil Concentration	Industrial/Commercial Soil Concentration
Ir-192	336 pCi/g	544 pCi/g
Pb-210+D	15 pCi/g	123 pCi/g
Ra-226	5 pCi/g	5 pCi/g
Ac-227+D	10 pCi/g	21 pCi/g
Th-228-D	15 pCi/g	25 pCi/g
Th-232	5 pCi/g	5 pCi/g
U-234	401 pCi/g	3,310 pCi/g
U-235-D	20 pCi/g	39 pCi/g
U-238-D	74 pCi/g	179 pCi/g
total uranium	47 mg/kg	1230 mg/kg
Pu-238	297 pCi/g	1,640 pCi/g
Pu-239	259 pCi/g	1,430 pCi/g
Pu-241	40,600 pCi/g	172,000 pCi/g
Am-241	187 pCi/g	568 pCi/g
Cm-242	32,200 pCi/g	344,000 pCi/g
Cm-243	35 pCi/g	67 pCi/g

List of Radionuclides addressed by 4 mrem/yr man-made beta particles and photon emitters MCL standard[1]

Nuclide	pCi/l	Nuclide	pCi/l	Nuclide	pCi/l	Nuclide	pCi/l
H-3	20,000	Sr-85 m	20,000	Sb-124	60	Er-169	300
Be-7	6,000	Sr-85	900	Sb-125	300	Er-171	300
C-14	2,000	Sr-89	20	Te-125m	600	Tm-170	100
F-18	2,000	Sr-90	8	Te-127	900	Tm-171	1,000
Na-22	400	Sr-91	200	Te-127m	200	Yb-175	300
Na-24	600	Sr-92	200	Te-129	2,000	Lu-177	300
Si-31	3,000	Y-90	60	Te-129m	90	Hf-181	200
P-32	30	Y-91	90	Te-131m	200	Ta-182	100
S-35 inorg	500	Y-91m	9,000	Te-132	90	W-181	1,000
Cl-36	700	Y-92	200	I-126	3	W-185	300
Cl-38	1,000	Y-93	90	I-129	1	W-187	200
K-42	900	Zr-93	2,000	I-131	3	Re-186	300
Ca-45	10	Zr-95	200	I-132	90	Re-187	9,000
Ca-47	80	Zr-97	60	I-133	10	Re-188	200
Sc-46	100	Nb-93m	1,000	I-134	100	Os-185	200
Sc-47	300	Nb-95	300	I-135	30	Os-191	600
Sc-48	80	Nb-97	3,000	Cs-131	20,000	Os-191m	9,000
V-48	90	Mo-99	600	Cs-134	80	Os-193	200
Cr-51	6,000	Tc-96	300	Cs-134m	20,000	Ir-190	600
Mn-52	90	Tc-96m	30,000	Cs-135	900	Ir-192	100
Mn-54	300	Tc-97	6,000	Cs-136	800	Ir-194	90
Mn-56	300	Tc-97m	1,000	Cs-137	200	Pt-191	300
Fe-55	2,000	Tc-99	900	Ba-131	600	Pt-193	3,000
Fe-59	200	Tc-99m	20,000	Ba-140	90	Pt-193m	3,000
Co-57	1,000	Ru-97	1,000	La-140	60	Pt-197	300
Co-58	300	Ru-103	200	Ce-141	300	Pt-197m	3,000
Co-58m	9000	Ru-105	200	Ce-143	100	Au-196	600
Co-60	100	Ru-106	30	Ce-144	30	Au-198	100
Ni-59	300	Rh-103m	30,000	Pr-142	90	Au-199	600
Ni-63	50	Rh-105	300	Pr-143	100	Hg-197	900
Ni-65	300	Pd-103	900	Nd-147	200	Hg-197m	600
Cu-64	900	Pd-109	300	Nd-149	900	Hg-203	60
Zn-65	300	Ag-105	300	Pm-147	600	Tl-200	1,000
Zn-69	6,000	Ag-110m	90	Pm-149	100	Tl-201	900
Zn-69m	200	Ag-111	100	Sm-151	1,000	Tl-202	300
Ga-72	100	Cd-109	600	Sm-153	200	Tl-204	300
Ge-71	6,000	Cd-115	90	Eu-152	200	Pb-203	1,000
As-73	1,000	Cd-115m	90	Eu-154	60	Bi-206	100
As-74	100	In-113m	3,000	Eu-155	600	Bi-207	200
As-76	60	In-114m	60	Gd-153	600	Pa-230	600
As-77	200	In-115	300	Gd-159	200	Pa-233	300
Se-75	900	In-115m	1,000	Tb-160	100	Np-239	300
Br-82	100	Sn-113	300	Dy-165	1,000	Pu-241	300
Rb-86	600	Sn-125	60	Dy-166	100	Bk-249	2,000
Rb-87	300	Sb-122	90	Ho-166	90		

[1]For those isotopes where an MCL is calculated, concentration values were rounded using the same format as EPA guidance for the 1976 MCL rulemaking.

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

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

OSWER No. 9295.8-06a

MEMORANDUM

SUBJECT: Distribution of Memorandum of Understanding between EPA and the Nuclear Regulatory Commission

FROM: Michael B. Cook, Director
Office of Emergency and Remedial Response (OERR)
Office of Solid Waste and Emergency Response

TO: Addressees

PURPOSE

The purpose of this memorandum is to transmit and explain the implementation of a final document entitled "Memorandum of Understanding Between the Environmental Protection Agency and the Nuclear Regulatory Commission: Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites" (OSWER 9295.8-06). This Memorandum of Understanding (MOU) between EPA and the Nuclear Regulatory Commission (NRC) identifies the interactions of the two agencies for only the decommissioning and decontamination of NRC-licensed sites and the ways in which those responsibilities will be exercised. Except for Section VI, which addresses corrective action under the Resource Conservation and Recovery Act (RCRA), this MOU is limited to the coordination between EPA, when acting under its Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) authority, and NRC, when a facility licensed by the NRC is undergoing decommissioning, or when a facility has completed decommissioning, and the NRC has terminated its license.

This MOU does not address EPA's role under other statutory authorities. Also, the MOU does not address EPA's role at sites that are being addressed under CERCLA (e.g., a site where a removal action is occurring or that is listed on the National Priorities List (NPL)) or under RCRA Corrective Action authorities, except when NRC is decommissioning a facility or when NRC has completed decommissioning a facility and terminated its license at the same site. The MOU provides new guidance **only** when EPA acting under CERCLA authority, and NRC need to consult during the decommissioning and decontamination process as part of NRC's license termination of a facility.

The MOU does not establish any rights or responsibilities that may be enforced against the government. For example, the MOU does **not** establish protective cleanup or action levels. This document provides guidance to EPA Regions exercising responsibility under CERCLA and RCRA concerning the MOU between EPA and NRC. The CERCLA or RCRA provisions described in this document contain legally binding requirements. However, this document does not substitute for those provisions, nor is it a regulation. Thus, it cannot impose legally-binding requirements on EPA, NRC, States, or the regulated community, and may not apply to a particular situation depending upon the circumstances. EPA decisionmakers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate. EPA may change this guidance in the future.

BACKGROUND

The House Committee on Appropriations has directed EPA and NRC to work together on an MOU. The Committee first addressed the issue of EPA/NRC coordination at NRC licensed or decommissioned sites in the House Committee on Appropriations Report 106-286, Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriation Bill 1999, pages 58-59, August 3, 1999. Subsequent Reports by the Committee have continued this direction (Report 106-674, page 58, June 12, 2000, Report 107-159, page 65, July 25, 2001). The attached MOU represents an agreement between EPA and NRC that addresses the concerns of this Committee.

OBJECTIVE

The objective of this memorandum is to transmit to you and provide additional clarification of the MOU with NRC for CERCLA response actions and to provide supporting information.

IMPLEMENTATION

The following subsections provide a discussion of sites covered by the MOU, lack of MOU applicability at CERCLA sites, MOU consultation triggers and their basis, and the MOU consultation strategy for EPA.

I. MOU Covered Sites

The MOU covers any facility that is licensed by the NRC and undergoing decommissioning and decontamination, or that has completed decommissioning and the NRC has terminated its license. It is limited to those facilities that meet one or more of the consultation triggers specified in the MOU. It does not address NRC-Agreement State licensed facilities or facilities decommissioned by such states. This is a continuation of EPA's current policy of deferral, which does not include NRC-Agreement State licensees.

At some sites, EPA may be conducting a removal action, or the site may be listed on the NPL, while remaining an NRC licensed facility. If, during the decommissioning process or after the decommissioning process has been completed and one or more of the consultation triggers are met at such a site provisions of the MOU consultation procedure would come into effect.

EPA is committed to maintaining a constructive dialogue with NRC on sites of potential mutual interest as identified by this MOU. Although this MOU addresses specific interactions with NRC related to the decommissioning of contaminated sites, EPA intends to maintain an open dialogue with NRC on other issues as well. Therefore, communication with NRC on sites not subject to this MOU should occur as the need arises.

II. Limits to MOU Applicability at CERCLA Sites

The MOU does not govern **how** response actions (e.g., removal or remedial) are conducted under CERCLA authority, at either NPL or non-NPL sites. **Response actions conducted under CERCLA authority should continue to use the CERCLA response approach**, including the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and EPA guidance documents. Cleanup levels for response actions under CERCLA are developed based on applicable, or relevant and appropriate requirements (ARARs), site-specific risk assessments, and/or to-be-considered material[1] (TBCs). Where ARARs are not available or are not sufficiently protective, EPA generally sets site-specific remediation levels for: 1) carcinogens at a level that represents an excess upper bound lifetime cancer risk to an individual of between 10^{-4} to 10^{-6} (with 10^{-6} as the point of departure); and for 2) non-carcinogens such that the cumulative risks from exposure will not result in adverse effects to human populations (including sensitive sub-populations) that may be exposed during a lifetime or part of a lifetime, incorporating an adequate margin of safety. (See 40 C.F.R.§300.430(e)(2)(i)(A)(2).) The site-specific cleanup levels are determined using the nine criteria specified in Section 300.430(e)(9)(iii) of the NCP. EPA has provided guidance regarding how radioactive contaminants should be addressed at CERCLA sites, which is available on the Internet at: http://www.epa.gov/oerrpage/superfund/resources/radiation/index.htm.

III. MOU Consultation Triggers

The MOU establishes four triggers for when EPA and NRC will consult on the radiological decommissioning and decontamination of NRC-licensed sites. These four

[1]To-be-considered material (TBCs) are non-promulgated advisories or guidance issued by Federal or State governments that are not legally binding and do not have the status of potential ARARs. However, TBCs will be considered along with ARARs as part of the site risk assessment and may be used in determining the necessary level of cleanup for protection of health and the environment.

consultation provisions are triggered when NRC determines one or more of the following will or may be exceeded during the license termination process:

1. NRC determines that residual levels in groundwater will exceed radionuclide Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act, or

2. Residual levels in soil will exceed the soil concentrations in "MOU Table 1: Consultation Triggers for Residential and Commercial/Industrial Soil Contamination," or

3. NRC contemplates that future use of the site will be restricted by conditions contained in the license termination (as specified in 10 C.F.R. 20.1403), or

4. NRC contemplates the use of alternative criteria for license termination (i.e., a site-specific dose greater than NRC's primary dose limit of 25 mrem/yr may be allowed)[2].

The consultation triggers determine when NRC and EPA consult on sites. They do not imply a level below which radionuclide levels would be deemed protective. These consultation triggers represent situations where EPA and NRC would benefit most from sharing knowledge and technical experiences to address the situation. These triggers were developed to identify the potential areas that would benefit most from an EPA/NRC dialogue and that would have the highest potential for CERCLA involvement. These consultation triggers provide information to industry and other stakeholders of when it is most likely that EPA and NRC will interact on these sites. Although the MOU only addresses certain interactions with NRC and provides a framework for consultation under the MOU when triggered, EPA intends to continue to have a positive dialogue on other sites where consultation has not been triggered by the MOU. The MOU's consultation triggers do not provide any new guidance to CERCLA site decision-makers regarding when CERCLA response actions should be taken, or how CERCLA response actions should be conducted, and do not represent levels that are deemed to be protective or unprotective.

Basis for Restricted Future Use and Alternative Criteria Consultation Triggers

The third and fourth consultation triggers (i.e., restricted future use, and alternative criteria of site-specific dose limits of greater than 25 mrem/yr) were identified as consultation triggers because these represent scenarios that have the potential for greater exposure and

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[2]NRC's decommissioning regulations require that NRC shall notify and solicit comments from EPA in this situation (see 20 C.F.R. 20.1405). Inclusion of this consultation trigger should not be interpreted as EPA changing its previous guidance regarding 25 mrem/yr. Generally, regions should **not** use dose-based ARARs greater than 15 mrem/yr effective dose equivalent to establish cleanup levels under CERCLA, and should **not** use dose-based recommendations as TBCs (see OSWER Publication 9200.4-31P "Radiation Risk Assessment At CERCLA Sites: Q & A" December 1999 and transmittal memo from Steve Luftig to EPA regions entitled "Distribution of OSWER Radiation Risk Assessment Q & A's Final Guidance" December 17, 1999.)

therefore, there is additional potential for CERCLA concern. Again, the consultation triggers do not imply an endorsement of these levels as cleanup levels but rather that they are appropriate levels to trigger consultation.

Basis for MCLs and Table 1 Consultation Triggers

Two of the consultation triggers (MCLs and soil concentrations in MOU Table 1) were included to provide NRC with a simplified framework for determining when groundwater and soil radiological contamination levels are at levels which have a greater potential for EPA concern.

This potential for EPA concern is derived from EPA's policies for taking action under CERCLA at a site. At a CERCLA site, EPA's decision to take action is based on risk using reasonably anticipated land use considerations and may also be based on requirements (e.g., Federal and State environmental regulations that are potential ARARs) that help define protectiveness. Unless there are current or potential adverse environmental effects, EPA generally would not consider action under CERCLA warranted if **all** of the following four circumstances are met:[3]

1. The cumulative carcinogenic risk to an individual is estimated at less than 10^{-4} for the reasonably anticipated land use based on a reasonable maximum exposure scenario. Although 1×10^{-4} is not a discrete upper boundary, EPA generally uses 1×10^{-4} in making risk management decisions.

2. Noncarcinogenic hazard index (HI) to an individual is estimated at less than 1 for the reasonably anticipated land use based on a reasonable maximum exposure scenario. EPA calculates HI for uranium to account for kidney toxicity.

3. MCLs or non-zero Maximum Contaminant Level Goals (MCLGs) are not exceeded in groundwaters that are current or potential sources of drinking water.

4. Other chemical-specific ARARs that define acceptable risk levels are not exceeded. Chemical-specific ARARs usually are either health- or risk-based numerical values or methodologies that establish the acceptable amount or concentration of a chemical that may remain in or be discharged to the environment. Several chemical-specific Federal

[3]For further information regarding when EPA takes remedial action under CERCLA, see OSWER Directive 9355.0-30, "Role of Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991.

ARARs (e.g., soil standards in 40 C.F.R. Part 192 issued under the Uranium Mill Tailings Radiation Control Act (UMTRCA), MCLs, and non-zero (MCLGs), are used as benchmarks for determining if sites should be listed on the NPL[4].

While the basis for selecting Table 1 soil levels and MCLs as consultation triggers is related to the four factors listed above, additional information is necessary to understand the basis for the Table 1 soil levels that trigger consultation. Table 1 is a list of 37 radionuclides with soil concentrations based on either a residential or industrial/commercial land use scenario. These radionuclides were selected because they were considered the radionuclides with the greatest potential for being a contaminant in soil at an NRC facility[5]. Table 1 levels are based either on ARARs (40 C.F.R. 192), HI of 1, or a 1 x 10^{-4} excess carcinogenic risk based on residential and industrial/commercial land use. Residential and industrial/commercial land uses were selected because these were considered the most restrictive, reasonably anticipated land uses at nearly all NRC facilities that may have significant radioactive soil contamination.

In Table 1, the 5 pCi/g soil concentrations for radium-226 and thorium-232 are based on soil standards developed under the UMTRCA and implementing regulations (40 C.F.R. 192). The UMTRCA standard is often identified as an ARAR at CERCLA sites and generally determines protective levels for radium-226 and thorium-232. For further information regarding how EPA interprets this potential ARAR, see OSWER Directive 9200.4-25, "Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA sites."

The soil concentrations (mg/kg) for total uranium are based on a HI of 1, calculated using the Soil Screening electronic calculator. The soil screening approach was developed by EPA to identify and define areas, contaminants, and conditions at a particular site that do not require further Federal attention. This calculation tool may be found on the Internet at: http://risk.lsd.ornl.gov/calc_start.htm.

For the remainder of radionuclides, the soil concentrations (pCi/g) are based on a 1 x 10^{-4} cancer risk, developed using an electronic calculator entitled: "Radionuclide Preliminary Remediation Goals (PRGs) for Superfund." This calculator generates PRG concentrations at the 1 x 10^{-6} risk level. The PRG value at 1 x 10^{-6} was multiplied by 100 to derive the 1 x 10^{-4}

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[4]For further discussion how chemical-specific Federal ARARs are used as benchmarks when sites are evaluated by EPA for potential listing on the NPL, see the Hazard Ranking System (HRS) Final Rule, 55 FR 51532 (December 14, 1990).

[5]NRC had developed screening values for surface soil contamination release levels for them in a Federal Register notice entitled "Supplemental Information on the Implementation of the Final Rule on Radiological Criteria for License Termination" (see 64 FR 68395, December 7, 1999).

value for Table 1 consultation triggers. (At CERCLA sites, PRGs based on cancer risk should continue to be developed at the 1 x 10^{-6} level.) The radionuclide PRG calculation tool may be found on the Internet at: http://epa-prgs.ornl.gov/radionuclides/.

The residential and commercial/industrial risk (both cancer and noncancer) estimates for soil were developed using the default reasonable maximum exposure scenarios found in EPA guidance documents "Soil Screening Guidance for Radionuclides: User's Guide," October 2000 (OSWER 9355.4-16A) and "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites," February 2001 (OSWER 9355.4-24).

Table 1 and MCL Caveats

The Table 1 soil levels do not necessarily constitute protective soil concentration values. Land use and other site-specific circumstances influence the soil concentration values that constitute protective levels for a given situation. The soil concentration values using 1 x 10^{-4} cancer risk and HI of 1 for total uranium were developed using conservative default parameters. At most sites, higher soil concentrations corresponding to a given risk level generally may be justified using site-specific parameters.

On the other hand the generic risk assessment scenarios used to develop soil concentration values in Table 1 may not account for certain exposures that may be cause for concern at an NRC facility. For example:

1. Site is adjacent to contaminated surface water bodies.

2. Contamination presents potential ecological concerns.

3. Additional likely human exposure pathways exist (e.g., an agricultural scenario that includes consumption of livestock and additional produce).

4. Unusual site conditions exist (e.g., large areas of contamination, unusually high fugitive dust levels).

The soil concentration values do not account for migration into groundwater, which could cause groundwater contamination in the future to exceed MCLs. Also, the presence of multiple contaminants may lead to a potential concern that non-radionuclide (chemical) contaminants or radionuclides-not in Table 1-may cause residual levels to rise above 1 x 10^{-4} or an HI of 1. Multiple contaminants may result in EPA potential concern for human health or the environment even when chemical specific ARARs (e.g., UMTRCA soil standards or MCLs) are being met. Table 1 also does not consider State regulations (e.g., exceedance of State MCLs) which could be used to determine protectiveness.

IV. **Coordination Policy**

The MOU designates the EPA principal contact as the Director, Office of Emergency and Remedial Response (OERR). The NRC designated contact is the Director, Office of Nuclear Materials Safety and Safeguards. EPA and NRC intend that communication related to potential CERCLA interest and NRC communication about sites that meet or exceed the consultation triggers will be discussed initially at that level. On a site-specific basis, it is expected that follow-up discussions would happen at the staff level at Headquarters (HQ) and the Regions.

Regions are requested to contact OERR as issues arise for sites that may potentially be subject to this MOU. This request for consultation is an expansion of the request contained in OSWER Directive 9272.0-15P, "Interim Final Evaluation of Facilities Currently or Previously Licensed NRC Sites under CERCLA." When considering requests for listing a former or current NRC licensed facility, the Regions should contact Robert Myers (703) 603-8851, OERR. When considering requests to evaluate the protectiveness of a previous or proposed NRC decommissioning or to engage otherwise in dialogue regarding NRC cleanup levels and CERCLA standards of protectiveness with the NRC, the licensee, or stakeholders at the site outside the context of the MOU, the Regions should contact Stuart Walker (703) 603-8748, OERR. When considering a removal action at a former or currently NRC-licensed facility, the Regions should contact Craig Beasley (703) 603-9015, OERR.

The four MOU consultation triggers are provisions for **initiating dialogue only**, and **identifying those sites that should be under consultation** between NRC and EPA. We anticipate that the vast majority of NRC-licensed sites undergoing decontamination and decommissioning will be cleaned to protective levels and no EPA/CERCLA consultation will be necessary. In other cases, we anticipate that a dialogue on ways of achieving protective levels, including the range of flexibility available under CERCLA (e.g., phased approach to addressing groundwater contamination or remediating sites to allow for the reasonably anticipated land use) will be beneficial. EPA and NRC have worked closely together over the last three years as this MOU was developed. We anticipate that EPA and NRC will continue to work cooperatively on sites of mutual interest in the future.

FURTHER INFORMATION

The subject matter specialists for this MOU are Stuart Walker (703-603-8748) and Robin M. Anderson (703-603-8747) of OERR.

Addressees:

National Superfund Policy Managers
Superfund Branch Chiefs (Regions I-X)

Superfund Branch Chiefs, Office of Regional Counsel (Regions I-X)
Radiation Program Managers (Regions I, IV, V, VI, VII, X)
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