



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

**FEB 19 1998**

Mr. L. Joseph Callan  
Executive Director of Operations  
U.S. Nuclear Regulatory Commission  
MS-05E6  
Washington, DC 20555

Dear Mr. Callan:

This letter is in response to a letter from Chairman Shirley Ann Jackson, dated August 6, 1997, in which she provided a draft Memorandum of Understanding (MOU) between the Nuclear Regulatory Commission (NRC) and the Environmental Protection Agency (EPA) when NRC licensees are undertaking decontamination and decommissioning of radioactive sites. We have reviewed NRC's draft MOU and have several issues regarding its workability. We have prepared a revised MOU for your consideration that we believe meets the intent of achieving maximum efficiency between NRC and EPA while at the same time providing assurance that the standard of protectiveness for human health and the environment required by EPA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is attained. The draft MOU is attached and is limited to NRC's site decommissioning process and CERCLA National Priorities List (NPL) coordination. We request that you review the enclosed revised draft MOU and provide a point of contact so that we may reach resolution on this important issue as soon as possible.

We recently received a letter from Chairwoman Shirley Ann Jackson, dated December 12, 1997, concerning the EPA Superfund guidance entitled: "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (OSWER No. 9200.4-18, August 22, 1997). We are considering her comments and concerns and expect to get back to you in the near future.

**Background:**

An MOU governing responsibilities between EPA and NRC for NRC licensees proposing decommissioning or license termination is needed to ensure the selection of cost-effective cleanups that are protective of human health and the environment. The procedures in this MOU will facilitate the beneficial reuse of properties formerly licensed by the NRC. This action is warranted in light of promulgation of the Radiological Criteria for License Termination rule (See 62 F.R. 39058 July 21, 1997) and the EPA assessment that dose limits allowed in the rule, as



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well as the lack of a separate requirement in the rule to protect ground water that is a current or potential source of drinking water, render the minimum standards in the NRC rule not protective<sup>1</sup> under CERCLA.

We believe that NRC's implementation of the Radiological Criteria for License Termination could lead to the vast majority of sites being addressed in a manner that is protective of human health and the environment, including protection of ground water for beneficial reuse. However, for a potentially small number of sites for which cleanup may not be within levels that EPA (and NRC until recently) have long held to be protective, it is important that we develop a process that ensures good coordination between EPA and NRC. This is necessary to limit the uncertainty faced by NRC licensees, to limit the inefficiencies of cleaning up sites twice, and most importantly, to provide assurance to the public that NRC licensees are decommissioned in a manner that is protective of human health and the environment. We welcome the opportunity to work with you on your sites, particularly the ones that pose the greatest difficulties, to bring them into a condition that is protective of human health and the environment and eliminate the need, in most cases, for listing NRC sites on the NPL. We think that an MOU between NRC and EPA offers us the opportunity to achieve this end.

#### **EPA Comments on draft NRC Proposed MOU:**

Our understanding of the draft NRC proposed MOU is that it is directed exclusively to site cleanup and listing under the Superfund NPL and consists of the following framework:

- ☐ NRC notifies EPA when NRC site cleanups will exceed 15 mrem/yr (  $3 \times 10^{-4}$  additional excess lifetime risk) (but will not notify EPA if a site has contaminated ground water that exceeds the Maximum Contaminant levels (MCLs));
- ☐ EPA may provide comment to NRC on the Site Decommissioning or License Termination Plan;
- ☐ NRC is not committed to consider or accommodate EPA's recommendations; and
- ☐ EPA agrees not to list any NRC sites regardless of whether NRC accepts or does not accept EPA's recommendations.

Essentially, the draft MOU exempts NRC licensee sites from listing on the Superfund NPL if NRC talks with EPA about that site. The draft MOU does not provide a mechanism for ensuring that EPA and NRC will work together effectively to resolve issues on a site-specific basis, that EPA recommendations will be given due consideration, and that sites will be

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<sup>1</sup>See letter, Carol Browner, Administrator, EPA, to Shirley Jackson, Chairman, Nuclear Regulatory Commission, February 7, 1997.

remediated to levels that are protective under both NRC or EPA authority. In particular, the draft MOU does not ensure protection of ground waters that are current or potential sources of drinking water and allows remediation to levels outside the range deemed acceptably under EPA authority.

### **EPA Draft MOU**

An MOU between NRC and EPA that governs responsibilities for cleanup must include provisions that ensure remedies will be protective (including protection of ground waters that are current or potential sources of drinking water) and that EPA and NRC both maintain their respective responsibilities. Such an MOU should include the following key components:

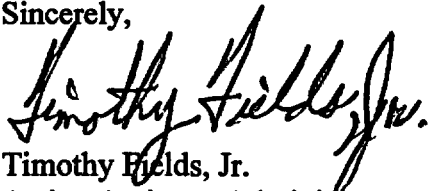
- ☐ NRC notifies EPA when site cleanup will exceed: 15 mrem/yr from all pathways, or MCLs in ground waters that are current or potential sources of drinking water;
- ☐ EPA provides technical advice on reaching protective levels;
- ☐ If EPA concurs with NRC's cleanup, the site will not be listed on the NPL unless new information is discovered that would indicate that the site is not protective; and
- ☐ If EPA disagrees with NRC's cleanup decision, NRC will help provide information that will support a decision of whether to list the site on the NPL.

We have drafted the enclosed MOU that embodies these principles. It also includes language that ensures that each of these components is adequately documented and evaluated consistent with prevailing guidance that governs CERCLA cleanups. For example, ground water classification should be determined based on Comprehensive State Ground-Water Protection Programs (CSGWPP) endorsed by EPA, if available, or State or Federal ground water classification guidance.

### **Summary:**

We appreciate your commitment to working with us to develop an MOU that will provide for efficient use of government resources and will provide clarity to NRC licensees as well as to the public on this very important issue. Larry Reed, Deputy Director of the Office of Emergency and Remedial Response (703-603-8960), will be EPA's point of contact on this effort. We look forward to your prompt response on our proposal.

Sincerely,



Timothy Fields, Jr.  
Acting Assistant Administrator  
Office of Solid Waste and Emergency Response

Sincerely,



Richard D. Wilson  
Acting Assistant Administrator  
Office of Air and Radiation

Enclosure

**Enclosure I**

**MEMORANDUM of UNDERSTANDING BETWEEN the  
ENVIRONMENTAL PROTECTION AGENCY AND the NUCLEAR  
REGULATORY COMMISSION**

**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 consulting and reaching finality with regard to their respective responsibilities for the decommissioning and decontamination of contaminated sites. EPA responsibilities under this MOU shall be carried out by the Director of the Office of Emergency and Remedial Response (OERR) and the appropriate National CERCLA Program Manager in the EPA Region in which the site decommissioning or license termination is taking place, and any notices or information to be provided to EPA under this MOU shall be provided to both directors.

## **II. Purpose**

The purpose of this MOU is to identify the responsibilities of each agency for the decommissioning and decontamination of contaminated sites and to specify the way in which those responsibilities will be exercised. The NRC has the statutory responsibility for the protection of public health and safety related to the possession and use of source, byproduct, and special nuclear material under the Atomic Energy Act (AEA), and must ensure safe and timely decommissioning of the nuclear facilities that it licenses. The EPA has responsibilities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in regard to cleanup activities at contaminated sites, and must ensure protection of human health and the environment related to those sites.

This MOU will provide clear information to the public and NRC licensees on what is expected for site decommissioning and decontamination activities and will also optimize the use of NRC, EPA, NRC licensee, and public resources.

## **III. Principles**

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

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

#### **IV. Implementation**

##### **A. Scope**

This MOU is intended to address issues related to the EPA and NRC statutory responsibilities for cleanup of contaminated sites that are being decommissioned by NRC.

##### **B. General**

Each agency will keep the other generally informed of its relevant plans and schedules regarding such activities, 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 anticipated problems with regard to implementation of this MOU.

##### **C. Applicability**

This MOU sets forth the responsibilities of NRC and EPA with respect to any proposed decommissioning plan or license termination plan submitted by an NRC licensee where the resulting potential radiation dose post remediation is expected to be within the NRC decommissioning requirements but where the termination of the license pursuant to 10 CFR 20.1402, 10 CFR 20.1403, or 10 CFR 20.1404 may result in: 1) a level of radioactivity at the site in any ground water that is a current or potential source of drinking water<sup>2</sup> that exceeds any of the individual radionuclide maximum contaminant levels specified in 40 CFR Part 141 within the aquifer, and/or 2) residual contamination that exceeds 15 mrem/year from all pathways.

#### **NRC Responsibilities**

1. NRC will provide oral and written notification to EPA prior to issuing a proposal for public comment to approve such a plan. The analysis of radiation dose and ground water contaminant concentration used to determine whether a proposed site decommissioning plan or a license termination plan meets the criteria of such a plan should utilize methods consistent with those used for CERCLA sites.
2. NRC will provide EPA both orally and in writing with the rationale, and the underlying information that supports the rationale, that led NRC to a proposed decision to approve a decommissioning plan or a license termination plan that may result in groundwater that is

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<sup>2</sup>Where available, current and potential future ground-water uses should be determined from a Comprehensive State Ground-Water Protection Program (CSGWPP) that has been endorsed by EPA and has provisions for site-specific use determinations. In the absence of such a CSGWPP, determination of potential future uses should consider State ground water classifications or other designations and Federal ground water guidelines (e.g., Class I, II, and III ground waters). The Federal classification system can be found in "Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy." Where State and Federal classifications result in different ground-water use scenarios, the "use classification" leading to the more stringent remedial action objective should be used.

a current or potential source of drinking water not attaining a radionuclide MCL(s).  
Examples of rationales include:

- a. attainment of the MCL(s) was technically impracticable (TI) from an engineering perspective (including justification for the TI<sup>3</sup>).
- b. background levels of radioactivity in the ground water are greater than the MCL for a radioisotope that is a site-related contaminant.

The above information will also be provided to the public at the time, if not earlier, of public notice of the proposed decisions on such sites.

3. NRC will provide EPA orally and in writing with the rationale, and the underlying information that supports the rationale, that led NRC to a proposed decision to approve [such] a decommissioning plan or a license termination plan that may result in residual radioactive contamination that is estimated to result in a reasonable maximum exposure (RME) for an individual of greater than 15 mrem/yr. This information should include:
  - a. Land use assumptions and rationale.
  - b. why institutional controls (as well as more active remediation measures) were not imposed to achieve a cleanup level of 15 mrem/yr.
  - c. the site-specific total risk (RME) from radioactive and non-radioactive contamination that the clean-up will present for an individual and supporting documentation and rationale.

The above information will also be provided to the public at the time, if not earlier, of public notice of the proposed decisions on such sites.

4. NRC will not propose a plan which meets the criteria set forth in Section C (Applicability) before receipt of EPA's written views in accordance with EPA responsibility #1.
5. If, contrary to the views expressed by EPA pursuant to EPA responsibility #1, NRC proposes and then finalizes a plan to decommission or terminate the license of a site that may result in either: 1) a level of radioactivity at the site in any ground water that is a current or potential source of drinking water that exceeds any of the individual radionuclide MCLs specified in 40 CFR Part 141 within the aquifer, and/or 2) residual

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<sup>3</sup> TI determinations for ground water should be developed consistent with the "Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration" (EPA/540-R-93-0080, September 1993).

contamination that exceeds 15 mrem/year from all pathways, then NRC will furnish EPA with the following information, along with other information EPA may reasonably request:

- a. samples and quality assurance of those samples.
  - b. number of people within 4 miles drinking from the groundwater of concern.
  - c. number of persons receiving alternative water supplies.
  - d. institutional/engineering controls, if any, in place to ensure persons will not drink ground water that exceeds an MCL.
  - e. engineering efforts, if any, to limit migration of those portions of the plume that exceed an MCL.
  - f. requirements, if any, to monitor migration of those portions of the plume that exceed an MCL.
  - g. Public comments related to the issues addressed under NRC's Responsibilities #2 and #3 above.
6. If at any point following a proposal that did not meet the criteria set forth in "C" and was therefore not submitted to EPA, NRC tentatively decides to approve a plan that meets criteria above in Section C (Applicability), NRC shall provide notice and information to EPA and the public pursuant to NRC responsibilities 1 through 3, and shall not issue a final decision approving such a plan before receipt of EPA's written views in accordance with EPA responsibility 1.
  7. NRC will make itself available to meet with EPA to discuss matters pertaining to such sites upon EPA requests.

#### **EPA Responsibilities**

1. The EPA will provide, within 90 days of NRC's notice to EPA, written notification of its views to the NRC as to whether NRC has applied appropriate risk management criteria consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) in reaching a proposed decision to approve such a plan, and whether EPA therefore agrees with NRC's proposed decision. EPA will make itself available to meet with NRC to discuss EPA's notification of EPA's views upon NRC request.
2. The EPA will provide technical and policy expertise to NRC on various options under CERCLA to achieve protectiveness, including, but not limited to institutional controls and restricted land uses.
3. EPA will not list or proposed to list on the National Priorities List sites where EPA has agreed with NRC's proposed decision in writing pursuant to EPA's responsibility #1 and where the NRC proposed and final decision on the decommissioning and licence



termination plan is consistent with the EPA agreement, unless new information indicates that the decommissioning or license termination was not protective of human health and the environment (this could include but is not limited to: failure of engineering controls, newly identified contaminants or new information on contaminant concentration.)

4. EPA shall notify NRC in writing and work with NRC to resolve concerns in cases where EPA receives citizen concerns relating to an NRC licensed facility.

**D. Other Provisions**

1. Nothing in this MOU shall be deemed to establish any right or 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. This MOU will remain in effect until terminated by the written notice of either party submitted six months in advance of termination.

\_\_\_\_\_  
Carol M. Browner                      Date  
Administrator  
U.S. Environmental Protection Agency

\_\_\_\_\_  
Shirley Ann Jackson                      Date  
Chairman  
U.S. Nuclear Regulatory Commission



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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L. Joseph Callan  
Executive Director of Operations  
U.S. Nuclear Regulatory Commission  
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Washington, D.C. 20555

Dear Mr. Callan:

This letter is in response to the letter from Chairman Shirley Ann Jackson, dated December 12, 1997, concerning the EPA Superfund guidance entitled: "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (OSWER No. 9200.4-18, August 22, 1997) (hereafter referred to as the "Guidance"). In particular the NRC letter expresses concerns with the process used to develop the Guidance as well as implementation difficulties for NRC licensee sites that the Guidance may present. In addition, the letter transmits NRC's analysis of the Guidance that identifies eight (8) specific concerns. We are addressing NRC's overall concerns with the Guidance in this letter and providing detailed responses to NRC's 8 specific concerns in an attachment to this letter.

First of all we would like to reaffirm that we anticipate that there will be a very small number of sites that will be affected by our differences of opinion on what constitutes protectiveness of human health and the environment. This is consistent with the December 1997 NRC Inspector General report that states "NRC and EPA officials agree that a relatively small number of sites will not initially clean up to the CERCLA standards."

However, even with this in mind, we would like to make it clear that radioactive contamination is not singled out in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended or in EPA regulations as a privileged pollutant for which EPA should allow exceedances above the carcinogenic risk range ( $10^{-4}$  to  $10^{-6}$ ) that was determined generally to be protective for other carcinogenic contaminants. Further, ground waters should be returned to beneficial reuse which includes meeting Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act for all contaminants including radionuclides within the ground water plume, where MCLs or MCLGs are relevant and appropriate for the site. Again, we are confident that most of



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your sites will achieve this end routinely, so the issue of how to satisfy these provisions is expected to be a rare problem. Our experience with CERCLA sites shows that even for the most difficult sites we can meet both of these goals.

### **Guidance Development Process**

NRC's letter states that the Guidance "seeks to impose the 15 mrem/yr and separate ground water requirement contained in the EPA Draft cleanup rule withdrawn by the EPA, from the Office of Management and Budget in December 1998." The letter further states that Guidance results "in the imposition of the CERCLA risk range on radionuclides without the informed and open discussion that would be part of the rulemaking process..." These statements mischaracterize the CERCLA remedy selection requirements, and disregard the existence of long standing statutory and regulatory requirements with which EPA complies.

The Guidance merely clarifies that the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) governs cleanups subject to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Guidance clarifies that "cleanups of radionuclides are governed by the risk range for all carcinogens [ $10^{-4}$  to  $10^{-6}$  excess cancer risk], established in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) when ARARs are not available or are not sufficiently protective" (see Attachment B of the Guidance, page 3). Therefore, the 15 mrem/yr cleanup level that was in the EPA's draft cleanup rule is not being used as the de facto cleanup level. Rather, the cleanup level should be established consistent with 40 CFR 300.430(e)(2)(i)(A)(2).

With regard to the Guidance addressing radionuclides in particular, Section 101(14) of CERCLA already defines radiation as a hazardous substance subject to actions conducted under the statute. In particular, radionuclides are designated generically as hazardous air pollutants by Clean Air Act (CAA) section 112, and CERCLA section 101(14)(E) defines the term "hazardous substance" to include CAA hazardous air pollutants.

Regarding the process, the Guidance is not binding, but rather is EPA's statement of how the NCP and CERCLA should be implemented at radioactively contaminated sites. The Guidance explicitly references key parts of the NCP, such as the process for establishing cleanup levels, that govern all contaminants and are not restricted to non-radioactive contaminants of concern. The rulemaking process under which the NCP was promulgated provides for an open and informed discussion of the issues.

40 CFR 300.430(a)(1) of the NCP includes the expectation that ground waters be returned to beneficial uses wherever practicable. The NCP (40 CFR 300.430(e)(2)(i)(B)) clarifies that Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant

Level Goals (MCLGs) established under the SDWA will typically be considered relevant and appropriate where ground waters are a current or potential source of drinking water.<sup>1</sup> In short, the guidance merely clarifies but does not change either the process or the result at any CERCLA site since all CERCLA site decisions must be formulated consistent with the NCP.

### **NRC Rule Protectiveness Assertion**

NRC's memo asserts that the NRC rule promulgated July 21, 1997 is protective of public health and safety and the environment and also establishes a framework to address difficult sites which otherwise would require case-by-case exemption. EPA expects that NRC's implementation of the decommissioning rule will result in cleanups within the Superfund risk range at the vast majority of sites. However, EPA has previously analyzed the NRC rule and found that it allows cleanups that may be inadequately protective. Attachment B of The Guidance provides a detailed discussion of the basis for the conclusion that the dose limits allowed in the NRC rule (25 and 100 mrem/yr, which correspond to a cancer risk of  $5 \times 10^{-4}$  and  $2 \times 10^{-3}$ ) are generally not protective.<sup>2</sup> In addition, under the NRC rule, sites with ground water contamination that are a potential or current source of drinking water will not be remediated to drinking water standards, thus potentially shifting the burden of cleanup to public water systems in the future or allowing individuals to drink water from private wells above the drinking water standard.

### **NRC Site Licensee Implementation Difficulties**

The letter also states that the "... CERCLA guidance raises questions regarding the finality of license termination decision and possible EPA actions at sites that have complied with the NRC or equivalent Agreement State cleanup standards..." We are also concerned with the potential difficulties that this may pose to that limited number of licensee sites that are cleaned up to levels that are not protective of human health and the environment and/or for which ground water is not restored to beneficial reuse. This concern prompted EPA to send a letter to NRC expressing concern that NRC was considering deviating from its proposal to require decommissioned sites to achieve a cleanup of no greater than 15 mrem/yr ( $3 \times 10^{-4}$  risk which is approximately the upper

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<sup>1</sup>Meeting the Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act, where the MCLs or MCLGs are relevant and appropriate for the site is a requirement under CERCLA, irrespective of the development of the Guidance. Previously, Chairman Shirley Ann Jackson in a letter to Congressman Bliley recommended that the Safe Drinking Water Act be amended to prohibit the use of radionuclide MCLs as ARARs (May 30, 1996).

<sup>2</sup>See attachment B "Analysis of what Radiation Dose Limit is Protective of Human Health at CERCLA Sites (Including Review of Dose Limits in NRC Decommissioning Rule)" to the memorandum from Stephen D. Luftig titled: "Establishment of cleanup levels for CERCLA sites with radioactive contamination" (OSWER Directive 9200.4-18), August 1997, p. 3.

bound of the CERCLA risk range) with ground water protection, to instead, allow for higher dose limits and no separate standard for ground water. (See the letter from Carol Browner to the Honorable Shirley Ann Jackson, February 7, 1997.)

It appears that the areas of difficulties between our two programs mainly involve issues surrounding ground water remediation, overall cleanup goals, and methods for providing for other than unrestricted land uses to establish cost-effective cleanup goals. EPA is committed to using the full range of alternatives available to achieve cleanup of ground waters that are current or potential future sources of drinking water in a reasonable period of time and in selecting cleanup goals that reflect reasonably anticipated land uses to attain cleanups that are protective of human health and the environment over the long-term. EPA's experience with remediating Superfund sites has shown that these objectives are achievable.

In summary, the practical differences between our two programs is likely to be limited to a small number of sites. For these few sites, we think that sufficient flexibility is available within the CERCLA program to achieve a protective cleanup. EPA and NRC can work together within existing legislation and responsibilities under CERCLA, SDWA, the Atomic Energy Act (AEA) Reorganization Plan 3, the existing MOU of 1992 and new future MOU's. Our citizens deserve to be protected to within the NCP risk range (generally  $10^{-4}$  to  $10^{-6}$ ) and have ground waters restored to beneficial reuse no matter what the contaminant. EPA cannot support legislative initiatives that would hinder EPA's ability and responsibility to protect human health and the environment.

We believe that in the interest of facilitating protective decommissioning of NRC licensees, it would be beneficial if your staff met with our staff so that NRC may better understand EPA's approach. This meeting may also assist our joint efforts at developing a Memorandum of Understanding for NRC decommissioning of licensees.

Sincerely,



Timothy Fields, Jr.

Acting Assistant Administrator

Office of Solid Waste and Emergency Response

Sincerely,



Richard D. Wilson

Acting Assistant Administrator

Office of Air and Radiation

Enclosure

## **EPA Response to NRC Concerns**

This analysis is in response to the letter from Chairman Shirley Ann Jackson, dated December 12, 1997, concerning the EPA Superfund guidance entitled: "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (OSWER No. 9200.4-18, August 22, 1997) (hereafter referred to as the "Guidance"). This attachment provides a detailed responses to NRC's 8 specific concerns. The title for each numbered item is as it appeared in the attachment to the NRC letter. The replies are in response to the specific NRC language provided below the NRC titled sections.

**1. EPA's derivation of  $1E-4$  as a protective value appears to be a policy judgment and is inconsistent with international findings.**

**Response:**

Yes, the decision by EPA to generally use the risk range ( $10^{-4}$  to  $10^{-6}$ ) to determine protectiveness from carcinogens is a policy decision based on our mandate to protect human health and the environment. (NRC's decision to characterize 100 mrem/yr (approximately  $2 \times 10^{-3}$  risk level) as protective is also a policy judgment.) However, the risk range used by EPA for CERCLA actions is consistent with the risk range used by EPA under other statutes for both radiological and non-radiological pollutants (e.g., Clean Air Act and the Safe Water Drinking Act.)

EPA considers information from a variety of sources, including the policy decisions of international and national organizations, when making risk management decisions. A number of other considerations also assist us in establishing levels deemed to protect U.S. citizens. Attachment B of the Guidance provides a detailed discussion of the basis for the conclusion that the dose limits allowed in the NRC rule (25 and 100 mrem/yr, which correspond to a cancer risk of  $5 \times 10^{-4}$  and  $2 \times 10^{-3}$ ) are generally not protective.<sup>3</sup> Specifically, Attachment B states the following:

"The dose levels established in the NRC Decommissioning rule, however, are not based on this risk range or on an analysis of other achievable protective cleanup levels used for radiation and other carcinogenic standards. Rather, they are based on a different framework for risk management recommended by the International Commission on Radiation Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). NRC's application of this framework starts with the premise that exposure to radiation from all man-made sources, excluding medical and natural background exposures, of up to 100 mrem/yr., which equates to a cancer risk of  $2 \times 10^{-3}$ , is acceptable. Based on that premise, it concludes that exposure from decommissioned facilities of 25

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<sup>3</sup>See attachment B "Analysis of what Radiation Dose Limit is Protective of Human Health at CERCLA Sites (Including Review of Dose Limits in NRC Decommissioning Rule)" to the memorandum from Stephen D. Luftig titled: "Establishment of cleanup levels for CERCLA sites with radioactive contamination" (OSWER Directive 9200.4-18), August 1997, p. 3.

mrem/yr, which equates to a cancer risk of approximately  $5 \times 10^{-4}$ , is acceptable, and allows the granting of exceptions in certain instances permitting exposure up to the full dosage of 100 mrem/yr from these facilities. EPA has carefully reviewed the basis for the NRC dose levels and does not believe they are generally protective within the framework of CERCLA and the NCP. Simply put, NRC has provided, and EPA is aware of, no technical, policy, or legal rationale for treating radiation risks differently from other risks addressed under CERCLA and for allowing radiation risks so far beyond the bounds of the CERCLA risk range."

EPA sets cleanup standards based on what is deemed protective for citizens of this country. Attachment B of the Guidance noted that the: "EPA's adoption of this risk range [ $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ ] was sustained in judicial review of the NCP. State of Ohio v. EPA, 997 F.2d 1520, 1533 (D.C. Cir. 1993)." CERCLA and the NCP do not differentiate risks caused by radioactive contaminants from those caused by non-radioactive contaminants. Radiation is not a privileged pollutant, and should therefore be subject to the same risk management policy as other hazardous substances.

With regard to the EPA draft Federal Guidance for Exposure of the General Public (59 FR 66414, December 23, 1994) as noted in Attachment B of the Guidance: "The draft guidance recommends that the maximum dose to individuals from specific sources or categories of sources be established as small fractions of a 100 mrem/yr upper bound on doses from all current and potential future sources combined, and cites the regulations that are discussed in Section 1.2 of this paper [Guidance, Attachment B] as appropriate implementation of this recommendation. All of the regulatory examples cited support the selection of cleanup levels at 15 mrem/yr or less. However, because this guidance is in draft form and is subject to continued review within EPA prior to finalization, it should not be used as a basis for establishing acceptable cleanup levels." (See footnote 8 on page 5 of Attachment B of the Guidance.)

## 2. EPA inaccurately states that the NRC's rule is not protective

### Response:

EPA is aware that NRC's implementation of its rule will generally result in decommissionings that are protective. As we noted in the Guidance (page 3): "We expect that NRC's implementation of the rule for License Termination (decommissioning rule) will result in cleanups within the Superfund risk range at the vast majority of NRC sites. However, EPA has determined that the dose limits established in this rule as promulgated generally will not provide a protective basis for establishing preliminary remediation

goals (PRGs) under CERCLA.<sup>4</sup> It is only for that small universe of sites which may not meet EPA's views on protectiveness that an issue exists.

In the absence of applicable, or relevant and appropriate requirements (ARARs), cleanup levels at CERCLA sites are generally expressed in terms of risk levels, rather than millirem, as a unit of measure. CERCLA guidance recommends the use of slope factors in the EPA Health Effects Assessment Summary (HEAST) tables when estimating cancer risk from radioactive contaminants. Were the slope factors in HEAST to change, the actual site-specific concentrations that correspond to the risk range would change to reflect this change in science. Although EPA acknowledges uncertainty on the risks of radioactivity, there is more certainty for radiation risk than for almost any other pollutant. If in the future the current estimates of radiation risk were to change, the Superfund risk range would allow flexibility in reflecting those changes in actual cleanup decisions. In contrast, NRC would have to do a new rule making to reflect updated risk estimates.

### 3. EPA inconsistently uses its protective value of $1E-4$

#### Response:

When EPA has chosen  $1 \times 10^{-4}$  to be an acceptable level of risk as a matter of policy under CERCLA as well as under other EPA statutes, risk levels slightly higher have occasionally been considered protective. As noted in Attachment B of the Guidance:

"Under appropriate circumstances, risks of greater than  $1 \times 10^{-4}$  may be acceptable. CERCLA guidance states that "the upper boundary of the risk range is not a discrete line at  $1 \times 10^{-4}$ , although EPA generally uses  $1 \times 10^{-4}$  in making risk management decisions. A specific risk estimate around  $10^{-4}$  may be considered acceptable if justified based on site-specific conditions."

Other EPA regulatory programs have developed a similar approach to determining acceptable levels of cancer risk. For example, in a Clean Air Act rulemaking establishing NESHAPs for NRC licensees, Department of Energy facilities, and many other kinds of sites, EPA concluded that a risk level of " $3 \times 10^{-4}$  is essentially equivalent to the presumptively safe level of  $1 \times 10^{-4}$ ." (54 Fed. Reg. at 51677 and 51682, December 15, 1989). EPA explicitly rejected a risk level of  $5.7 \times 10^{-4}$  as not being equivalent to the presumptively safe level of  $1 \times 10^{-4}$  (in the case of elemental phosphorus plants). (54 Fed. Reg. at 51670.)

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<sup>4</sup>See letter, Carol Browner, Administrator, EPA, to Shirley Jackson, Chairman, Nuclear Regulatory Commission, February 7, 1997.



**4. EPA' use of MCLs for groundwater results in inconsistent risk levels for cleanup.**

**Response:**

Please note that similar to NRC requirements, remedial actions under CERCLA must be protective (i.e., generally within the risk range of  $10^{-4}$  to  $10^{-6}$ ) of "all-pathways" in all contaminated media (e.g., soil, ground water, surface water, sediment, air, biota).<sup>5</sup> This requirement is in addition to the NCP expectation to restore ground waters to beneficial use. Further, the NCP provides that Maximum Contaminant Levels (MCLs) or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act are ARARs for ground waters that are current or potential future sources of drinking water and where they are relevant and appropriate under the circumstances of the release.

The NRC rule does not contain any numerical standards (e.g., MCLs) for current or potential future sources of drinking water. Sites decommissioned under the NRC could achieve an all pathway exposure of up to 100 mrem/yr (the primary MCL is 4 rem/y). EPA has previously stated that this potential result would not be protective and would be inconsistent with this Administration's CERCLA reauthorization position that ground waters<sup>6</sup> that are "current or potential sources of drinking water are a valued national resource and should be protected to levels suitable for drinking (e.g., MCLs). A cleanup standard based solely on a multipathway dose limit (either 15 or 30 mrem/yr), does not ensure that ground water is cleaned up within the aquifer, but instead could rely solely on exposure controls." (see letter from Carol Browner, EPA Administrator, to Shirley Jackson, NRC Commission Chair, February 7, 1997.) (A copy of the Administration's Superfund reauthorization principles are attached.)

As a result of the NRC regulation, owners of private wells may drink water contaminated above the MCLs, and some future public water systems may have to pay to clean up water contaminated by NRC licensees. A letter from the Association of Metropolitan Water Agencies to Vice President Al Gore on May 14, 1997 suggests that local water authorities are not willing to pay the price for meeting MCLs at the tap for radiation contamination.

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<sup>5</sup>"Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part A)", EPA/540/1-89/002, December 1989.

<sup>6</sup> See letter to the Honorable Thomas Bliley from EPA Administrator Carol Browner, May 7, 1997.

**5. EPA reference to NRC's alternate criteria is inaccurate**

**Response:**

EPA does not believe that it has mischaracterized the NRC rule. EPA expects that NRC's implementation of the rule for License Termination (decommissioning rule) will result in cleanups within the CERCLA risk range at the vast majority of NRC sites. However, EPA has determined that the dose limits established in this rule as promulgated generally will not provide a protective basis for establishing preliminary remediation goals (PRGs) under CERCLA<sup>7</sup> and that a limited number of sites may not be cleaned up to levels that are protective consistent with the NCP. However, EPA's experience with remediating sites under CERCLA has indicated that even in those "rare situations" and "unusual site specific circumstances" for which NRC developed their alternative criteria, protectiveness (i.e., generally within the  $10^{-4}$  to  $10^{-6}$  risk range) is achievable through active remediation measures, together with limitations on land use and the use of institutional and engineering controls.

CERCLA policy states that if a site cannot be cleaned up to a protective level (i.e., generally within the  $10^{-4}$  to  $10^{-6}$  risk range) for the "reasonably anticipated future land use" because it is not cost-effective or practicable (based, among other things, on an analysis of adverse effects on the environment or workers), then a more restricted land use should be chosen that will meet a protective level. This may include use as a waste management area (OSWER Directive No. 9355.7-04 "Land Use in the CERCLA Remedy Selection Process," May 25, 1995, pp. 8-9.) This policy is consistent with the Administrations CERCLA reauthorization position<sup>8</sup> on land use (see attachment) and has provided sufficient flexibility to meet protective site cleanups. Waivers of the required level of protection that are based on cost-benefit analysis and/or practicability are not allowed under the NCP and are not necessary. (The Hanford and Rocky Flats sites have correctly applied this policy to select 15 mrem/yr remediation decisions using a variety of land uses: rural residential, industrial/commercial, recreational, and waste management.) EPA's draft propose cleanup rule, which was withdrawn from the Office of Management and Budget, was consistent with this approach.

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<sup>7</sup> See letter, Carol Browner, Administrator, EPA, to Shirley Jackson, Chairman, Nuclear Regulatory Commission, February 7, 1997.

<sup>8</sup> See letter to the Honorable Thomas Bliley from EPA Administrator Carol Browner, May 7, 1997.

**6. EPA is inconsistent concerning whether or not radon is included in the CERCLA guidance**

**Response:**

The Guidance does address radon, as noted on page 1, footnote 2 of the Guidance. Several radon standards that have often been selected as ARARs are listed in Attachment A to the Guidance (see page 3 of Attachment A).

**7. CERCLA Guidance reassesses doses from radon that results in significantly lower doses.**

**Response:**

NRC's issues and concerns arise largely because NRC took EPA's assessment out of context. For example the report was not done to reassess using the 40 CFR 192 standard at all sites; rather it was done to reassess using the standard as a precedent for determining what is protective under the AEA to support promulgating a 15 mrem/yr dose limit for cleaning up Federal Facility sites.

**8. The CERCLA Guidance lacks a basis for the assumption that the 40 CFR Part 190 standard of 25/75/25 mrem is equivalent to 10 mrem/yr.**

**Response:**

Standards in 40 CFR Part 190 and 40 CFR Part 191 are case-specific standards, however, both these standards apply to members of the public in the general environment. The EPA report, which was not developed for regulatory guidance purposes, was completed to generically assesses these standards at cleanup sites only as precedents for determining what is protective under the AEA to support promulgating a 15 mrem/yr dose limit for cleaning up Federal Facility sites. NRC has misleadingly asserted in its decommissioning rule (see 62 FR 39062) that these older standards are precedents for a 25 mrem/yr dose limit.

EPA concurs that the term "critical organ" implies the use of ICRP 2 methodology. The EPA report, however, as is stated, calculates and redefines for this purpose the critical organ as the organ receiving the highest dose, back-calculating from EDE using ICRP 26 weighting factors. NRC regulations such as 10 CFR Part 61 are based on the ICRP 2 dose methodology. Recent draft guidance (NUREG -1573) currently advises the use of ICRP 30 methodology for the calculation of TEDE, with subsequent comparison with the numerical limits in Part 61, even though these limits use the ICRP 2 dose methodology. NRC also acknowledges that direct comparison between the dose equivalent calculated using ICRP 30 methodology and the dose limit in the current Part 61 Low-Level Waste performance objective is not possible.

## **The Clinton Administration's Superfund Legislative Reform Principles**

May 7, 1997

Legislative reform must build on the administrative improvements to the program and must be narrowly targeted to address critical issues in need of a legislative solution. The Administration's goals for Superfund reauthorization continue to be to: protect human health, welfare and the environment; maximize participation by responsible parties in the performance of cleanups; ensure effective State, Tribal and community involvement in decision making; and promote economic redevelopment or other beneficial reuse of sites, all in a manner that increases the pace of cleanups, improves program efficiency and decreases litigation and transaction costs, and which does not disrupt or delay ongoing progress. The Administration will support Superfund legislation that adheres to the following principles:

### **1. Liability and Enforcement**

- Maintain the principle that those who are responsible for the contamination must pay for the cleanup.
- There should be clearly defined exemptions or limitations on liability, reflecting EPA's experience with administrative reforms, for very small volume contributors, generators and transporters of municipal solid waste, and bona fide prospective purchasers.
- Legislation should establish "orphan share" funding from a separate account consistent with the President's Fiscal Year 1998 budget request. Orphan share compensation, defined as a contribution for responsibility attributable to insolvent or defunct parties, must not compete against cleanup dollars or reduce the funding available for response actions.
- Legislation should reduce transaction costs by promoting settlements and encouraging contribution allocation of costs among settling parties through a flexible, nonprescriptive process that makes effective use of available "orphan share" funding.
- The Administration strongly opposes, among other proposals: "site liability carve-outs" (i.e., elimination of liability for persons based upon type of site); limits on the President's CERCLA section 106 authority; pre-enforcement judicial review of remedy decisions; repeal of all or part of the current strict, retroactive, joint and several liability standards; preemption of state liability laws; and changes to the liability system that slow cleanups, reduce program efficiency or increase litigation and transaction costs, or that reduce the possibility of settlements.

## **2. Remedy**

- Remedies must protect human health and the environment over the long term.
- Ground water should be restored to beneficial uses, wherever practicable. Maximum Contaminant Levels under the Safe Drinking Water Act or more stringent applicable State standards should be established as the cleanup standards for ground water whose beneficial use is or is anticipated to be as a drinking water source, unless technically impracticable.
- Consideration of reasonably anticipated future land use should continue to be factored into the remedy selection process, based on consultation with the affected community.
- Cleanups should be cost-effective and foster productive reuse of contaminated property to the degree practicable.
- A preference for treatment of highly toxic, highly mobile waste should be retained. The mandate for permanence should be modified to emphasize long-term protection and reliability.
- Cleanups should comply with the applicable substantive requirements of other Federal environmental laws and State environmental or facility siting laws applicable to remedial actions. The requirement to comply with relevant and appropriate requirements should be eliminated.
- The dollar and time limits on Fund-financed removals should be increased.
- The Administration strongly opposes, among other proposals, the following: prescriptive cost or risk assessment requirements, particularly those that would result in unprotective remedies; mandated remedy updates (including any remedy reopener provisions); default approval of remedy decisions; provisions which would fail to discourage contamination of currently uncontaminated land, ground water, or natural resources; provisions which would inhibit coordination between cleanup and natural resource restoration; elimination of applicable requirements from Federal laws or State environmental or facility siting laws; pre-enforcement judicial review of remedy decisions; and any other changes that disrupt or slow cleanups or settlements or result in remedies that are inadequately protective of human health, welfare, environment and natural resources.

3. **State and Tribal Issues**

- Increase the State and Tribal role in the Superfund program through flexible partnership agreements between EPA and States and Tribes, based upon demonstrated resources and capabilities, to enable all parties to work together to determine which sites should proceed under what authorities, and under whose lead, so that governmental resources are complementary, not duplicative. These partnership agreements should include provisions to ensure appropriate use and conservation of Superfund monies.
- Support the development and expansion of State and Tribal cleanup programs, including State Voluntary Cleanup Programs, and better coordination between federal agencies and the States and Tribes.
- The Administration strongly opposes, among other proposals: limitations on the Federal ability to respond to a threat to human health, welfare or the environment, or to enforce a response; preemption of State and Tribal cleanup standards; State and Tribal waivers of federal authority; transfer of responsibilities to States or Tribes in a manner that disrupts or delays response actions or that results in less protective cleanups; default approvals of State or Tribal programs.

4. **Natural Resources Damages**

- The Administration supports the legislative proposal on Natural Resources Damages (NRD) that it drafted and sent to the House and Senate in October, 1996. This legislative proposal would clarify that NRD claims would be focused on restoration costs rather than monetized values and would be presented in a more timely and orderly fashion, thereby discouraging premature litigation of NRD claims and enhancing coordination and integration of remedy and restoration.
- The Administration strongly opposes, among other proposals: repeal of all or part of the current liability standards; proposed caps on recoverable damages; limitations on the natural resources that can be restored and the scope of trusteeship; inappropriate transition rules; or limitation on the type of values that may be considered in determining the scope or scale of restoration or damages.

**5. Community Health and Community Involvement**

- The Administration supports the continued protection of human health of communities impacted by Superfund sites through efforts of public health assessments, health effects studies, and other public health activities prescribed by law.
- Continue efforts to enhance community involvement and development and provision of information to communities, including the opportunity for formally established community advisory groups at Superfund sites, and ensuring meaningful citizen involvement in determining the assumptions regarding reasonably anticipated future land use.
- Support authority to award Technical Assistance Grants at NPL and non-NPL sites.
- The Administration strongly opposes any provisions that would impair meaningful community input and involvement, or would disrupt existing citizen advisory groups or use inappropriate, prescriptive membership requirements for such groups.

**6. Brownfields and Voluntary Cleanup Programs**

- Support expansion of the current Brownfields program, including funding for site identification and assessment, funding to capitalize revolving loan funds for brownfield site cleanups, technical support and funding for job training and workforce development, and provisions for bona fide prospective purchasers.
- Support the development, enhancement and expansion of State voluntary cleanup programs that meet appropriate standards as stated above.
- The Administration strongly opposes provisions, among other proposals, which limit current brownfields grant eligibility and flexibility. The Administration also strongly opposes provisions including the following: restrictions on federal ability to adequately protect human health, welfare and the environment, particularly at higher risk sites, under State voluntary cleanup programs, and other limitations such as any limits on the authority to act upon a determination of imminent and substantial endangerment to human health, welfare or the environment.

**7. Enhancing Protection of Communities from Toxics**

- Legislation should ensure that communities have access to information about releases of hazardous substances and other toxics.
- Legislation should ensure that EPA has the ability to obtain data from responsible parties about the cost of cleanups for the purposes of program evaluation.
- Legislation should ensure that successful petitions for reimbursement under CERCLA section 106(b) do not have a significant adverse impact on ongoing cleanup activity or otherwise compromise Superfund programs.

**8. Other Important Issues**

- The Administration does not support legislative amendments specifically for federal facilities.
- The Administration supports reinstatement of the Superfund taxes, and, through separate legislation, the establishment of a new tax incentive to promote the redevelopment and cleanup of brownfields.
- The Administration strongly opposes a cap on further listings on the National Priorities List, premature or "default" deletion of sites from the NPL, and other proposals to restrict EPA's authority to list sites on the NPL.
- The Administration strongly supports the research activities authorized by CERCLA.