



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

JUL 27 2000

Charles M. Hardin
Executive Director
Conference of Radiation Control
Program Directors, Inc.
205 Capital Avenue
Frankfort, KY 40601

Dear Mr. Hardin:

We appreciate the opportunity to review the current Conference of Radiation Control Program Directors, Inc. (CRCPD) draft model state regulation Part O - Decommissioning adopted by the Board of Directors on February 11, 2000. The U.S. Environmental Protection Agency (EPA) recognizes the difficulty in developing new rules for controversial topics such as decommissioning, and we applaud your efforts to develop this rule. However, we do not concur on the model state regulation Part O - Decommissioning for the reasons discussed below.

CRCPD's Part O - Decommissioning dose limits (e.g., allowable cleanup level of 25 millirem per year as the primary standard with exemptions allowing dose limits up to 100 millirem per year) and lack of a separate requirement for protecting ground waters that are potential or current sources of drinking water to the Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act are very similar to the limits established by the Nuclear Regulatory Commission (NRC) in 10 CFR Part 20 Subpart E, Radiological Criteria for License Termination. The EPA has and continues to express concerns with NRC's license termination rule, and because of this we have similar concerns with the CRCPD state regulation Part O.

We have provided comments to the NRC on a number of occasions including the enclosed letters from Administrator Browner to then Chairman Jackson, February 7, 1997, and from Tim Fields and Dick Wilson to Joe Callan, February 20, 1998. Because of the similarity between the NRC and CRCPD standards, we feel that our comments to NRC are also applicable to the CRCPD state regulation Part O and that these comments should be considered by CRCPD.



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In addition, we recently provided comments to CRCPD on the Part N Draft Regulation for Technically Enhanced Naturally Occurring Radioactive Material. These comments to CRCPD identified a need to develop a separate standard for ground water protection and to develop a standard that is protective of human health and the environment. Letters from Tim Fields and Robert Perciasepe to Charles Hardin, April 19, 1999; Tim Fields to Ray Paris, July 25, 1997; and Frank Marcinowski to Ray Paris, July 21, 1997 discuss this issue in more detail, and are enclosed for your information. As these enclosures indicate, EPA is non-concurring with the release of the Part - O Decommissioning as a suggested state regulation because of concerns which include, but are not limited to, the failure of the regulation to recommend a separate standard or requirement for ground water protection and failure of the regulation to recommend a risk or dose based standard that the EPA considers protective of human health and the environment.

In addition, the draft model state regulation is also inconsistent with the majority of state ground water standards. Many states have established specific standards for radionuclides in ground water or have drinking water standards that address radionuclides that may be appropriate to be used as cleanup standards for ground waters which are current or potential sources of drinking water.

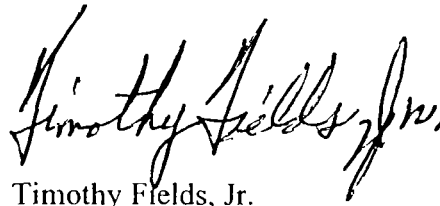
Because the NRC standard, Radiological Criteria for License Termination, is considered a Division 2 rule by NRC, it is our understanding that Agreement States would be allowed to adopt more stringent requirements. We would strongly encourage Agreement States to go further than the requirements in NRC's license termination rule and this draft model rule to develop decommissioning rules that require cleanups that are consistent with the protectiveness goals of CERCLA. EPA has previously developed guidance on how to cleanup radioactively contaminated sites in a protective and cost-effective manner and we feel that this guidance may be useful to CRCPD and Agreement States when developing rules. This guidance can be found in the following enclosed OSWER Directives: Radiation Risk Assessment at CERCLA Sites: Q & A, Directive 9200.4-31P, December 1999, and Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination, Directive 9200.4-18 August 22, 1997.

If you have questions regarding this information or the enclosed comments, please contact Bonnie Gitlin at (202) 564-9371 in the Office of Radiation and Indoor Air, or Stuart Walker at (703) 603-8748 in the Office of Solid Waste and Emergency Response.

Sincerely,



Robert Perciasepe
Assistant Administrator
for Air and Radiation



Timothy Fields, Jr.
Assistant Administrator
for Solid Waste and Emergency Response



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

FEB 07 1997

THE ADMINISTRATOR

Honorable Shirley Ann Jackson
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Dear Ms. Jackson:

I am writing regarding the Nuclear Regulatory Commission (NRC) rule on radiological criteria for license termination that is expected to be finalized early this year. We are concerned that NRC may choose to take a more lenient position than it previously proposed concerning ground water remediation and cleanup levels.

We understand that NRC is giving particular consideration to making significant changes from its proposed rule of August 22, 1994. The Environmental Protection Agency (EPA) finds these changes, such as increasing the proposed dose limit from 15 mrem/yr to as much as 30 mrem/yr and eliminating a separate requirement for protecting ground water that could be used as drinking water to the Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act, to be disturbing.

With regards to ground water, this Administration's position is that current or potential future 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. Therefore, EPA thinks that it is vital that the NRC rule protect ground water that is a current or potential future source of drinking water.

If in fact our understanding is correct, then EPA would also consider NRC's rule to be not protective under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and not consistent with this and previous Administrations' Ground Water Policy. EPA has the authority to



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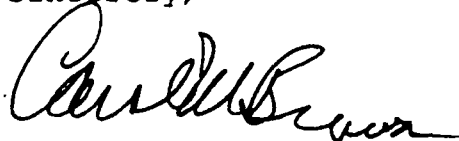
choose not to respond to certain types of releases under CERCLA because existing regulatory or other authority under other Federal statutes provides for an appropriate response. EPA has previously chosen not to list on its National Priorities List (NPL) for CERCLA releases of source, by-product, or special nuclear material from any facility with a current license issued by the NRC. This decision was made on the grounds that the NRC has full authority to require cleanup of releases from such facilities.

If NRC were to promulgate its rule with the above-referenced changes, EPA would be forced to reconsider its policy of exempting NRC sites from the NPL. This change in EPA listing policy for the NPL would reflect the EPA view that NRC regulation would not be adequately protective of human health and the environment under CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

In addition to the issues raised by the NRC rulemaking, there appear to be consistency issues with two existing NRC guidance (NRC Branch Technical Position "Disposal of On-Site Storage of Thorium or Uranium from Past Operations," 46 FR 52061, October 1981, and Policy and Guidance Directive FC 83-23 "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of License for Byproduct, Source, or Special Nuclear Material License," August 1987) and the NCP and Superfund guidance since they recommend cleanup levels for some radionuclides that may result in doses higher than 15 mrem/yr.

I view these changes to the NRC rulemaking on radiological criteria for license termination, and the potential action that may be required of EPA, to be very serious matters. We will be happy to work with your staff to ensure the promulgation of a rule, and the development of related guidance, that are consistent with CERCLA.

Sincerely,



Carol M. Browner



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

FEB 20 1998

L. Joseph Callan
Executive Director of Operations
U.S. Nuclear Regulatory Commission
MS-05E6
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.¹ 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 5×10^{-4} and 2×10^{-3}) are generally not protective.² 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 (3×10^{-4} risk which is approximately the upper

¹Meeting 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).

²See 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.

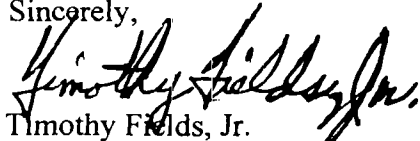
bound of the CERCLA risk range) with ground water protection, to instead, allow for higher dose limits and no separate standard for ground water. (See the letter from Carol Browner to the Honorable Shirley Ann Jackson, February 7, 1997.)

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 2×10^{-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 5×10^{-4} and 2×10^{-3}) are generally not protective.³ 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 2×10^{-3} , is acceptable. Based on that premise, it concludes that exposure from decommissioned facilities of 25

³See 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 5×10^{-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 [1×10^{-6} to 1×10^{-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.⁴ 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 1×10^{-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 1×10^{-4} may be acceptable. CERCLA guidance states that "the upper boundary of the risk range is not a discrete line at 1×10^{-4} , although EPA generally uses 1×10^{-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 " 3×10^{-4} is essentially equivalent to the presumptively safe level of 1×10^{-4} ." (54 Fed. Reg. at 51677 and 51682, December 15, 1989). EPA explicitly rejected a risk level of 5.7×10^{-4} as not being equivalent to the presumptively safe level of 1×10^{-4} (in the case of elemental phosphorus plants). (54 Fed. Reg. at 51670.)

⁴See 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).⁵ 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 waters⁶ 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.

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

⁶ 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 CERCLA⁷ 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 position⁸ 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.

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

⁸ 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.



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

APR 19 1999

Charles Hardin
Executive Director
Conference of Radiation Control
Program Directors, Inc.
205 Capital Avenue
Frankfort, KY 40601

Dear Mr. Hardin:

We appreciate the opportunity to review and concur on the current Conference of Radiation Control Program Directors, Inc. (CRCPD) draft model State regulation **Part N - Regulation and Licensing of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM)**. The U.S. Environmental Protection Agency (EPA) commented on an earlier draft of this model regulation. Copies of letters from both the Radiation Protection Division in the EPA's Office of Radiation and Indoor Air, and the Office of Solid Waste and Emergency Response are enclosed (Timothy Fields, Jr. to Ray Paris, July 25, 1997; and Frank Marcinowski to Ray Paris, July 21, 1997).

We recognize the difficulty in developing new rules for controversial topics, and applaud your efforts to develop a model rule for TENORM. In looking at Part N, we recognize that the intention was to treat TENORM in a similar fashion to Atomic Energy Act materials, and create a regulatory framework covering all aspects of these radiological materials. However, we believe that the wide variety of industries that might be covered by this rule, and the many different forms and types of TENORM wastes these industries generate, require a different approach than the current proposal. We suggest for purposes of clarification that this rule be divided into two main parts, an administrative licensing rule, and a substantive requirements rule (e.g., radiation protection standards, waste disposal, recycling, clean-up). Our comments below only address the human health, environmental protection, and waste disposal components of Part N.

We have evaluated the current draft to determine the extent to which it addressed our offices' previous comments. The purpose of this letter is to inform you of EPA's non-concurrence with release of the Part N model rule dated September 1998 as a suggested State regulation.



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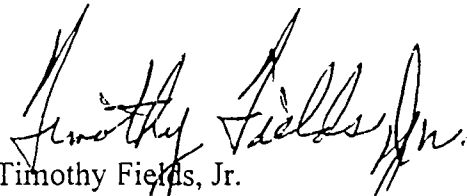
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Unfortunately, nearly all of the principal concerns our respective offices voiced in previous letters to you were not corrected. These include, but are not limited to, the failure to recommend a standard that is protective of human health and the environment, failure to include a separate standard or requirement for ground water protection, and lack of a preference for permanent remedies and treatment.

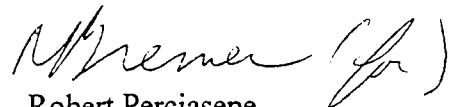
Given these deficiencies, we do not concur in its release as a suggested State regulation. Should such a regulation be adopted, the latitude given in choosing appropriate radiation standards up to 100 millirem exposure annually from a single source of TENORM could create unacceptable health risks to the public, result in inconsistent standards among the States, and potentially result in the creation of new Superfund sites.

If you have questions regarding these or the enclosed comments, we ask that you contact Loren Setlow at (202) 564-9445 concerning comments from the Office of Radiation and Indoor Air, and Stuart Walker at (703) 603-8748 concerning comments from the Office of Solid Waste and Emergency Response.

Sincerely,



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



Robert Perciasepe
Assistant Administrator
for Air and Radiation

Enclosures

cc: Bruce Hirschler, CRCPD
Steve Collins, CRCPD
Ray Paris, CRCPD
Steve Luftig, OERR-EPA
Larry Reed, OERR-EPA
Stuart Walker, OERR-EPA



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

JUL 25 1997

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Mr. Ray D. Paris, Manager
Radiation Protection Services
State Health Division
Department of Human Resources
800 N.E. Oregon Street
Portland, OR. 97232

Dear Mr. Paris:

Thank you for the opportunity to comment on the current Conference of Radiation Control Protection Directors' (CRCPD) Part N Draft Regulation for Technically Enhanced Naturally Occurring Radioactive Materials (TENORM). The purpose of this letter is to alert you to our overall concerns with the draft Part N model rule dated February 1997. After an initial review, we find that we have serious concerns with the draft model rule as currently written. **Our principal concern centers on a desire for the cleanup of hazardous substances, including TENORM, to be conducted in a manner that is protective of human health and the environment.** Our review has focused on the extent to which this model rule would require cleanups that are consistent with the protectiveness goals of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. This model rule also may present difficulties if releases allowed under this rule were to result in situations where action under Superfund is required. We request that you evaluate this model rule in light of these concerns.

The draft rule appears to be inconsistent with Superfund concerning the protectiveness goals for cleanups of contaminated sites on at least the following issues:

- **Ground water:** The draft rule requires only that applicable standards of the Safe Drinking Water Act be met. Is the assumption that MCLs should be met only at the tap, and only for actual users after treatment at a public water system? The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) codifies the expectation that drinking water be restored to beneficial use throughout the plume for current and potential uses. Superfund does not limit protection to only current actual users.
- **Risk Level:** The draft rule allows for 100 mrem/yr exposure (equates to approximately to 2×10^{-3} carcinogenic risk) for a single source. This level is



outside the risk range that Superfund generally interprets as protective (10^{-4} to 10^{-6} risk range for all contaminants.) Also, EPA has previously indicated that dose limits for cleanup above 15 mrem/yr would not be considered protective (*See attached correspondence from Carol Browner, EPA Administrator, to Shirley Jackson, NRC Commission Chair, 2/7/97.*)

- **Preference for Permanent Remedies and Treatment:** The draft rule does not seem to contain any preference for permanent remedies and treatment that would help to ensure the long-term protection of human health and the environment when conducting cleanup of sites. The NCP through use of nine remedy selection criteria codifies the requirement that remedies: utilize permanent solutions and alternative treatment technologies to the maximum extent practicable, and; satisfy the preference for treatment of principal threat waste to reduce toxicity, mobility, or volume, or provide an explanation why the preference was not met.

The above is a general analysis of areas of concern with regards to consistency. Other areas may surface as we continue with our analysis. Attached to this letter, you will find some additional comments from my staff.

Future Superfund Sites:

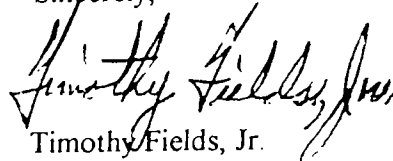
The radiation protection standards (operations, use, or transferring of TENORM), doses to individuals of 100 mrem/yr, in addition to the lack of a separate ground water standard, may lead to the creation of additional Superfund sites. The potential for creating future Superfund sites were States to utilize the full flexibility of this model rule would seem to be inconsistent with the intent of CERCLA to clean up sites.

Summary:

We understand the rationale for developing this rule is to ensure a proper and uniform regulatory posture regarding the cleanup, use, and disposal of TENORM. While the standards promulgated by individual States and their subsequent implementation may not currently fully utilize the flexibility allowed for in this model rule, we think that the

draft preamble and rule language sets a standard that is inconsistent with the Superfund approach of cleaning up sites to a level that is protective of human health and the environment. If you have any questions, please contact Jeffrey Phillips of my staff (703-603-9917).

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy Fields, Jr.", with a stylized flourish at the end.

Timothy Fields, Jr.

Acting Assistant Administrator

Enclosures

cc: Larry Weinstock, ORIA

OSWER Staff Comments on TENORM Model Regulation

(Based on the February 1997 version of CRCPD's draft model rule Part N)

General

The regulation would create serious inconsistencies with existing EPA regulatory schemes (including CERCLA) as well as with ongoing EPA rulemakings.

The key point, however is not consistency alone, but agreement about what is considered protective and then a consistent message from the Federal and State governments that such a threshold should not be exceeded.

1. **Part N does not require control of individual sources of radiation exposure at levels consistent with EPA risk management policy.**

Section N.5 "Standards for Radiation Protection for TENORM" would permit authorized exposure from any single source at up to 100 mrem in a year. This corresponds to a lifetime risk of 2×10^{-3} . **This risk is at least 20 times greater than EPA would usually consider protective under the CAA, the SWDA, or Superfund.**

Part N is significantly less protective than EPA's proposed Federal Radiation Protection Guidance for Exposure of the General Public. That guidance has a stated expectation that limits will continue to be set at dose levels comparable to those set by EPA in the past (15 mrem/yr or less), that individual sources will be limited to a fraction of 100 mrem/yr, and that these sources will satisfy risk management policies established under the environmental statutes.

2. **Part N would allow the release radioactively contaminated equipment and material at unacceptably high levels.**

Section N.5.e would permit release of equipment, material, and small items under limits permitting up to 100 mrem/yr (2×10^{-3}). It also exceeds EPA's usual de minimis risk level (1×10^{-6}) by a factors of 2,000.

3. **Part N does not satisfy EPA groundwater policy.**

Section N.8.(a) of CRCPD's Draft Regulation states "Each person subject to a license under this Rule shall manage and dispose of waste containing TENORM in accordance with the . . . Safe Drinking Water Act . . . for disposal of such wastes . . .". This seems to imply that only MCLs at the tap after treatment at a public water system should be met, and only under



limited circumstances (unclear if even that is supposed to be met when cleaning up a TENORM site). Under Part N, a property could be released with contaminated ground water at levels up to 100 mrem/yr (the primary MCL is 4 mrem/yr). (Although Part N requires *drinking* water protection to the MCLs, this applies only to meeting MCLs when they are applicable after treatment at a public water system, rather than in the aquifer, and only for current or projected users, not potential or reasonably expected.). As a result of this regulation, owners of private wells may drink water contaminated above the MCLs, and some future public water systems will have to pay to cleanup up water contaminated by industry using TENORM. 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.

Under Part N, the approach of protecting ground waters are that are current or potential sources of drinking water is ignored. This would be inconsistent with EPA's GW Protection Strategy and Superfund policy, within which exists the framework of Comprehensive State Ground Water Protection Programs (CSGWPPs) that States are developing in consultation with EPA to determine potential sources of drinking water. It also would be inconsistent with Superfund's approach of determining potential sources of drinking water through use of "EPA Guidelines for Ground-Water Classifications" when there is no EPA-endorsed CSGWPP in a State.

With over 50 percent of the U.S. population relying on ground water for their drinking water, EPA emphasizes that this critical public health and environmental concern should be addressed. Part N does not seem to even mitigate the formation or expansion of radioactive contaminated plumes. EPA's Administrator has stated that "the administration believes that where full restoration of ground water is technically impracticable, the sources of this contamination should be removed, treated, or at a minimum contained to ensure that the contamination does not continue to migrate." (*Administrator Browner's testimony to the Senate Environment and Committee on 4/23/96*).

Additionally, at least 42 states have established specific standards for radionuclides in groundwater or have water quality standards that address radionuclide MCL's in groundwater which can be a potential source of drinking water.

Part N requirements should specifically state that operating and waste facilities will be designed so that groundwater releases will not result in contamination of current or potential sources of drinking water above the MCLs. This is the current national approach to groundwater protection and will ensure that TENORM facilities and disposal sites do not require future EPA CERCLA action.

4. **Part N would allow the release elevated levels of TENORM as effluents and thus could potentially create additional Superfund Sites.**

Section N.5 "Standards for Radiation Protection for TENORM" would allow releases at levels as high as 100 mrem/yr, and section N.8.a does not protect ground water, or even surface water except when TENORM is being "managed or disposed". These provisions could result in levels 25 times the MCLs at the point of discharge or in GW, respectively. This is inconsistent with EPA's "Ground Water Strategy for the 1990's" and with EPA's "Ground Water Protection Strategy," and could potentially create additional Superfund Sites. (These strategies emphasize prevention over remediation, e.g., they state that reaching the MCL or another appropriate reference point would be considered a failure of prevention.) This may also be inconsistent with the State Water Quality standards for radionuclides issued by over 40 states

5. **Part N use of EPA UMTRCA regulations.**

The section N.4.(a)(i) exempts from Model N standards where levels of Ra-226 or Ra-228 is less than 5 pCi/g (for situations other than cleanup, including effluent releases and recycling). This may result in the use of this standard in a manner that is significantly different than those situations for which it was developed (cleanup of soil for UMTRCA sites). Although 5 pCi/g is a health-based standard for the UMTRCA sites, CRCPD should provide some supporting information so that the public is assured that its use as a standard will continue to be protective when it is applied to situations that differ substantively from those for which it was derived.

6. **Part N is lacking mention of public participation.**

Public participation in selection of site-specific standards is not addressed. Although public participation procedures may be very State specific, the draft should make some mention of the need to ensure effective Tribal and community involvement in decision making. Both during regulatory and guidance development, as well as during site/facility-specific decision making.

7. **Preference for Permanent Remedies and Treatment**

Another point missed by the Draft Regulation surrounds the issue of ensuring that cleanup remedies are protective over the long term. CERCLA ensures protection over the long term in part through requirements to: satisfy the preference for treatment of "principal threat waste"¹ to reduce toxicity, mobility, or volume, or provide an explanation for the Record of

¹Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human

Decision at the site why the preference was not met, and: utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

The Administrator has stressed EPA's commitment to permanent remedies rather than relying on institutional controls to effect short-term risk reduction. "erecting a fence to prevent human exposure provides comparable risk reduction benefits in the short-term as achieved by treating, removing or reliably managing hazardous waste, even though the latter solutions are much more effective . . . over the long term. Because the cost of the fence is much less, however, than treatment, removal or reliable management, the latter alternatives are not likely to be considered cost-reasonable . . . This methodology is a short-sighted approach". (*Excerpt from Administrator Browner Testimony to House Commerce Committee 10/26/95*). The Draft Regulation should provide guidance on the issue of treatment to assist parties in the prioritization of cleanup criterion.

8. Land Use

Part N states that restricted release of property should occur only when unrestricted release "would require an unreasonable or unjustified economic burden". This burdensome approach to land use is inconsistent with current Superfund guidance OSWER Directive No. 9355.7-04, Land Use in the CERCLA Remedy Selection Process, May 1995. The OSWER Directive promotes the consideration of the reasonably anticipated future land use when making cleanup decisions (but does allow more restrictive land use when cleanup to the reasonably anticipated land use is not practicable and cost-effective).

9. Period of Compliance

Part N does not specify the period of compliance after completion of the remedial action. Would Part N assess the dose to the individual in the first year only, even for property to be released to the public? EPA and NRC (1994 proposed rule, 10 CFR Part 20) have both adopted a period of 1000 years for assessing when the greatest annual dose occurs.

10. Monitoring site conditions

There appears to be no provision for periodic evaluation of site conditions (similar to the CERCLA 5-year review) for sites released with a restricted land use after a cleanup action has been completed.

health or the environment should exposure occur. They include liquids and other highly mobile materials or materials having high concentrations of toxic compounds.



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

MAY 21 1997

OFFICE OF
AIR AND RADIATION

Ray D. Paris, Manager
Radiation Protection Services
State Health Division
Dept. of Human Resources
800 N.E. Oregon Street
Portland, OR 97232

Dear Mr. Paris:

We appreciate the opportunity to comment on the current Conference of Radiation Control Program Directors' (CRCPD) Part N Draft Regulation for Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM). Additionally, we look forward to working with the CRCPD and its NORM Commission in revision of this draft. While this is an improvement over previous drafts, we believe it does not yet provide an adequate degree of protection. Our principal concern centers on a desire for the cleanup of hazardous substances, including TENORM, to be conducted in a manner that is consistent with and is as protective of human health and the environment, as cleanups conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. The CRCPD model rule may present difficulties if releases allowed under the rule's authority were to result in situations where future, further action under Superfund is required.

The Environmental Protection Agency (EPA) is pursuing a number of efforts which we believe will be useful to the federal and state governments in making future decisions on NORM radiation protection guidance, public education and possible regulation, as appropriate. We are in the process of revising our 1993 draft report "Diffuse NORM Wastes--Waste Characterization and Preliminary Risk Assessment" and have contracted with the National Academy of Sciences to conduct a study on EPA's guidelines for NORM. As these become available, we hope they can provide benchmark information for evaluating NORM risks. Widespread occurrence of NORM and variations in radiation levels from NORM products and wastes means that a



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single, model regulation cannot specify controls for exposure pathways for all materials and handling practices. Nor can it recognize individual state land use planning practices which should be taken into consideration in siting or removal of NORM wastes, or individual state requirements for public involvement in the rulemaking process.

Yet, existing state and federal laws and regulations can, and do, require specific dose or risk limits for safeguarding human health and protecting ground water supplies. In this regard, the draft, model regulation fails to assure a level of radiological protection consistent with existing requirements. It also appears to be inconsistent with Superfund concerning the protectiveness goals for cleanup of contaminated sites. Specifically, we suggest you further evaluate this model rule in light of the following concerns:

- **Ground Water:** Be consistent with existing state and federal laws and regulations. While the draft rule requires only that applicable standards of the Safe Drinking Water Act be met, an EPA survey found that at least 42 states have established specific standards for radionuclides in ground water, or have water quality standards that address radionuclide MCL's in ground water which can be a potential source of drinking water. At the federal level, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) codifies the expectation that drinking water be restored to beneficial use throughout the contaminated plume for current and potential uses. Reference should be made to the MCL's cited in 40 CFR 141 as the standard for protection of ground waters which are a current or potential source of drinking water. If interpreted permissively, the draft Part N, as currently written, could allow creation of additional Superfund sites.
- **Risk Level:** We believe the draft should require control of TENORM exposure at levels consistent with EPA regulations and risk management policy. Part N sets radiation exposure limits from a single NORM source at a fraction (unspecified) of 100 mrem/yr. The maximum risk at 100 mrem/yr (equal to approximately 2×10^{-3} carcinogenic risk) for a single source is several times greater than most state regulations allow

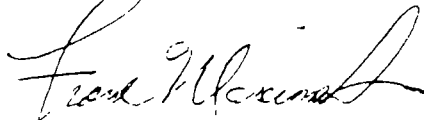
and what EPA considers protective under the Clean Air Act, Atomic Energy Act, the Safe Drinking Water Act, or CERCLA. Exposure to individual NORM sources should be set at dose levels consistent with those set by the states and EPA in the past (15 mrem/year or less) so that lifetime carcinogenic risk levels satisfy the approximately 10^{-4} to 10^{-5} lifetime risk range. EPA has indicated that dose limits for cleanup above 15 mrem/yr would not be considered protective (Correspondence from Carol Browner, EPA Administrator, to Shirley Jackson, NRC Commission Chair, 2/7/97).

- **EPA's UMTRCA Regulations:** The Part N model regulation uses the UMTRCA health risk based standard of 5 pCi/g as an exemption level for sources of TENORM. A caution should be included that this is not meant to be applied to large volumes of material in situations significantly different than those for which it was developed. CRCPD should provide guidance to the states that an exemption should take into consideration the physical characteristics of a site, the extent of the TENORM source, and projected land use.
- **Radioactively Contaminated Equipment and Material:** It is important to limit release of these substances at levels significantly lower than 100 mrem/yr. The exposure of a member of the public to up to 100 mrem/yr from any one source would exceed international general guidelines for exemption by a factor of 100.
- **Radon:** The CRCPD model rule should stress the importance of preventing, where practicable, the elevation of radon levels indoors.
- **Privileged Pollutant:** The model rule should be careful to not establish a policy that makes TENORM sources privileged hazardous pollutants. We are very concerned that the risk range permitted under this draft could exceed levels set for all other contaminants. Further, since various states may allow different fractions of the 100 mrem/yr upper bound for unrestricted use, interstate transport of deregulated NORM could be a problem. In the absence of any guidance, states may not be consistent in predicting doses from future unrestricted uses, resulting in a variety of differing state requirements and laws.

- **Preference for Permanent Remedies and Treatment:** The draft rule does not appear to express preference for permanent remedies and for treatment that would help ensure long-term protection of human health and the environment in conducting cleanup of sites. The NCP, as part of its nine specific remedy selection criteria, codifies requirements that remedies: 1) utilize permanent solutions and alternative treatment technologies to the maximum extent practicable, and, 2) satisfy the preference for treatment of "principal threat waste" to reduce toxicity, mobility, or volume, or provide an explanation why such preference is not given.
- **Land Use:** Part N states that restricted release of property should occur only when unrestricted release "would require an unreasonable or unjustified economic burden". This land use approach is burdensome. We suggest instead incorporating by reference the EPA OSWER Directive No. 9355.7-04, "Land Use in the CERCLA Remedy Selection Process", May 1995. The Directive promotes primacy consideration of the "reasonably anticipated future land use" when making cleanup decisions (but does allow more restrictive land use when cleanup to the reasonably anticipated land use is not practicable and cost-effective).
- **Period of Compliance:** Part N does not specify the period of compliance after completion of the remedial action. It should also address periodic evaluation of site conditions (similar to the CERCLA 5-year review) for sites released with a restricted land use after a cleanup action has been completed.
- **Future Superfund Sites:** The draft model regulation, which permits potential maximum doses to individuals of up to 100 mrem/yr from TENORM and lacks a separate ground water protection standard, may lead to the creation of more Superfund sites. This possibility would arise if states were to utilize the full flexibility of the model rule, and would thus be inconsistent with the intent of CERCLA to clean up contaminated sites.

The comments provided as an enclosure to this letter incorporate views of the EPA Office of Radiation and Indoor Air and EPA regional offices. Also, you will find a separate set of comments from the Office of Solid Waste and Emergency Response (OSWER). Should you have any questions concerning this letter, please contact Loren Setlow at (202)233-9445. Again, we thank you for the opportunity to comment on this draft, model regulation.

Sincerely,

A handwritten signature in dark ink, appearing to read "Frank Marcinowski", written in a cursive style.

Frank Marcinowski, Acting Director
Radiation Protection Division

Enclosures

cc: Larry Reed