RULEMAKING ISSUE

(Affirmation)

April 25, 1994 SECY-94-114

FOR: The Commissioners

FROM: James M. Taylor, Executive Director for Operations

SUBJECT: FINAL RULE: URANIUM MILL TAILINGS REGULATIONS; CONFORMING NRC REQUIREMENTS TO EPA STANDARDS

PURPOSE:

To obtain Commission approval of a notice of final rulemaking to amend NRC regulations governing uranium mill tailings to conform to recent amendments to EPA's generally applicable standards.

BACKGROUND:

Information concerning plans for this rulemaking was initially provided to the Commission in SECY-91-399. This rulemaking relates to a planned rescission of the EPA's National Emissions Standard for Hazardous Air Pollutants (NESHAPs) for radionuclide emissions from licensed uranium mill tailings disposal sites in Subpart T of 40 CFR Part 61 (Subpart T). Through consensus-building discussions, a staff-level Memorandum of Understanding (MOU) was established between NRC, EPA, and the Agreement States regulating uranium mill tailings sites (Colorado, Texas, and Washington), which set out planned actions to eliminate dual regulation of non-operational mill tailings sites. In accordance with that MOU, EPA published, in December 1991, a stay of Subpart T which expires on June 30, 1994, a proposed rescission of Subpart T, and an advance notice of a revision to 40 CFR Part 192, Subpart D. On April 1, 1993, EPA published a notice of a settlement agreement between EPA, the Homestake Mining Company, the American Mining Congress, the Environmental Defense Fund, the Natural Resources Defense Council, and 14 mill owners/operators. The Commission was not a signatory to this agreement, but did send a letter to the involved parties agreeing in principle with the agreement and promising to carry out the actions described in the agreement to the extent allowed by

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applicable law and available resources. The reasons for this approach were discussed in SECY-92-416.

EPA published its proposed amendments to 40 CFR Part 192, Subpart D on June 8, 1993 (58 FR 32174). The Commission published proposed conforming amendments to 10 CFR Part 40, Appendix A on November 3, 1993 (58 FR 58657). EPA published its final amendments to 40 CFR Part 192, Subpart D on November 15, 1993 (Enclosure 1). EPA also published a supplementary notice of proposed rulemaking on the rescission of 40 CFR Part 61, Subpart T on February 7, 1994 (59 FR 5674).

DISCUSSION:

The Commission is required by section 84a(2) of the Atomic Energy Act to conform its regulations to the generally applicable standards in 40 CFR Part 192. The schedule for doing so has been planned in order to carry out the provisions of the MOU and the settlement agreement and to allow for the rescission of Subpart T before the expiration of its stay of effectiveness on June 30, 1994.

The amendments to Subpart D of 40 CFR Part 192 added to the requirements for covering uranium mill tailings to control the release of radon, provisions for timeliness in completing the final radon barrier and a one time verification that the barrier is effective in controlling radon releases. Prior to this action, the requirements for the cover over tailings consisted of a design standard only.

The only matters that are discretionary on the part of the Commission in this rulemaking are details of implementation. EPA's generally applicable standard, in this case, includes some of the details of implementation. This draft final rule adds details concerning reporting and recordkeeping to the basic requirements to which the Commission must conform. To a limited extent, it also addresses tailings reclamation activities beyond those addressed by EPA (primarily erosion protection) in order to assure that the plans made for controlling radon releases in accordance with these amendments to Appendix A do not adversely affect the completion of other reclamation activities.

In response to the proposed rule, comment letters were received from seven organizations: one State regulatory agency, the Environmental Protection Agency, and five industry organizations. Commenters were generally supportive; most, however, had some suggestions for modifications, many of these reflecting a desire for stricter adherence to the words of the settlement agreement or to EPA's final rule.

The only substantive changes made in the enclosed final rule were made to reflect the final amendments to 40 CFR Part 192, Subpart D. These concern (1) the number of milestones for which deadlines must be established in the license and (2) the provisions for continued disposal during the closure process.

The number of specific deadlines required has been reduced from five to three. NRC's proposed rule listed dewatering and recontouring as separate milestones. EPA's rule requires deadlines for only three milestones with dewatering and recontouring shown as part of interim reclamation not as separate milestones. The rule, however, provides the option for additional deadlines on a case-by-case basis for activities considered key to the emplacement of the final radon barrier.

In EPA's final rule, the provisions for continued disposal during closure have been modified to more closely agree with the settlement agreement. This final rule has been modified to conform to the amendments of 40 CFR Part 192, Subpart D, as adopted on November 15, 1993. The revisions are (1) that only byproduct material, not "similar" material, may be approved for continued disposal after the final radon barrier is complete except for a limited disposal area and the verification of radon flux levels has been made and (2) that public participation must be specifically provided for only in the case of continued disposal after radon flux verification. Note that "public participation" has a special meaning for activities related to the final radon barrier. It means that a notice is to be published in the Federal Register to allow for public comment prior to the amendment of a license.

Editorial changes were also made to the final rule either for clarification or to be more consistent with the definitions and language in 40 CFR Part 192, Subpart D.

The preamble of the proposed rule presented an alternative interpretation of EPA's criteria for approving delays in meeting deadlines for the completion of milestones. The EPA in its final rule notice confirmed that the interpretation reflected in our proposed rule was correct and that the alternative interpretation was not appropriate. Thus, the provisions for approval of delays have not been changed.

The affected Agreement States were involved in the development of this regulatory approach at an early stage. This included the MOU negotiations and review of a draft version of the proposed rule. No further coordination with the affected Agreement States was considered necessary during development of this final rule as only minor changes were being made consistent with the final amendments to 40 CFR Part 192, Subpart D.

COORDINATION:

The Office of the General Counsel has no legal objection to this paper.

RESOURCES:

Resources to conduct and implement this rulemaking are included in the FY 1994-1998 Five-Year Plan.

RECOMMENDATION:

That the Commission:

1. Approve the Notice of Final Rulemaking for publication (Enclosure 2).

2. Certify that this final rule will not have a negative economic impact on a substantial number of small entities in order to satisfy requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b).

3. Note:
   a. The rule will be published in the Federal Register and will be effective 30 days following publication;

   b. A regulatory analysis will be available in the Public Document Room (Enclosure 3);

   c. An environmental assessment and a finding of no significant impact have been prepared (Enclosure 4);

   d. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification regarding economic impact on small entities and the reasons for it as required by the Regulatory Flexibility Act;

   e. The final rule contains information collection requirements that are subject to review by OMB; OMB has reviewed and approved the information collection requirements under approval number 3150-0020;

   f. The appropriate congressional committees will be informed (Enclosure 5);

   g. A public announcement will be issued (Enclosure 6); and

   h. Copies of the Federal Register Notice of final rulemaking will be distributed to all affected Commission licensees and the States of Colorado, Texas, Washington, and Illinois. The notice will be sent to other interested parties upon request.

SCHEDULING:

Final NRC action on 10 CFR Part 40 should be taken and the notice of final rulemaking published by May 31, 1994, so that EPA will be able to take final action to rescind Subpart T by June 30, 1994, when the stay of effectiveness of Subpart T expires, and in accordance with the schedule described in the settlement agreement. EPA stated in its supplementary notice of proposed rulemaking on the rescission of Subpart T that final action on this conforming rule is a prerequisite to the rescission. To aid the Commission's quick review, a comparative version of the regulatory text showing changes from the proposed rule is included as Enclosure 7.

James M. Taylor
Executive Director
for Operations

Enclosures:
1. EPA Final Rule (58 FR 60340)
2. Federal Register Notice
3. Regulatory Analysis
4. Environmental Assessment and Finding of No Significant Impact
5. Draft Congressional Letter
6. Draft Public Announcement
7. Comparative Text

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Wednesday, May 11, 1994.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, May 4, 1994, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for affirmtion at an Open Meeting during the Week of May 16, 1994. Please refer to the appropriate Weekly Commission Schedule, when published, for a specific date and time.

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Enclosure 1

federal register

Monday
November 15, 1993

Part VIII

Environmental Protection Agency

40 CFR Part 192
Health and Environmental Standards for Uranium and Thorium Mill Tailings; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 192

[FRL-4797-8]

Health and Environmental Standards for Uranium and Thorium Mill Tailings

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: EPA is amending its general environmental regulations pertaining to uranium mill tailings disposal sites pursuant to the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978. The amendments clarify the current rule by ensuring timely emplacement of a permanent radon barrier and by requiring appropriate monitoring for nonoperational uranium mill tailings disposal sites that are licensed by the Nuclear Regulatory Commission (NRC) or one of its Agreement States (affected Agreement States). These affected Agreement States are Colorado, Washington, and Texas, which are the states that license sites to manage uranium byproduct materials pursuant to the Atomic Energy Act (AEA). This action is related to another action by EPA to rescind its National Emissions Standard for Hazardous Air Pollutants (NESHAPs) for radon emissions from the disposal of uranium mill tailings at nonoperational sites which was promulgated on December 15, 1989, as it applies to sites licensed by the NRC or an affected Agreement State.

DATES: Effective Date: January 14, 1994.

FOR FURTHER INFORMATION CONTACT: Gale C. Bonanno, Air Standards and Economics Branch (6602J), Criteria and Standards Division, Office of Radiation and Indoor Air, Environmental Protection Agency, Washington, DC 20460, (202) 233-9219.

SUPPLEMENTAL INFORMATION:

Docket

Docket A-91-67 contains the rulemaking record. The docket is available for public inspection between the hours of 8 a.m. and 4 p.m., Monday through Friday, in room M1500 of Waterside Mall, 401 M Street SW., Washington, DC 20460. A reasonable fee may be charged for copying.

Table of Contents

I. History of Regulation of Uranium Mill Tailings

A. Description of Uranium Mill Tailings

Uranium mill tailings are sand-like wastes that result from the processing of uranium ore. Tailings are stored in large surface impoundments, called piles, in amounts from less than one million tons to over thirty million tons, over areas that may cover hundreds of acres. Most piles are located in the Western United States and all piles emit radon gas, a decay product of the waste material processed at the uranium mills.

To deal specifically with the risks associated with these piles, Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (42 U.S.C. 2022, 7901-7942). In enacting UMTRCA, Congress found that uranium mill tailings may pose a potential and significant radiation health hazard to the public, and that every reasonable effort should be made to provide for the stabilization, disposal, and control in a safe and environmentally sound manner of such tailings in order to prevent or minimize radon diffusion into the environment and to prevent or minimize other environmental hazards from such tailings. See 42 U.S.C. 7901(a). Under UMTRCA, two programs were established to protect public health and the environment from the hazards associated with uranium mill tailings. One program (Title I) required the Department of Energy (DOE) to conduct the necessary remedial actions at designated inactive uranium mill tailing sites to achieve compliance with the general environmental standards to be promulgated by EPA. These sites were generally abandoned uranium processing sites for which a license issued by the NRC or its predecessor, the Atomic Energy Commission (AEC), was not in effect on January 1, 1978.

The other program (Title II) pertained to active sites, which are those that are licensed by the NRC or an affected Agreement State. Requirements for licensed sites include the final disposal of tailings, including the control of radon after milling operations cease. UMTRCA also required that EPA promulgate standards for these licensed sites, including standards that protect human health and the environment in a manner consistent with standards established under Subtitle C of the Solid Waste Disposal Act, as amended. The NRC, or the licensing Agreement State, is responsible for implementing the EPA standards at licensed uranium milling sites.

As part of NRC's 1982 authorization and appropriations, Congress amended UMTRCA on January 4, 1983. Public Law 97-415, sections 18(a) and 22(b), *reprinted in* 2 1982 U.S. Code Cong. & Admin. News at 96 Stat. 2077 and 2080. As partially amended thereby, EPA was required to promulgate standards of general applicability for the protection of the public health, safety, and the environment from radiological and nonradiological hazards associated with the processing and with the possession, transfer, and disposal of byproduct material, e.g., uranium mill tailings. Requirements established by the NRC with respect to byproduct material must conform to the EPA standards. Any requirements of such standards adopted by the NRC shall be amended as the NRC deems necessary to conform to EPA's standards. In establishing such standards, the Administrator was to consider the risk to the public health, safety, and the environment, the environmental and economic costs of applying such standards, and such other factors as the Administrator determines to be appropriate. See 42 U.S.C. 2022(b)(1).

B. EPA and NRC's UMTRCA Rulemakings

EPA is authorized to promulgate generally applicable environmental standards to govern the remediation process. 42 U.S.C. 2022(a) and 7918 (as to DOE sites); 42 U.S.C. 2014 and 2022(b) (as to NRC-licensed sites). On January 5, 1983, EPA promulgated final rules for the disposal and cleanup of the inactive uranium mill tailings sites under UMTRCA Title I (48 FR 605).

Title I requires the Department of Energy (DOE) to conduct remedial action at inactive uranium mill tailings sites to ensure compliance with EPA's regulations for properly managing uranium byproduct materials. The program for inactive sites requires the disposal of tailings and the clean-up of on-site locations contaminated with tailings. DOE is responsible for implementing the standards established by EPA, with the concurrence of the NRC, and in cooperation with the host states. The requirements developed to implement the Title I program are not the subject of today's rulemaking.

On April 29, 1983, EPA proposed standards for Title II uranium and thorium mill tailings sites (48 FR 19584). These rules were promulgated on September 30, 1983 (48 FR 45926), and are codified at 40 CFR part 192, subparts D and E. Title II applies to currently operating uranium mill tailings facilities licensed by the NRC or an Agreement State. The Title II program established requirements for the final disposal of tailings, the control of effluents into ground water, and radon emissions[1] during and after milling operations. The requirements are divided into two parts. The first part applies to the management of tailings during the active life of the pile and during the subsequent closure period, which begins after cessation of milling operations but prior to completion of final disposal, including the period of time when the tailings are drying out. The second part of the requirements specifies the standards that must be met once the piles are closed. These standards govern the design of disposal systems, and therefore guide the activities carried out during the closure period to ensure the adequacy of the final cover. For NRC licensed mill tailings sites that are being closed, subpart D calls for reclamation plans designed to control radon emissions to a flux not to exceed an average release rate of 20 pCi/m^2-s for 1000 years to the extent reasonably achievable, but in any event for at least 200 years. 40 CFR 192.32(b)(1) (i) and (ii).

Both the UMTRCA Title I and Title II standards were challenged by several parties in the Tenth Circuit Court of Appeals. On September 3, 1985, the court upheld all aspects of EPA's standards, excepting the ground water provisions of the Title I regulations at 40 CFR 192.20(a) (2)–(3). *American Mining Congress* v. *Thomas*, 772 F.2d 617 (10th Cir. 1985), *cert. denied* 426 U.S. 1158 (1986). On September 24, 1987, EPA proposed new regulations to replace those set aside (40 CFR part 192, subpart C, 52 FR 36000). The final action for that rulemaking is pending and is not affected by today's action.

On October 16, 1985, NRC promulgated rules at 10 CFR part 40 to conform the previous NRC regulations issued five years earlier to the provisions of EPA's general UMTRCA standards at 40 CFR part 192, as it affected matters other than ground water protection (50 FR 41852). On November 13, 1987, NRC promulgated final rules for ground water protection at uranium mill tailings sites that conformed to provisions of EPA's standards for ground water protection at 40 CFR part 192, subparts D and E (52 FR 43553).

Under the NRC regulations, uranium milling operations that process or dispose of uranium and thorium, and their byproduct materials, must apply to the NRC for a license. In its application for an NRC license, the owner or operator of the mill must demonstrate the expected compliance with the technical, financial, ownership and long-term surveillance requirements of NRC's implementing regulations during the siting and construction of the mill, its operation, the decontamination and decommissioning of the mill after operations cease, and the reclamation of the milling facility and its surrounding environs. In accordance with 10 CFR 40.41(e), the NRC may incorporate in any license or later amend the license to include additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of source or by-product material as it deems appropriate or necessary to protect health or to minimize danger of life or property.

C. EPA's Clean Air Act Rulemaking

Both the UMTRCA standards promulgated by EPA in 1983 and the implementing NRC standards promulgated in 1985, failed to require or otherwise establish compliance schedules to ensure that the tailings piles would be expeditiously closed, and that the 20 pCi/m^2-s standard would be met, within a reasonable period of time. Moreover, the NRC criteria also failed to require monitoring to verify compliance with the flux standard (50 FR 41852). In response to the separate requirements of the Clean Air Act, and in light of the shortcomings of the current UMTRCA program for NRC-licensed uranium mill tailings sites, EPA promulgated standards under the Clean Air Act to ensure that the piles would be closed in a timely manner. These NESHAPs were published on December 15, 1989 (54 FR 51654) codified at 40 CFR part 61, subpart T (nonoperational) and subpart W (operational).

The NESHAP for nonoperational uranium mill tailings, codified at 40 CFR part 61, subpart T, applies to both Title I and Title II sites. The standard has three primary requirements. First, it imposes an emission limit of 20 pCi/m^2-s of radon-222 from a disposal pile, consistent with the UMTRCA standard. Second, it requires that, once a uranium mill tailings pile or impoundment ceases to be operational, it must be disposed of and brought into compliance with the emission limit within two years of the effective date of the standard (by December 15, 1991) or within two years of the day it ceases to be operational, whichever is later. If it was not physically possible for a mill owner or operator to complete disposal within that time, EPA contemplated a negotiated compliance agreement with the mill owner or operator pursuant to EPA's enforcement authority to assure that disposal will be completed as quickly as possible. Third, it requires monitoring of the disposal pile to demonstrate compliance with the radon emission limit.

As noted earlier, the numerical radon emission limit is the same as the UMTRCA standard at 40 CFR part 192, subpart D (subpart D) (although under UMTRCA, the limit is to be met through proper design of the disposal impoundment, and is to be implemented by DOE and NRC for the individual sites, while under the CAA, the standard is an emissions limit with compliance established through monitoring). However, the two year disposal requirement and the radon monitoring requirement are not separately required by the existing UMTRCA regulations.

II. Challenge to Subpart T

A. Petitions for Reconsideration

After promulgating subpart T, EPA received petitions for reconsideration filed by NRC, the American Mining Congress (AMC), Homestake Mining Co. Among other concerns set forth in these petitions is the argument that the overlap between EPA's subpart D of the UMTRCA regulations and subpart T of the CAA NESHAP has resulted in regulations that are unnecessarily burdensome and duplicative. It was also alleged that subpart T was unlawful because it was physically impossible to come into compliance with subpart T in the time required. While these petitions remain pending before EPA (at least in

[1] The term "release" is used in 40 CFR Part 192 subpart D. EPA intends "release" as used in today's amendments to subpart D and this rulemaking to mean "emission" as that term is used in 40 CFR part 61 subpart T.

part), EPA has taken several actions to address the issues they raise.

B. Section 112(d)(9) of the Clean Air Act Amendments of 1990 (the "Simpson Amendment")

In November 1990, Congress amended the CAA and included a new section, section 112(d)(9), which authorized EPA to decline to regulate radionuclide emissions from NRC-licensees under the CAA provided that EPA found, by rule, after consultation with NRC, that the regulatory scheme implemented by NRC protects the public health with an ample margin of safety. Today's action is needed to assist EPA in making the "Simpson Amendment" finding for NRC-licensed uranium mill tailings disposal sites, as it seeks to fill the timing gaps and other concerns that underlie EPA's 1989 decision to promulgate subpart T.

C. Memorandum of Understanding Between EPA and NRC

In July of 1991, EPA, NRC and the affected Agreement States entered into discussions over the dual regulatory programs established under UMTRCA and the CAA. In October 1991, those discussions resulted in a Memorandum of Understanding (MOU) between EPA, NRC and the Agreement States which outlines the steps each party will take to both eliminate regulatory redundancy and to ensure uranium mill tailings piles are closed as expeditiously as practicable. See 56 FR 55434 (MOU reproduced as part of proposal to stay subpart T); see also 56 FR 67537 (final rule to stay subpart T). The primary purpose of the MOU is to ensure that owners of uranium mill tailings disposal sites that have ceased operation, and owners of sites that will cease operation in the future, bring those piles into compliance with the 20 pCi/m²-s flux standard as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee) with the goal that all current disposal sites be closed and in compliance with the radon emission standard by the end of 1997, or within seven years of the date on which existing operations and standby sites enter disposal status. This goal comports with Congress' concern over timing as reflected in CAA section 112(i)(3), as amended.

In accordance with the MOU, the NRC and affected Agreement States have agreed to amend the licenses of all sites whose milling operations have ceased and whose tailings piles remain partially or totally uncovered. The amended licenses would require each mill operator to establish a detailed tailings closure plan for radon to include key closure milestones and a schedule for timely emplacement of a permanent radon barrier on all nonoperational tailings impoundments to ensure that radon emissions do not exceed a flux of 20 pCi/m²-s.

D. Current Regulatory Proceedings

On December 31, 1991, EPA took several steps towards fulfilling its responsibilities under the MOU and in implementing the "Simpson Amendment" by publishing three Federal Register (FR) notices. In the first notice (56 FR 67537), EPA published a final rule to stay the effectiveness of 40 CFR part 61, subpart T, as it applies to owners and operators of nonoperational uranium mill tailings disposal sites. The stay will remain in effect until the Agency rescinds the uranium mill tailings NESHAP at 40 CFR part 61, subpart T, and amends the UMTRCA standards at 40 CFR part 192 to ensure that the remaining rule are as protective of public health with an ample margin of safety, as would implementation of the CAA rule being rescinded. If EPA fails to complete these rulemakings by June 30, 1994, the stay will expire and the requirements of subpart T will become effective.

In a second notice published on December 31, 1991, the Agency proposed to rescind the NESHAPs for radionuclides that appear at 40 CFR part 61, subpart T, as they apply to nonoperational uranium mill tailings disposal sites licensed by the NRC or an Agreement State (56 FR 67561).

In the third notice, EPA published an advanced notice of proposed rulemaking to amend 40 CFR part 192, subpart D (56 FR 67569) to provide for site closure to occur as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee), and appropriate monitoring requirements for nonoperational uranium mill tailings piles. These amendments would ensure timely compliance and add monitoring requirements currently lacking in the UMTRCA regulations.

EPA has tentatively concluded that with today's modifications to the general UMTRCA regulations, as properly implemented by the NRC and the Agreement States to ensure specific, enforceable closure deadlines and monitoring requirements, the NRC's regulatory program for nonoperational uranium mill tailings piles would protect the public health with an ample margin of safety. However, prior to finalizing its rule to rescind subpart T, after NRC conforms its regulations to the UMTRCA rules as modified, and all nonoperational site licenses are modified in accordance therewith, EPA currently intends to propose a finding in the Federal Register and provide an additional 30 day comment period on whether the NRC regulatory program protects public health with an ample margin of safety. After this occurs, EPA is likely to take final action on its proposal to rescind 40 CFR part 61, subpart T.

Consistent with their responsibilities under the MOU, as well as EPA's proposal to rescind the NESHAP at 40 CFR part 61, subpart T, NRC and the affected Agreement States have agreed to amend the licenses of all nonoperational uranium mill tailings sites to ensure inclusion of schedules for emplacing a permanent radon barrier on the tailings impoundments, as well as interim milestones. To this end, NRC and the Agreement States have already requested the licensees to voluntarily seek amended licenses and have processed those requests. Moreover, NRC and the affected Agreement States have agreed to enforce the provisions of the amended licenses to ensure compliance with the new schedules for emplacing a permanent radon barrier, including interim milestones, and to ensure (and verify) compliance with the 20 pCi/m² – s flux standard.

III. Legal Basis For This Action

A. Statutory Authority for Today's Action

1. Emphasis Upon Expeditious Radon Control

The crux of this action is additional regulatory means to ensure expeditious and permanent control of radon emissions from uranium mill tailings piles after active milling operations have ceased. The importance of timeliness is inherent to UMTRCA. It is evidenced by Congress' action in amending UMTRCA to require prompt EPA rulemaking action, and by the actual terms of Title II. It is also evidenced by the legislative history for Title II, contained in UMTRCA's two-part House Report, which confirms UMTRCA's purpose to require expeditious public health protection. See H. Rep. 95–1480(I) (Aug. 11, 1978) ("HR 1") (Interior and Insular Affairs Committee) and H. Rep. 95–1480(II) (Sept. 30, 1978) ("HR 2") (Interstate and Foreign Commerce Committee), reprinted in 6 1978 U.S. Code Cong. & Admin. News at 7433–7478 (UMTRCA passed the House on October 14, 1978, and was signed into law on Nov. 8, 1978).

Both parts of the House Report mirror UMTRCA's statutory language by: (1)

Making clear that UMTRCA is primarily directed to health risks associated with radon-222 releases into the environment from uranium mill tailings disposal; and (2) calling for "every reasonable effort . . . to provide for the disposal, stabilization and control in a safe and environmentally sound manner of such (uranium mill) tailings." HR 1 at 11, HR 2 at 25; HR 1 at 13. Expeditious control of disposed tailings was paramount. At Title I sites, DOE (in consultation with EPA, NRC and the host State) was required to quickly remediate disposed tailings sites "in accord with necessity for reducing the most threatening hazards first." HR 1 at 15. The same expeditiousness was expected of title II disposal sites, which should "in all cases be controlled and regulated by States and the Commission, to the maximum extent allowed by the state of the art, to insure that the public and the environment will be protected from the hazards from the tailings for as long as they remain a hazard." Id. at 17–18. To further underscore the urgent purpose, the Report states:

> The committee is convinced that *all* tailings pose a potential and significant radiation health hazard to the public. Legislation is needed *now* to stabilize and control all such tailings in a safe and environmentally sound manner and to minimize or eliminate radiation health hazards to the public. . . .
>
> The committee, however, is also convinced that it would be a grievous and costly mistake to authorize a remedial program for inactive mill sites without also enacting regulatory legislation to control the *even more serious problem at active (i.e., Title II) mill sites.*

HR 2 at 29 (emphasis added).

This intent is implemented by provisions in title II. For instance, NRC implements EPA's general standards for title II through licensing of active tailings sites, which licenses must be timely modified to conform to environmental standards. NRC licenses issued or renewed after enactment of UMTRCA must contain the terms and conditions which the NRC determines to be necessary to assure that, prior to termination of the license the licensee will comply with decontamination, decommissioning, and reclamation standards prescribed by the NRC consistent with EPA's general standards. Any license in effect on the enactment date of 42 U.S.C. 2113(a) must either contain the terms and conditions of renewal, or comply with paragraphs (1) and (2) of section 2113(a) upon the termination of the license, whichever first occurs. See 42 U.S.C. 2113(a). This provision, which went into effect upon enactment, meant that Congress expected action at each title II site within three, or at the most five, years of enactment:

> For each licensee, such period (for implementing UMTRCA requirements) would be 3 years following enactment, or until the time at which the licensee's license would first be required to be renewed, whichever is the longer period " " ". In no case may such grace period be longer than 5 years following enactment of [UMTRCA].

HR 1 at 22; see also Id. at 23 (authorizing immediate expenditures by DOE and NRC on remediation).

Moreover, while timely implementation of Title II could financially or otherwise burden licensees, rather than delay implementation, Congress recognized these burdens and instructed NRC to take such hardships into account. H. Rep. No. 95–1480(I) at 44. While NRC was provided some authority to reasonably implement EPA's regulations on a site-by-site basis, it was assumed that in general the regulations would be implemented expeditiously.

The statute placed deadlines upon EPA, NRC and the Agreement States to promulgate and conform their respective regulations. See 42 U.S.C. 2021 and 2022. As noted above, EPA delay in promulgating standards led to UMTRCA's amendment in 1983, which added language requiring that EPA promulgate final Title II standards by October 1983 or lose the right to do so. 42 U.S.C. 2022(b) (as amended by Pub. L. 97–415); see H. Conf. Rep. No. 97–884 at 44–45, reprinted in 4 1982 U.S. Code Cong. & Admin. News at 3614–15 (expressing concern over EPA delay and emphasizing the importance of timeliness).

During the time period for NRC to conform its regulations to EPA's, NRC is not expected to "suspend the implementation or enforcement of its regulations." H. Conf. Rep. No. 97–884 at 45. Congress further made clear its view that UMTRCA implementation proceed immediately, going so far as to note that for title I sites "the '7-year clock' for the completion of cleanup . . . begins to run (for DOE) October 1, 1982." Id. As to title II sites, during the transition period for EPA to propose and promulgate regulations (and although its rules would be suspended during that period) "NRC is authorized to take such action as it may deem necessary, on a licensee-by-licensee basis, to protect public health, safety, and the environment." Id. at 47.

Thus, the legislative scheme is one of urgency. EPA is to promptly promulgate regulations that will promptly be implemented at each site through licensing by NRC. Radon emissions are identified as the primary threat to public health, and all tailings are to be controlled without exception.

In its February 1983 proposal for the existing UMTRCA rules, EPA took note of the January 1983 amendments to UMTRCA calling for EPA to promulgate rules or lose its authority to do so: "WE (sic) are therefore proceeding to establish these standards expeditiously." 48 FR 19585. EPA noted that of the 27 licensed uranium mills, only 16 were operating, 8 had recently closed, and others had been closed for some time. *Id.* EPA mirrored Congress in referencing radon emissions as the primary source of public health risk from these sites, and noted that radon emissions rates are currently at their peak. *Id.* EPA then listed the panoply of existing guidance materials, including the ALARA principle (that radiation exposure be limited to a level "as low as reasonably achievable"), and proposed that its UMTRCA standards "supplement" the existing guidance in a manner that

> (1) take(s) account of the tradeoffs between health, safety, and environmental and economic costs and benefits in a way that assures adequate protection of the public health, safety, and the environment; (2) can be implemented using *presently available techniques and measuring instruments*; and (3) are reasonable in terms of overall costs and benefits.

Id. at 19587 (emphasis added). In soliciting comment, EPA explicitly stated that it "*assumed (a) 15-year operating and 5-year dry-out*" period, and that the Agency was concerned about potentially significant risks to public health during those periods. *Id.* at 19600. Taken together—by basing its regulations on "presently available" means, and by expressing concern over the transition periods—EPA was assuming that compliance would occur expeditiously, without delay. While EPA recognized that there would be some lag in time before final closure could occur (i.e., to allow the tailings to dry), EPA certainly was not contemplating a period of additional or indefinite delay between ceased operations and final closure.

These purposes and assumptions were further augmented by EPA in taking final action on the rules. In listing the major provisions, EPA stated that the rule "(4) (r)equires that disposal of uranium mill tailings piles be designed so that, after disposal, radon emissions will be limited to 20 (pCi/m^2 – s)." 48 FR 45927. The tone is one of immediacy, suggesting that the requirements will apply as soon as possible, without any more delay than is necessary to implement the design

standard. This is emphasized by EPA noting the danger of lung cancer from inhaling radon emissions, a danger that exists as much today as it will later in time. *Id.* at 45928:

> Tailings pose a present hazard to human health. Beyond this *immediate* but generally limited health threat, the tailings are vulnerable to human misuse and to dispersal by natural forces for an essentially indefinite period.

Thus, EPA acted to immediately limit the present hazards and immediately halt hazards in the future by requiring that final closure expeditiously occur following ceased operations.

2. UMTRCA's Scheme and Purposes are Consistent With Today's Action Which Clarifies and Better Implements EPA's Existing Regulations

Today's action is intended to fill gaps and otherwise clarify EPA's existing regulations in order to ensure the expeditious, effective, and permanent control of radon emissions. By making minor amendments to EPA's existing regulations to explicitly require emplacement of a radon barrier as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee), interim milestones towards emplacement, and monitoring to assure that the design of the radon barrier is effective, EPA is better fulfilling Congress' purposes in enacting UMTRCA for Title II sites. As set forth above, Congress quite clearly was seeking, through UMTRCA, to protect public health from the dangers associated with radon emissions, both today and into the future, and has taken measures to require that EPA and the implementing agencies (DOE and NRC) do so expeditiously. Nothing in today's action is intended to modify the essential purposes or the essential aspects of the existing regulatory scheme; rather, EPA intends to better fulfill Congress' mandates by clarifying the existing requirements.

In promulgating the 1983 regulations, EPA intended and expected expeditious progress towards radon control once an active site ceased milling operations. EPA "assumed . . . (a) 5-year dry-out" period after milling operations had ceased, and based its regulations on that assumption. EPA did not, however, explicitly mandate a set period for drying out, in part due to the variable circumstances at each site, and also because expeditiousness was implicit to regulatory and statutory schemes, viewed as a whole.

Today's action does not seek to change EPA's rationale or scheme set forth in its 1983 rule. Rather, through minor amendments, it seeks to clarify and supplement that scheme in a manner that will better support its initial intent. Without setting forth mandatory schedules, EPA generally requires that once a site becomes nonoperational (i.e., when final closure begins), a barrier to control radon will be emplaced as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee). Interim milestones towards emplacement will support and better assure this progress, and post-emplacement monitoring will serve as confirmation that the design of the cover is working as intended.

B. Interpretive Caselow

Judicial review of EPA's and NRC's regulations has resulted in several written opinions by the United States Court of Appeals for the 10th Circuit. Those opinions interpret UMTRCA in much the same manner as does EPA—radon control is paramount, and Congress intends that EPA and NRC promulgate regulations to protect public health in a manner that has immediate and long lasting effect. More particularly, with exception only as to matters not at issue today, the courts upheld EPA's and NRC's regulations, including the agencies' consideration of costs and benefits.

It is worthwhile to review the four opinions interpreting UMTRCA: (1) *American Mining Congress* v. *Thomas*, 772 F.2d 617 (10th Cir. 1985) ("*AMC I*") (addressing EPA's UMTRCA inactive site regulations); (2) *AMC* v. *Thomas*, 772 F.2d 640 (10th Cir. 1985) ("*AMC II*") (addressing EPA's UMTRCA active site regulations); (3) *Quivira Mining Co.* v. *NRC*, 902 F.2d 781 (10th Cir. 1989) (addressing NRC's implementing criteria); and (4) *AMC* v. *NRC*, 902 F.2d 781 (10th Cir. 1990) ("*AMC III*") (addressing amendments to NRC's implementing criteria).

1. AMC I and AMC II

The inactive site regulations at issue in *AMC I* are codified at 40 CFR part 192, subparts A-C; the active site regulations at issue in *AMC II* are codified at 40 CFR part 192, subpart D, and are the subject of this action. Stated generally, the court in *AMC I* upheld EPA's inactive site regulations under UMTRCA, except as regards a failure to adopt provisions to protect surface and groundwater. The court in *AMC II* likewise upheld EPA's active site regulations (including the groundwater protection provisions), and in so doing relied upon the extensive statutory interpretation set forth in *AMC I*.

The court in *AMC I* began its analysis with UMTRCA's statutory purposes and structure, quoting the Congressional findings at 42 U.S.C. 7901(a) (set forth above). 772 F.2d. at 621. The court also noted that the 1982 UMTRCA amendments meant that Congress strongly desired that the public health protection regulations quickly go into effect: "Anxious to institute standards for the mill tailings, Congress also provided that should the EPA miss the extended deadline, remedial action would commence using the proposed standards." *Id.* at 623 (citations omitted).

The court addressed the contention that a prerequisite to any regulations is that EPA find that uranium mill tailings present a significant risk to public health. *Id.* at 627. The court disagreed, finding that Congress had already spoken strongly on this issue:

> It would be disingenuous to hold, after reading Congress' own statement of its findings and purposes, that the EPA must make its own determination of whether radon emissions present a risk significant to warrant regulation under the UMTRCA.

Id. The court also reviewed the legislative history, and concluded that "Congress chose to consider protecting future generations by enacting the UMTRCA and requiring the *immediate stabilization and disposal of those tailings.*" *Id.* (emphasis added).

After dispensing with other less pertinent issues, the court then addressed EPA's consideration of costs and benefits. In drawing a middle course between cost-benefit "optimization" (advanced by industry), and feasibility analysis (advanced by environmental groups), the court determined only that "EPA must consider the costs involved in the regulations and, with the guidance of Congress' intent, find that these costs bear a reasonable relationship to the benefits derived." *Id.* at 632.

In *AMC II*, the court applied its analysis to the subpart D active site regulations (that EPA is today clarifying and otherwise amending). 772 F.2d at 643. The court upheld EPA's regulations in their entirety, commenting that even though EPA's cost estimates were "significant" (if accurate), "Congress placed the responsibility for evaluating them upon the EPA without imposing a specific cost-benefit requirement." *Id.* at 646.

2. Quivira Mining and AMC III

The *Quivira Mining* case involved industry challenges to NRC's 1985 UMTRCA criteria, which conform their 1980 criteria to EPA's UMTRCA regulations for active sites as

promulgated in 1983 and upheld in *AMC I* and *AMC II*, discussed above (the underlying EPA regulations are the subject of this action). Industry primarily argued that NRC had failed to properly consider costs and benefits in promulgating its 1985 criteria. 866 F.2d at 1249. The court disagreed and upheld NRC's 1985 criteria, finding that NRC's consideration of costs in its 1980 rulemaking, coupled with EPA's consideration of costs in its 1983 active site rulemaking, adequately fulfilled the relatively deferential "cost-benefit rationalization" required by UMTRCA. *Id.* at 1250, 1257–58.

Regarding NRC's reliance upon EPA's earlier consideration of costs, the court acknowledged ambiguity as to whether UMTRCA requires that NRC consider costs "anew." *Id.* at 1257. The court resolved the ambiguity in favor of NRC, deferring to the agency's reasonable construction: "It is a permissible construction of the 'due consideration' command for the NRC to accept the EPA cost-benefit analysis for the revised criteria." *Id.* at 1258.

The court in *AMC III* addressed renewed industry challenges, this time to 1987 amendments to NRC's UMTRCA criteria. 902 F.2d at 782. Among other things, industry again pressed its argument that NRC had failed to adequately consider costs and benefits under UMTRCA. *Id.* at 783. And again the court held that because EPA had properly considered costs and benefits in 1983, "NRC performed its due consideration obligation here when it conformed to the EPA's regulations it was required to adopt." *Id.* at 784.

3. Caselaw Supports This Action

The judicial interpretations set forth above are relevant to this action in two ways: (1) The *AMC I* and *AMC II* decisions affirm Congress' strong interest in the expeditious control of radon at active (i.e., NRC-licensed) uranium mill tailing disposal sites; and (2) the *Quivira Mining* and *AMC III* decisions set forth the scope of cost-benefit considerations, including the propriety of relying upon earlier efforts to the extent the regulations are not charting a new course.

This action is directed at clarifying and better effecting EPA's intent in promulgating the 1983 rules that there not be any undue delay in controlling radon emissions once a disposal site ceases milling operations. The regulatory language, including interim milestones of progress towards control and monitoring provisions, fulfill Congress' intent regarding expeditious public health protection, and are intended to better implement EPA's 1983 rules.

EPA has duly considered costs in its draft Background Information Document (BID) which addresses EPA's consideration of costs and benefits. Few if any additional costs will be incurred by site owners or operators as a result of this final action, since timely radon control has always been required. Moreover, the cost analysis which EPA conducted for its 1983 rulemaking remains relevant, since today's action encompasses amendments to the UMTRCA regulations to clarify and enhance implementation of the fundamental regulatory scheme contained in EPA's 1983 UMTRCA rules.

C. The Settlement Agreement

Two additional items further explain the legal basis and rationale for today's final action: (1) Clean Air Act section 112 (including EPA rulemaking thereunder), and (2) a litigation settlement agreement thereunder, recently entered into by EPA and the affected industry and environmental groups.

In response to the risks associated with litigation, in light of the Simpson Amendment and in order to foster a consensus approach to regulation in this area, EPA commenced discussions with NRC, the American Mining Congress ("AMC"), Homestake Mining Co., the Environmental Defense Fund ("EDF") and the Natural Resources Defense Counsel ("NRDC"). Each has a direct interest in the matter, all but NRC had challenged EPA's promulgation and/or stay of subpart T and collectively, they had historically found little common ground in this area.

As a result (and as discussed above), in October 1991, a Memorandum of Understanding ("MOU") was signed by EPA and NRC setting forth the outline to a regulatory approach that would best resolve the differences between EPA and NRC. As contemplated by the MOU, on December 31, 1991, EPA took final action to stay and propose rescission of subpart T under section 112(d)(9), and to issue an advance notice of proposed rulemaking under UMTRCA. See 55 FR 67537, 67561 and 67569. In order to preserve its rights, EDF filed a lawsuit challenging the legality of the stay. *EDF v. Reilly*, No. 92–1082 (D.C. Cir.). Litigation had previously been filed by EDF, NRDC, AMC, Homestake and others, challenging subpart T. *AMC, et al. v. EPA*, Nos. 90–1058, 90–1063, 90–1068, and 90–1074 (D.C. Cir.). NRC, AMC and Homestake had also filed an administrative petition for reconsideration of subpart T.

Discussions continued with the litigants and NRC, and in February 1993, final agreement was reached to settle the pending litigation and the administrative proceeding, avoid potential future litigation, and otherwise agree to a consensus approach to regulations of NRC-licensed nonoperational uranium mill tailings disposal sites. See 58 FR 17230 (April 1, 1993) (notice announcing settlement agreement under CAA section 113(g)). A copy of the settlement agreement is also in the docket to this action.

The settlement agreement adds comprehensive detail to, and thereby continues, the approach set forth in the MOU. If implemented, the agreement will result in the expeditious control of radon-222 emissions at nonoperational uranium mill tailings disposal sites without the delays and resource expenditures engendered by litigation and contentious administrative process. It will enable EPA to fulfill the requirement of section 112 (d)(9) that EPA find, by rule, that the NRC regulatory program protects public health with an ample margin of safety. It does this, in part, by changing EPA's UMTRCA regulations such that public health will be as well protected under UMTRCA as would implementation of subpart T under the CAA.

Under the agreement, the pending litigation will not be dismissed until after certain terms in the agreement are fulfilled. Moreover, the agreement does not legally bind or otherwise restrict EPA's rights or obligations under law; rather, by its terms (paragraph 12), there is no recourse for a court order to implement the agreement. Indeed, the only remedy for failure to meet the terms of the final agreement is activation of the underlying litigation.

This action is consistent with the settlement agreement. By clarifying and filling gaps in EPA's UMTRCA regulations, EPA may, after the other elements in the settlement agreement are also implemented, be able to make the finding necessary to rescind subpart T under section 112(d)(9). If properly implemented, a unified regulatory scheme under UMTRCA has the advantage of avoiding confusing and unnecessarily duplicative regulation, while also protecting public health with an ample margin of safety.

IV. Amendments to 40 CFR Part 192, Subpart D

A. Limited Scope

Today's amendments to the general UMTRCA regulations for nonoperational uranium mill tailings disposal sites at 40 CFR part 192,

subpart D (subpart D) fill specific regulatory gaps that currently exist in subpart D. While subpart D, as currently written, requires eventual compliance with the 20 pCi/m²-s flux standard, it does not mandate that compliance occur by a specific date. Rather, as promulgated by EPA under subpart D and implemented by NRC pursuant to its regulations at 10 CFR part 40, appendix A, a title II site licensed by NRC or an Agreement State, could indefinitely continue to emit radon at the same numerical emission limit as allowed under the CAA. It was this possibility which compelled EPA to promulgate subpart T under CAA section 112. In addition, the current UMTRCA regulations call for an impoundment design that will likely achieve compliance with the 20 pCi/m²-s flux standard for 1000, or at least 200 years, but they do not include any requirement that monitoring occur to verify the efficacy of the design. This action also fills this gap.

The amendments are not intended to substantively alter the current regulatory scheme; instead, they are merely intended to fill regulatory gaps with respect to timely compliance and appropriate monitoring. Once these gaps are filled by today's amendments and are implemented by NRC, EPA may then have the basis for rescinding subpart T, thereby avoiding unnecessarily duplicative and burdensome regulation.

The Agency's finding, pursuant to section 112(d)(9) of the Clean Air Act Amendments of 1990, that NRC's regulatory program protects the public health with an ample margin of safety must include a finding that NRC and the affected Agreement States are implementing and enforcing, in significant part, the regulations governing disposal of tailings and the operating license requirements that establish milestones for emplacement of a permanent radon barrier that will achieve compliance with the 20 pCi/m²-s flux standard on a programmatic and a site-specific basis. The Agency intends "in significant part" to mean that the Agency must find that NRC or an affected Agreement State has not failed to implement and enforce the requirements in a manner that may reasonably be expected to materially (i.e., more than de minimis) interfere with compliance with the 20 pCi/m²-s standard as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee).

EPA is also amending subpart E of 40 CFR part 192 to avoid any inference that today's minor amendments to subpart D also apply to subpart E. EPA is only addressing timing and monitoring requirements in subpart D, and amending subpart E only for clarification. EPA's subpart D timing and monitoring requirements at §§ 192.32(a)(3)(i–v) and 192.32(4)(i–ii) apply only to uranium mill tailings. Since subpart E references the subpart D standards at § 192.41, EPA believes it necessary to amend subpart E by adding § 192.41(e). This amendment is intended only to clarify that the amendments do not apply to subpart E sites, and is not intended to alter the present regulatory scheme. EPA does not intend by this minor amendment to subpart E to make a finding that the amendments to subpart D are not suitable for management of thorium byproduct material. EPA is not precluded from addressing these issues at a later time for management of thorium byproduct material.

B. Closure Requirements

EPA is amending 40 CFR part 192, subpart D to require (1) emplacement of a permanent radon barrier constructed to achieve compliance with, including attainment of, the 20 pCi/m²-s flux standard by all sites that, absent rescission, would be subject to subpart T; (2) interim milestones to assure appropriate progress in emplacing the final radon barrier; and (3) that site closure occur as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee) after the impoundments cease operation, with a goal that this occur by December 31, 1997, for those nonoperational uranium mill tailings piles listed in the MOU between EPA and NRC (at 56 FR 67568), or seven years after the date on which the impoundments cease operation for all other piles.

EPA recognizes that the UMTRCA regulatory scheme encompasses a design standard. EPA is making minor amendments to this scheme to better facilitate implementation of the regulation without fundamentally altering the current method of compliance. Sites are required to construct a permanent radon barrier pursuant to a design to achieve compliance with the 20 pCi/m²-s flux standard. The new requirement for verifying the flux with monitoring is only meant to assure the efficacy of the design of the permanent radon barrier following construction and is not intended to relieve licensees of other existing requirements.

Site control shall be carried out in accordance with a written tailings closure plan (radon), and in a manner which ensures that closure activities are initiated as expeditiously as practicable considering technological feasibility (including factors beyond the control of licensees). The tailings closure plan (radon), either as originally written or subsequently amended, will be incorporated into the individual site licenses, including provisions for and amendments to the milestones for control, after NRC or an affected Agreement State finds that the schedule reflects compliance as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee). Under the Settlement Agreement, which NRC has agreed in principle to uphold, such finding will constitute final agency action. The compliance schedules are to be developed consistent with the targets set forth in the MOU as reasonably applied to the specific circumstances of each site with a goal that final closure occur by December 31, 1997, for those nonoperational uranium mill tailings piles listed in the MOU between EPA and NRC (at 56 FR 67568), or seven years after the date on which the impoundments cease operation for all other piles. These schedules must include key closure milestones and other milestones which are reasonably calculated to promote timely compliance with the 20 pCi/m²-s flux standard. The phrase "milestones" refers to enforceable dates by which action, or the occurrence of an event, is required for purposes of achieving compliance with the 20 pCi/m²-s flux standard.

Milestones which are not reasonably calculated to advance timely compliance with the radon air emissions standard, e.g. installation of erosion protection and groundwater corrective actions, are not relevant to the (radon) tailings closure plans. In addition today's final regulations will require that licensees ensure that radon closure milestone activities, such as wind blown tailings retrieval and placement on the pile, interim stabilization (including dewatering or the removal of freestanding liquids and recontouring), and radon barrier construction, are constructed and undertaken to achieve compliance with, including attainment of, the 20 pCi/m²-s flux standard as expeditiously as practicable considering technological feasibility.

The goal of this regulation is for existing sites, or those that become nonoperational in the future, to achieve compliance as expeditiously as practicable considering technological feasibility (including factors beyond the control of licensees) within the time periods set forth in the MOU, including

Attachment A thereto, and for new sites to achieve compliance no later than seven years after becoming nonoperational. However, if the NRC or an Agreement State makes a finding that compliance with the 20 pCi/m²-s flux standard has been demonstrated through appropriate monitoring, and after providing an opportunity for public participation, the performance of the milestone(s) may be extended. Only under this circumstance and during the period of the extension must compliance with the 20 pCi/m²-s flux standard be demonstrated each year. Additionally, licensees may request, based upon cost, that the final compliance date for emplacement of the permanent radon barrier, or relevant milestone set forth in the applicable license or incorporated in the (radon) tailings closure plan, be extended. The NRC or an affected Agreement State may approve such a request if it finds, after providing the opportunity for public participation, that (1) the licensee is making good faith efforts to emplace a permanent radon barrier constructed to achieve the 20 pCi/m²-s flux standard; (2) such delay is consistent with the definition of "available technology;" and (3) such delay will not result in radon emissions that are determined to result in significant incremental risk to the public health. Such a finding should be accompanied by new deadlines which reasonably correspond to the target dates identified in Attachment A of the MOU. (56 FR 67569)

NRC may grant an extension of time to comply with either of the following deadlines: (1) "Performance of milestones" based upon a finding that compliance with the 20 pCi/m²-s flux standard has been met, or (2) "Final compliance" beyond the date or relevant milestone based upon cost. These two bases upon which NRC may grant an extension are mutually exclusive, that is a request for a specific extension may be based on one or the other but not both grounds. If a milestone is being extended for a basis other than cost, such an extension may be granted if NRC finds that compliance with the 20 pCi/m²-s flux standard has been demonstrated using EPA Method 115 or an NRC approved alternative, and the site must continue to demonstrate compliance on an annual basis. However, if a licensee requests extension of the final compliance date (or relevant milestone) based upon cost, such an extension may only be granted if NRC finds that the three criteria specified in § 192.32(a)(3)(iii) are met. EPA believes this interpretation is consistent with the reality of annual risks from radon emissions, as well as the risks associated with allowing sites to fail to close within the two year period specified in subpart T through negotiated compliance agreements.

Any extensions of the final compliance date based upon cost will be granted on a site-specific basis. If a licensee requests an extension based upon cost, technology may not be used as a basis for granting the extension unless the costs are grossly excessive, as measured by normal practice within the industry. EPA recognizes that the emissions from the pile may exceed the 20 pCi/m²-s flux standard pending final compliance, but believes these increases will be minimal and of limited duration. In addition, such extensions will only be granted if NRC or an Agreement State finds that the emissions caused by the delay will not cause significant incremental risk to the public health. EPA believes these emissions should not exceed those emissions which could occur under subpart T if compliance agreements were negotiated. Under the circumstances, EPA believes affording authority for extensions of the final compliance date based upon cost provides adequate protection of the public health.

EPA expects the NRC and Agreement States to act consistently with their commitment in the MOU and provide for public participation on proposals or requests to (1) incorporate radon tailings closure plans or other schedules for effecting emplacement of a permanent radon barrier into licenses, and (2) amend the radon tailings closure schedules as necessary or appropriate for reasons of technological feasibility (including factors beyond the control of the licensees). Under the terms of the MOU, NRC should do so with notice timely published in the **Federal Register**. In addition, consistent with the MOU, application may be made to NRC for public participation on these matters pursuant to 10 CFR 2.206. EPA also expects the Agreement States to provide comparable opportunities for public participation pursuant to their existing authorities. While EPA desires to keep the public informed and provide for public participation, such provisions are not intended to transform the licensing (and amendment) process into notice and comment rulemaking in accordance with Administrative Procedure Act (APA) requirements.

Under the existing regulatory scheme, NRC and the affected Agreement States may have the authority to allow, at a licensee's request, a portion of a site to remain accessible, during the closure process to accept byproduct material as defined in section 11(e)(2) of the AEA, (e.g., wastes from in situ mining operations, or from groundwater corrective action programs), or to accept materials from other sources that are similar to the physical, chemical and radiological characteristics of the in situ uranium mill tailings and associated wastes. In addition, NRC and the affected Agreement States may authorize a portion of a site to remain accessible to accept section 11(e)(2) byproduct material after placement of a permanent radon barrier over a portion of a pile or impoundment. Nothing in today's action alters, ratifies, or otherwise affects this authority. However, EPA notes that, consistent with the MOU and the Settlement Agreement, such authorization shall not to be used as a method to impede emplacement of the permanent radon barrier over the remainder of the site in a manner to achieve compliance with the 20 pCi/m²-s flux standard, averaged over the entire pile or impoundment as demonstrated by the licensee's monitoring described below.

EPA does not intend to substantively alter the 1983 scheme with today's action, but instead seeks to clarify and supplement that scheme to fill a regulatory gap which currently exists. By acknowledging NRC's apparent authority to allow a portion of a site to remain accessible for disposal, EPA is acknowledging a current NRC practice. EPA believes that placement of "materials similar to the physical, chemical and radiological characteristics of uranium mill tailings and associated wastes from other sources" on a portion of an impoundment is consistent with on-going disposal activities currently authorized by NRC. See 57 FR 20525. For instance, mining uranium by using uranium solution extraction processes produces "discrete (radioactive) surface wastes" which, although they do not have the same physical form as uranium mill tailings, have historically been disposed of in uranium mill tailings impoundments. See Definition of "Byproduct Material" at 10 CFR 40.4(a–1). In addition to wastes from in situ uranium mining operations and groundwater corrective actions, wastes which arise from processing non-source material for its source material content may produce wastes which are physically and chemically similar to tailings, and may be disposed of in a tailings impoundment. For instance, the tailings produced from processing ore for its copper content may produce tailings containing greater than 0.05 percent uranium, a source material, and thus, would be subject to licensure by the

NRC. See 57 FR at 20527. EPA understands that NRC's disposal of associated wastes and other byproduct materials in uranium mill tailings impoundments will not be used as a means of circumventing other applicable regulations such as 40 CFR Part 61, subpart W. See 57 FR at 20533. Moreover, while NRC may grant such authorization, licensees may not use this authorization to avoid emplacing a permanent radon barrier and complying with the 20 pCi/m²-s flux standard. In addition, under the Settlement Agreement NRC or an Agreement State may authorize a portion of a site to remain accessible for disposal of byproduct material after placement of a permanent radon barrier provided NRC or the Agreement State makes a finding, constituting final agency action and providing for public participation, that the site will continue to achieve the 20 pCi/m²-s flux standard when averaged over the entire impoundment. Even if a portion of a site is authorized to remain accessible for disposal of byproduct materials during the closure process or after placement of a permanent barrier consistent with the Settlement Agreement, as described above, this will not cause a nonoperational uranium mill tailings disposal site to revert to an operational site as defined by 40 CFR 192.31(q).

As intended by EPA, the phrase "as expeditiously as practicable considering technological feasibility," means as quickly as possible considering: (1) The physical characteristics of the tailings and sites; (2) The limits of available technology; (3) the need for consistency with mandatory requirements of other regulatory programs; and (4) factors beyond the control of the licensee, as explained below. While this phrase does not preclude economic considerations to the extent provided by the phrase "available technology," it also does not contemplate utilization of a cost-benefit analysis in setting compliance schedules. The radon control compliance schedules are to be developed consistent with the targets set forth in the MOU as reasonably applied to the specific circumstances of each site.

EPA has added an additional definition in the final rule to clarify ambiguities surrounding use of the term "permanent radon barrier." That term is now defined as "the final radon barrier constructed to achieve compliance with, including attainment of, the limit on releases of radon-222 in § 192.32(b)(1)(ii)."

The term "available technology" includes technologies and methods for emplacing a permanent radon barrier on nonoperational uranium mill tailings disposal sites, but does not include extraordinary measures or techniques that would impose grossly excessive costs as measured by practice within the industry (or one that is reasonably analogous), and provided there is reasonable progress towards emplacement of the permanent radon barrier (such as, by way of illustration only, unreasonable overtime, staffing or transportation requirements, etc. considering normal practice in the industry; laser fusion of soils, etc.). To determine whether costs are grossly excessive, the closure cost estimate contained within the licensee's (radon) tailings closure plan may be used as a baseline. However, costs which are determined to be greater than the estimated costs contained in the plan will not automatically be considered grossly excessive.

The phrase "factors beyond the control of the licensee" includes factors causing delay in the schedule in the applicable license for timely emplacement of the permanent radon barrier to achieve compliance with the 20 pCi/m²-s flux standard (and 10 CFR part 40, appendix A, criteria 6) despite the good faith efforts of the licensee to achieve compliance. These factors may include, but are not limited to, physical conditions at the site; inclement weather or climatic conditions; an act of God; an act of war; a judicial or administrative order or decision, or change to the statutory, regulatory, or other legal requirements applicable to the licensee's facility that would preclude or delay the performance of activities required for compliance; labor disturbances; any modifications, cessation or delay ordered by state, federal or local agencies; delays beyond the time reasonably required in obtaining necessary governmental permits, licenses, approvals or consent for activities described in the (radon) tailings closure plan proposed by the licensee that result from agency failure to take final action after the licensee has made a good faith, timely effort to submit legally sufficient applications, responses to requests (including relevant data requested by the agencies), or other information, including approval of the tailings closure plan by NRC or the affected Agreement State; and an act or omission of any third party over whom the licensee has no control.

The term "operational" means that a uranium mill tailings pile or impoundment is being used for the continued placement of uranium byproduct material or is in standby status for such placement. A tailings pile or impoundment is operational from the day that uranium byproduct material is first placed in the pile or impoundment until the day final closure begins. When final closure begins a site is no longer in operation as that term is defined in 40 CFR 61.251(e) and 40 CFR 61 subpart W no longer applies. The closure plan contains a description of how final closure will be conducted. See 40 CFR 264.111.

C. Appropriate Monitoring

After emplacement of a permanent radon barrier designed and constructed to achieve compliance with, including attainment of, the 20 pCi/m²-s flux standard, the licensee shall conduct appropriate monitoring and analysis of the radon flux through the barrier. This monitoring will verify that the design of the permanent radon barrier is effective in ensuring that emissions of radon-222 will not exceed compliance with the 20 pCi/m²-s, as contemplated by 40 CFR 192.32(b)(1)(ii). Appropriate monitoring shall be conducted pursuant to the procedures described in 40 CFR part 61, appendix B, method 115, or any other measurement method proposed by a licensee and approved by NRC or the affected Agreement State as being at least as effective as EPA Method 115 in demonstrating the effectiveness of the permanent radon barrier in achieving compliance with the 20 pCi/m²-s flux standard.

EPA intends that the permanent radon barrier be designed to ensure sustained compliance with the 20 pCi/m²-s flux standard by all sites, but does not propose continuous emissions monitoring. Rather, a single monitoring event may well suffice to verify the design of the permanent radon barrier to ensure continued compliance.

If the NRC or an Agreement State extends the time for performance of milestones after making a finding that compliance with the 20 pCi/m²-s flux standard has been demonstrated by appropriate monitoring, compliance with the 20 pCi/m²-s flux standard must be demonstrated each year during the period of the extension.

When a site's tailings closure plan (radon) provides for phased installation of the radon barrier, the licensee will be allowed to conduct radon flux monitoring for each portion of the tailings area on which the radon barrier has been placed by conducting flux monitoring on the closed portion as described above.

V. Discussion of Comments and Response to Comments From NPR

A public hearing on the notice of proposed rulemaking (NPR) (58 FR

32174, June 8, 1993) was held in Arlington, Virginia on June 21, 1993. Representatives from NRC and AMC testified at the hearing. Written comments were also received from EDF, AMC, NRC, the Texas Water Commission (affected Agreement State), a few companies and an individual. To the extent they are specifically restricted to EPA's modifications to its UMTRCA regulations, the comments have been evaluated by the Agency, and a summary and response are set forth below. Some comments, not addressed here, are directed to EPA's earlier promulgation of subpart T, a rulemaking decision that is not being revisited by the amendments to subpart D. EPA responded to many of those comments when the Agency promulgated subpart T. The comments have also been repeated in subsequent petitions to reconsider that action, which are pending before the Agency. These petitions might be addressed or otherwise resolved should 40 CFR part 61, subpart T be rescinded.

1. General

In response to the NPR, environmental groups and industry generally support the proposed amendments to the regulations promulgated under UMTRCA at 40 CFR part 192 subpart D. Various commenters suggested specific revisions to the proposed regulation and preamble, as well as to the draft Background Information Document (BID). EPA has carefully reviewed all comments and suggested revisions; revising the regulation, preamble and BID where deemed appropriate.

2. Section 112(d)(9) of the Clean Air Act, as Amended ("Simpson Amendment")

Comment: The Simpson Amendment "mandates" EPA to eliminate duplicative regulation under the Clean Air Act if the NRC regulatory program adequately protects the public health.

Response: EPA disagrees with the commenters' assertion that the Simpson Amendment is mandatory. The Simpson Amendment, section 112(d)(9) of the CAA, authorizes EPA to decline to regulate radionuclide emissions from facilities licensed by the NRC or Agreement States, under section 112 of the CAA, provided that EPA determines, by rule, after consultation with NRC, that the regulatory scheme implemented by NRC protects the public health with an ample margin of safety.

3. NRC Regulatory Scheme

Comment: The existing NRC regulatory program protects the public health with an ample margin of safety and provides sufficient basis for EPA to rescind 40 CFR 61 subpart T pursuant to the Simpson Amendment; specifically, EPA's timing and monitoring concerns, the subject of these amendments, are adequately addressed in NRC's regulations at 10 CFR part 40 and Appendix A thereto. The Memorandum of Understanding (MOU) between EPA and NRC merely serves to strengthen NRC's authority under the existing regulatory program.

Response: EPA is conducting a separate rulemaking on the issue of rescission of the CAA radionuclide NESHAP at 40 CFR 61 subpart T, and the adequacy of the existing NRC regulatory program as a basis for such rescission will be addressed in that rulemaking. For a discussion of EPA's view on whether the current NRC regulatory program protects the public health with an ample margin of safety, and would thus support rescission of subpart T, see EPA's proposal to rescind subpart T, 56 FR 67561 (December 31, 1991). Comments on the adequacy of the current NRC regulatory program to support rescission of subpart T will be addressed in that rulemaking, and are not relevant to the regulatory changes adopted today.

EPA does not believe that NRC's current regulations at 10 CFR part 40 and appendix A of part 40 adequately address EPA's concerns on timing and monitoring. Both EPA's UMTRCA regulations (40 CFR part 192 subpart D) and NRC's implementing regulations did not require placement of covers by specific dates or verification that radon flux through the covers met the flux standard. These issues led to EPA's promulgation of the CAA NESHAP at 40 CFR part 61 subpart T. EPA promulgated subpart T in 1989 to address the timing issue and provide for verification of the 20 pCi/m^2-s flux standard, noting that "(S)ome piles have remained uncovered for decades emitting radon. (A)lthough recent action has been taken to move toward disposal of these piles, some of them may still remain uncovered for years" (54 FR 51683, December 15, 1989).

Although commenters suggest that 10 CFR 40.63, and 10 CFR 40.42(c)(2) (iv), (i), and (iii) adequately address EPA's timing and monitoring concerns, neither EPA's general standards nor NRC's implementing criteria compel sites to proceed toward final closure by a certain date. Moreover, neither EPA's general UMTRCA regulations, nor NRC's implementing criteria require appropriate monitoring to demonstrate the efficacy of the closure design to ensure compliance with the 20 pCi/m^2-s standard. In fact, as indicated in footnote 1 to 40 CFR 192.32(b)(1) promulgated in September 1983, the flux standard was expressly intended as a design standard, for which monitoring after installation was not required. (48 FR 45947, October 7, 1983). Thus, EPA believes that the UMTRCA standards should be amended to include timing requirements and a provision to confirm that the radon flux through the cover meets the flux standard.

Comment: It appears EPA is acknowledging and concurring in NRC's regulation of "similar byproduct material."

Response: EPA is recognizing a current NRC practice that allows a portion of a site to remain accessible for disposal in the preamble of the NPR. EPA believes that placement of "materials similar to the physical, chemical and radiological characteristics of uranium mill tailings and associated wastes from other sources" on a portion of an impoundment is consistent with on-going disposal activities currently authorized by NRC. See 57 FR 20525. Nothing in today's action is intended to ratify, alter or otherwise affect this authority.

4. EPA's Legal Rationale for the Proposed Amendments

Comment: Some commenters claim that EPA's discussion of the legislative scheme mischaracterizes the potential problem involved. These commenters objected to use of terms such as "urgency" and "immediacy," as there was no significant increase in public health risk without long term exposure to radon emissions at the levels projected.

Response: The commenter misunderstands the Agency's discussion of the legislative scheme. As described in the proposal, Congress placed great emphasis on expeditious action by EPA to impose controls on the disposal of the uranium mill tailings. This is reflected most dramatically in Congress' decision to remove EPA's authority to issue standards under 42 U.S.C. 2022(b) if EPA failed to promulgate final title II standards by the end of October 1983. In addition, Congress was clearly concerned that EPA standards lead to the expeditious control of radon emissions from uranium mill tailings piles. The relevant case law reflects this interpretation of the statute. See section III supra for a more detailed discussion of these points.

Congress believed that uranium mill tailings presented a major threat to public health, based on the extremely long radioactive decay process

associated with these piles. They amounted for all practical purposes to a "perpetual hazard." H. Rep. No. 95–1480, 95th Cong., 2nd Sess. 11, reprinted in 1978 U.S. Code Cong. & Ad. News 7433. Given the long term nature of the problem, and the prior history of minimal federal regulation of mill tailings piles, Congress required that "every reasonable effort be made by the States, the Federal Government, and private industry to provide for the disposal, stabilization, and control" of such mill tailings. H. Rep. No. 95–1480, 95th Cong., 2nd Sess. 13, reprinted in 1978 U.S. Code Cong. & Ad. News 7435. The regulatory changes adopted today are in line with this goal—they will require the control of radon emissions through expeditious emplacement of a permanent barrier. Today's regulations implement Congressional intent, and in no way contradicts the fact that uranium mill tailings present a long term threat to the public health.

5. Rescission of Subpart T

Comment: A few commenters expressed concern and suggested that EPA is not committed to rescinding subpart T.

Response: The amendments to subpart D are related to EPA's action to rescind subpart T, the NESHAP for radon emissions from the disposal of uranium mill tailings at nonoperational sites which was promulgated on December 15, 1989, as applied to NRC-licensees. EPA has demonstrated its commitment to avoid duplicative regulation of these sites and to ensure uranium mill tailings disposal piles are closed as expeditiously as practicable by executing the MOU with NRC (and the affected Agreement States) and the settlement agreement with EDF, NRDC, AMC, and Homestake Mining Co. The MOU and the settlement agreement provide the regulatory approach for this action. EPA has also proposed rescission of subpart T. See 56 FR 67561 (December 31, 1991).

EPA believes that today's amendments eliminate an existing deficiency in the regulatory scheme, and may enable EPA to rescind subpart T, providing a single consistent framework which can be implemented by NRC. EPA has tentatively concluded that the amendments to subpart D, if effectively implemented and enforced by NRC and the Agreement States to ensure specific enforceable closure deadlines and monitoring requirements, may enable EPA to make the finding required by the Simpson Amendment. EPA reiterates its commitment to the terms of the MOU and the settlement agreement.

Comment: EPA should rescind subpart T simultaneously with today's action.

Response: EPA is not rescinding subpart T with today's action. EPA is not prepared at this time to make the finding pursuant to the Simpson Amendment that the public health is protected with an ample margin of safety at this time. EPA does not intend to take final action on the proposed rescission of subpart T until after NRC and the Agreement States complete the license amendments as specified in the MOU and NRC conforms its implementing regulations to today's amendments to subpart D, and other conditions of the MOU occur. EPA plans to publish an additional notice in the **Federal Register** and provide for a 30 day comment period on whether the NRC regulatory program protects public health with an ample margin of safety, including whether: (1) EPA has effectively promulgated appropriate revisions to 40 CFR part 192, subpart D; (2) NRC's regulations at 10 CFR part 40, appendix A, either already adequately and appropriately implement the revisions to EPA's regulations, or may reasonably be expected to do so prior to rescission of subpart T; (3) the revision of NRC and Agreement State licenses reflect these new requirements; and (4) any judicial challenge to EPA or NRC regulations which is pending that presents a significant risk of interference with full compliance with the MOU and the settlement agreement.

6. Settlement Agreement

Comment: The regulatory program for nonoperational uranium mill tailings sites is best served by EPA adopting the proposed regulations to the extent the proposal is consistent with the settlement agreement executed between EPA, EDF, NRDC, AMC, Homestake Mining Co., and individual site owners (NRC agreed in principle by letter).

Response: The agreement adds comprehensive detail to, and continues the approach set forth in the MOU executed between EPA and NRC in October 1991. The settlement agreement settles the pending litigation and administrative proceeding, avoids potential future litigation, and otherwise provides a consensus approach to regulation of NRC-licensed nonoperational uranium mill tailings disposal sites. See 58 FR 17230 (April 1, 1993).

EPA believes this action is consistent with the settlement agreement. By clarifying and filling gaps in EPA's UMTRCA regulations, EPA may, after the other elements in the settlement agreement are also implemented, be able to make the finding necessary to rescind subpart T under the Simpson Amendment. The agreement does not legally bind or otherwise restrict EPA's rights or obligations under law; rather, by its terms (paragraph 12), there is no recourse for a court order to implement the agreement.

Comment: Proposed rule § 192.32(a)(3)(ii) which addresses the extension of performance milestones and the final compliance date based on cost is confusing because it combines two separate provisions of the settlement agreement. The commenter recommends separate sections in the regulation to clarify any confusion surrounding this provision. The commenter also interpreted proposed § 192.32(a)(3)(ii) such that a site need not meet the 20 pCi/m²-s standard in all cases before any extension of either interim or final deadlines may be granted by NRC or an Agreement State.

Response: EPA agrees with the commenter that § 192.32(a)(3)(ii) as proposed is confusing because it combines the two separate instances in which extensions of milestones may be granted by the NRC or an Agreement State. EPA has revised the final regulation to incorporate the extension provisions in two separate paragraphs in § 192.32(a)(3) (ii) and (iii), to more fully reflect the intent of the settlement agreement described above.

EPA generally agrees with the commenter's interpretation of § 192(a)(3) (ii) and (iii) that a site need not satisfy the 20 pCi/m²-s standard in all cases before NRC or an Agreement State may approve any extension of the interim milestone or the final closure date. Section 192(a)(3) (ii) and (iii) are based upon the regulatory approach set forth in settlement agreement paragraphs III.2.i. and III.2.j., and they establish the criteria for granting an extension when a site meets the 20 pCi/m²-s standard and the criteria for an extension of the final compliance date or relevant milestone based upon cost. The criteria for an extension based upon cost does not include the requirement that the site meet the 20 pCi/m2-s standard. However, it does include other criteria designed to protect the public health.

The commenter also noted that NRC or an Agreement State may extend the date for emplacement of the radon barrier based on "factors beyond the control of the licensee," as that term is implicit in the definition of "as expeditiously as possible." EPA understands that under subpart D's provisions there is no bar to NRC or an Agreement State reconsidering a prior decision establishing a date for

emplacement of the radon barrier that meets the standard of "as expeditiously as possible." Such reconsideration could, for example, be based on the existence of factors beyond the control of the licensee, or on a change in any of the various factors that must be considered in establishing a date that meets the "as expeditious as practicable" standard of § 192.32(a)(3)(i). However EPA stresses that such a change in circumstances would not automatically lead to an extension. It would be incumbent on NRC or an Agreement State to evaluate all the factors relevant under § 192.32(a)(3)(i) before it could change a previously established milestone or date for emplacement of the final barrier, and any new date would have to meet the standard set out in § 192.32(a)(3)(i). Finally, NRC's and Agreement States' authority to reconsider previously established milestones or dates would include authority to shorten or speed up such dates, as well as extend them. EPA also expects that public participation consistent with that level of participation provided in the MOU and the settlement agreement will be afforded the public by NRC and the Agreement States in amending the licenses due to "factors beyond the control of the licensee," or for any other basis.

7. Proposed Amendments

7.1. Prescriptiveness of Proposed Amendments

Comment: One commenter suggested that EPA's amendments were more prescriptive than they should be given EPA's authority to promulgate general environmental standards. Specifically, the details of particular licensing processes should be left to the NRC and Agreement States.

Response: The regulations adopted today are within EPA's UMTRCA authority, and do not impermissibly infringe on NRC and the Agreement States.

As spelled out by Congress when it amended the Atomic Energy Act in 1978, EPA "shall, by rule, . . . promulgate . . . standards of general application for the protection of the public health, safety, and the environment" from hazards associated with uranium mill tailings at active processing or disposal sites. 42 U.S.C. 2022(b)(1).[2] Congress also required that the NRC conform its requirements to these standards, 42 U.S.C. 2022(b)(1), and assigned responsibility for the implementation and enforcement of EPA's UMTRCA standards to the NRC, in the licensing activities, and to the Agreement States. 42 U.S.C. 2022(e). The text of the statute thus indicates that Congress intended to grant broad, general authority to EPA in setting standards under UMTRCA, limited only by the requirement that they be of "general application" and that they be aimed at the "protection of the public health, safety, and the environment."

The legislative history for UMTRCA provides important additional insight into Congressional intent on the limits of this standard setting authority, stemming from the assignment of different responsibilities to EPA and the NRC. Congress intended that EPA's "standards and criteria should not intersect any detailed or site-specific requirements for management, technology or engineering methods on licensee or on the Department of Energy." See H.Rep. No. 95–1480, 95th Cong., 2nd Sess. 17, reprinted in 1978 U.S. Code Cong. & Ad. News 7433, 7439. Also see the House Report at 46, 1978 U.S. Code Cong. & Ad. News 7473 ("The committee stresses that the EPA standards are not to be site-specific"). From this, it is clear that EPA is to establish criteria or standards that are generally applicable, but should not promulgate requirements that dictate the specific management, technology, or engineering methods required at specific sites.

Viewing EPA's authority in this light, the revisions to subpart D promulgated herein clearly fall within the range of standards authorized by Congress. They are not site-specific, and instead apply to any and all sites subject to subpart D. The regulations define when a permanent radon barrier has to be placed on the site, and require appropriate monitoring. A written plan detailing the steps for closure in compliance with these standards is to be incorporated into the individual site license, including a schedule for key closure milestone activities. The regulations also set out the criteria for extensions of these milestones. None of these requirements are site specific, and they do not dictate the management, technology, or engineering methods required for any specific site.

The revisions adopted herein do provide for site-specific variability in their application. For example, in implementing the standard of "as expeditiously as practicable considering technological feasibility," EPA expects that different sites will establish different schedules and dates for emplacement of the permanent radon barrier. This site-specific variability, however, does not transform the generally applicable standard into an unlawful site-specific standard. These site-specific results stem from the application of the general standard to the variety of circumstances found at different sites. Likewise, EPA's criteria for an extension of a milestone or for keeping sites open during or after the closure process establish general standards applicable to all sites. While not all licensees are expected to seek such extensions or authority, any such request will be measured against the generally applicable standard in these regulations. The substantive and procedural requirements for such extensions or authorizations are designed to establish generally applicable requirements that EPA believes will best ensure the proper consideration of all relevant factors in acting on such a request.

The relevant case-law supports EPA's belief that it has authority to adopt these standards and criteria. In *AMC I*,[3] the court reviewed among other things a rule allowing exceptions from the general standards for inactive sites. That regulation authorized such exceptions for the implementing agencies so long as the selected remedial action came as close to meeting the otherwise applicable standard as was reasonable under the circumstances. This provision clearly allowed site-specific variability, based on the peculiar circumstances of a site. The court upheld this regulation as generally applicable standards were in place and, if necessary, a court could determine in a specific case whether an exception was reasonable. The court's main concern was whether EPA had promulgated general standards that would apply to a case or had delegated such authority to the implementing agency. It was satisfied that EPA had acted lawfully, as EPA had promulgated a general standard applicable absent an exception, and had promulgated what amounted to a general standard applicable in those limited situations involving exceptions.

In this case, EPA has likewise promulgated a generally applicable standard, along with detailed criteria applicable for those limited circumstances where an exception is sought. EPA's requirements clearly provide an adequate basis for a court to determine, for example, in a specific case whether an extension for emplacement of the permanent radon barrier was properly granted. In fact,

[2] Congress granted similar authority to EPA with respect to inactive sites selected by the Department of Energy under Title I of UMTRCA. 42 U.S.C. 2022(a).

[3] *American Mining Congress v. Thomas*, 772 F.2d 617 (10th Cir. 1985) (addressing EPA's UMTRCA regulations for inactive sites).

EPA's general criteria for evaluating such exceptions would appear to be much more like a generally applicable standard than the broad authority for exceptions approved in *AMC I*, and should therefore easily meet the threshold established by that court.

7.2. Seven Year Goal

Comment: The MOU goal specifying closure of nonoperational uranium mill tailings sites by the end of 1997, or within seven years of the date on which existing operations and standby sites enter disposal status is not a regulatory requirement.

Response: The primary purpose of the MOU is to ensure that owners of uranium mill tailings disposal sites that have ceased operation and are not in standby status, and owners of sites that will cease operation in the future, bring those piles into compliance with the 20 pCi/m²-s flux standard as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee). That is the regulatory requirement adopted herein. EPA's and NRC's goal is that all current disposal sites be closed and in compliance with the radon emission standard by the end of 1997, or within seven years of the date on which existing operations and standby sites enter disposal status. EPA believes this regulatory requirement is fully consistent with the goals expressed in the MOU.

In accordance with the MOU, the NRC and affected Agreement States have amended the licenses of most sites whose milling operations have ceased and whose tailings piles remain partially or totally uncovered. Pursuant to the MOU and the regulations adopted today, the amended licenses require each mill operator to establish a detailed tailings closure plan for radon to include key closure milestones and a schedule for timely emplacement of a permanent radon barrier on all nonoperational tailings impoundments to ensure that radon emissions do not exceed a flux of 20 pCi/m²-s.

This action amends 40 CFR part 192, subpart D to require (1) emplacement of a permanent radon barrier by all sites that, absent rescission, would be subject to subpart T; (2) interim milestones to assure appropriate progress in emplacing the final radon barrier; and (3) that site closure occur as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee) after the impoundments cease operation. EPA believes that this regulatory approach is consistent with the goal in the MOU that this occur by December 31, 1997, or seven years after the date on which operating impoundments cease operations.

7.3. Permanent Radon Barrier

Comment: The term "permanent" should be revised to read "final radon barrier" to distinguish the barrier used to comply with the standard from any interim barriers placed during the closure process.

Response: EPA believes the term "permanent radon barrier" to be appropriate. However, to clarify any ambiguities surrounding use of this term, "permanent radon barrier" has been defined to mean "the final radon barrier constructed to achieve compliance with, including attainment of, the limit on releases of radon-222 in § 192.32(b)(1)(ii)."

7.4. Tailings Closure Plan (Radon)

Comment: It is essential that the Tailings Closure Plan (Radon) be incorporated in individual site licenses and that the plan contain a schedule for compliance.

Response: EPA agrees with this comment, and both the proposed and final regulations reflect this requirement. EPA understands that the NRC and affected Agreement States have amended most of the licenses of sites whose milling operations have ceased and whose tailings piles remain partially or totally uncovered pursuant to the MOU executed between EPA, NRC and the affected Agreement States. Pursuant to the MOU and the regulations adopted today, these license amendments should establish a detailed tailings closure plan for radon, including key closure milestones and a schedule for timely emplacement of a permanent radon barrier on all nonoperational tailings impoundments to ensure that radon emissions do not exceed a flux of 20 pCi/m² – s. These schedules must include key closure milestones and other milestones which are reasonably calculated to promote timely compliance with the 20 pCi/m² – s flux standard. The phrase "milestones" refers to enforceable dates by which action, or the occurrence of an event, is required for purposes of achieving compliance with the 20 pCi/m² – s flux standard. Milestones which are not reasonably calculated to advance timely compliance with the radon air emissions standard, e.g. installation of erosion protection and groundwater corrective actions, are not relevant to the tailings closure plans (radon).

7.5. Monitoring

Comment: It is not accurate to refer to a "monitoring" requirement, since a single event is sufficient.

Response: Today's amendments require that monitoring occur after construction of the permanent radon barrier. Subpart T requires monitoring to occur only once to demonstrate compliance with the standard. EPA believes that conducting a single test and analysis of the radon emissions through the radon barrier typically will be sufficient to verify that the design of the permanent radon barrier is effective in ensuring that emissions of radon-222 do not exceed 20 pCi/m²-s as required by § 192.32(b)(1)(ii). Each tailings closure plan (radon) will establish the amount of testing and analysis required.

Comment: The timing of the monitoring requirement is ambiguous. Response: Today's amendments require monitoring to verify the efficacy of the design of the permanent radon barrier upon emplacement of such barrier. The details on timing of the monitoring requirement are left to NRC.

Comment: EPA's specification of Method 115 in the monitoring requirement limits flexibility.

Response: 40 CFR 192.32(a)(4)(i) requires monitoring to be conducted using either EPA Method 115 or any other measurement method proposed by a licensee that NRC approves as being at least as effective as Method 115 in demonstrating the efficacy of the permanent radon barrier. (emphasis added) EPA believes that this regulation does not unduly restrict flexibility as it provides for alternative methods.

Comment: EPA's Method 115 references another document, "Radon Flux Measurements on Gardiner and Royster Phosphogypsum Piles Near Tampa and Mulberry, Florida" (EPA 520/5–85–029), which should be readily available.

Response: This document is available for public inspection and is included in Docket A–91–67 which contains the rulemaking record for this action. The docket is available for public inspection between the hours of 8 a.m. and 4 p.m., Monday through Friday, in room M1500 of Waterside Mall, 401 M Street SW., Washington, DC 20460. A reasonable fee may be charged for copying.

8. Amendment of 40 CFR 192 Subpart E

Comment: In addition to amending subpart D, EPA should amend 40 CFR 192 subpart E to exclude the application of the subpart D amendments to the subpart E requirements for disposal of thorium mill tailings.

Response: EPA agrees and is amending subpart E by adding a new

§ 192.41(e) to clarify EPA's intent that the subpart D timing and monitoring requirements at §§ 192.32(a)(3)(i–v) and 192.32(4)(i–ii) apply only to uranium mill tailings. This amendment is necessary as subpart E references the subpart D standards in 192.41, the only purpose of this amendment is to clarify that the amendments to subpart D do not apply to subpart E sites, and is not intended to alter the present regulatory scheme under subpart E. By amending subpart E, EPA is not making a determination that the timing and monitoring requirements imposed for subpart D sites would be improper for subpart E sites. This rulemaking is only intended to address subpart D sites, and is not intended to make substantive decisions concerning subpart E sites. The amendment to subpart E is designed to do no more than preserve the status quo, without prejudging or prejudicing the appropriateness of any future modifications to subpart E.

9. NRC Waiver Authority and Citizens Suits Provisions

Comment: NRC waiver authority and the lack of citizens suits provisions under UMTRCA provide insufficient basis for EPA to rescind subpart T.

Response: As noted previously, EPA is conducting a separate rulemaking on the issue of rescission of the CAA radionuclide NESHAP at 40 CFR 61 subpart T, and the adequacy of the existing NRC regulatory program as a basis for such rescission will be addressed in that rulemaking. For a discussion of EPA's view on whether the current NRC regulatory program protects the public health with an adequate margin of safety, and would thus support rescission of subpart T, see EPA's proposal to rescind subpart T, 56 FR 67561 (December 31, 1991). Comments on the adequacy of the current NRC regulatory program to support rescission of subpart T will be addressed in that rulemaking, and are not relevant to the regulatory changes adopted today.

10. Technical

10.1. EPA's Risk Analysis Set Forth in the Background Information Document (BID)

Comment: EPA's risk analysis set forth in the BID is flawed because the "potential risk from radon emitted during the two-year period (December 15, 1989—December 15, 1991) cannot be meaningfully compared to potential increased risks from radon emitted until sites are closed according to the dates set forth in the MOU."

Response: The purpose of this rulemaking is to incorporate the timing and monitoring provisions of subpart T into EPA's UMTRCA regulations, thereby potentially providing the basis for eventual rescission of subpart T. It is reasonable to assume the baseline risks and costs are those that would have resulted had the piles been covered by December 15, 1991, pursuant to subpart T. The modeling period used for both the baseline and for covering the piles by the MOU dates is from December 15, 1991 to December 15, 2061. This period does not include the time between promulgation, December 15, 1989, and the date the piles were to be covered, December 15, 1991.

Comment: EPA based its analysis of the health risk posed by uranium mill tailings disposal sites on a number of studies dealing with miners, however, the evaluation of the working level month (WLM) dosimetry for that population is not correct. BEIR IV was not sufficiently critical of the data on which it based its analysis of the risk of inhaling radon daughters, specifically it overestimated the risk to Swedish iron miners, and to the Beaverlodge and Ontario uranium miners.

Response: EPA relied on the National Academy of Sciences' BEIR IV report and the 1987 report by the National Institute for Occupational Safety and Health (NIOSH) in addition to other relevant studies in its risk analysis. Given the broad uncertainty inherent in the risk assessment, any potential overestimate would not change EPA's conclusion on the risk from mill tailings. In fact, the conclusion of one of the studies cited in the comments, a reassessment of the Beaverlodge uranium miners, states: "[u]nless new studies significantly reduce the range of uncertainty, there is little justification for changing the limits for exposure to radon * * * progeny * * * for occupational exposures." *Review of Risk Estimates for Inhalation of Radon Progeny by Miners: Presentation by the Atomic Energy Board of Canada (AEBC) before the ICRP Main Commission*, Nov. 1992.

Comment: The radon emissions from uncovered subpart T uranium mill tailings piles is not a significant risk to the public health.

Response: In this rulemaking EPA is not revisiting the determinations made in either the subpart T or UMTRCA rulemakings that uranium mill tailings piles need to be covered to protect the public health. In addition, the court in *AMC I* made it clear there was no requirement that EPA show a significant risk from uranium mill tailings prior to regulation of the tailings. *American Min. Congress* v. *Thomas*, 772 F.2d 617, 629 (10th Cir. 1985).

10.2. Extensions

Comment: Extensions of time and the practical aspects of closure occurring on schedule are not addressed in the BID accompanying the proposed rule.

Response: Any attempt to model extensions in the closure dates agreed to in the MOU would require the arbitrary selection of those piles to be granted extensions and choices of closure dates. There is no limit to the number of these combinations. EPA believes that the better procedure is to develop the model based on the dates in the MOU, and to recognize that extensions in the closure dates would increase total emissions and reduce present value costs.

10.3. Correlation Between 1 pCi/g of Radium to the Radon Flux

Comment: The BID relies on a false assumption that a concentration of radium of 1 pCi/g will result in 1 pCi/m^2-s radon flux from the tailings.

Response: EPA recognizes that the one-to-one radium to radon correlation is an approximation. However, there is no scientific consensus on what the value should be. Numerous factors enter into estimating the emanation rate. The rate varies according to tailings characteristics such as grain structure, grain size and moisture content. It also is affected by meteorological conditions such as temperature and barometric pressure. The impact of these factors on the emanation rate is not well understood. The rate can be expected to vary across individual piles, and from pile to pile. The Agency considered it prudent to assume a rate the tailings would be expected to exhibit at the time they are dry, prior to constructing the cover.

10.4. Equilibrium Factor

Comment: EPA does not accurately address the equilibrium factor in the BID.

Response: EPA uses a nominal value of 0.5 (rather than the 0.4 value used by the National Council for Radiation Protection (NCRP)) for the indoor equilibrium factor for radon entering houses directly from underground (see Technical Support Document for the 1991 Citizen's Guide to Radon, pp. 2–32, 33). However, when a house is located downwind from the radon source, ingrowth of radon decay products will occur, and some of these decay products will infiltrate the house. As the radon and its decay products move downwind, ingrowth will continue until an equilibrium between continued ingrowth and loss of decay

products due to ground deposition and participation scavenging is achieved. Therefore, the equilibrium fraction will increase with time, and with distance traveled, until a maximum is reached. This equilibrium will be maintained indefinitely. At a wind speed of 3.5 m/s, this maximum is calculated to be reached at about 20,000 meters (or about 12.5) miles. Since most of the population exposed to radon from the uranium mill tailings piles is more than 12.5 miles downwind, the value used in the BID is believed to be appropriate.

Comment: EPA's discussion of the equilibrium factor in the BID does not address support of the theoretical estimates utilized by monitoring data.

Response: The decay of radioactive materials such as radon is well understood. The diffusion of radon in the atmosphere is also well known; however it is a very complex phenomena. It is traditionally accepted that the atmospheric dispersion of radon and its decay products be modeled because of the difficulty of measuring their concentrations at points long distances downwind from sources such as mill tailings piles. EPA's dispersion models are based on accepted scientific principles and have received peer review. Given the difficulty inherent in the measurement of radon and its decay products in the atmosphere, we see little justification in requiring the extraordinary efforts that would necessarily be expended in accumulating monitoring data on emissions from mill tailings piles.

10.5. Moisture Content of Type B Soil

Comment: The 7.5 percent value for moisture content of type B soil used in EPA's BID should be revised to 6 percent to be consistent with NRC's Regulatory Guide 3.64.

Response: EPA used a moisture content of 7.5 percent for type B soil in estimating the emanation of radon through earthen covers on mill tailings piles. This assumed moisture content for type B soil has been used in all of EPA's rulemakings under UMTRCA and the CAA since 1983. The diffusion of radon through covers is a very complex phenomena that is affected by a large number of variables. For example, a small change in the assumed porosity of the cover material, a change within NRC's accepted range of these values (NUREG/CR–3533), would change the estimated emanation rate to a greater extent than would a change in the assumed moisture content from 7.5 percent to 6 percent. Given the sensitivity of the estimated diffusion rate to variation in the input parameters, EPA does not believe that a change to NRC's default value of 6 percent for the moisture content for type B soil is warranted.

10.6. Computer Codes Used to Assess Health Effects

Comment: It appears EPA is modifying existing regulations without benefit of rulemaking by discussing "Cap–88–EPA" in the BID, since "Comply-R" was the computer code used to assess health effects under the current CAA regulations (NESHAPs).

Response: The computer code "Comply-R" was not used in the 1989 NESHAPs rulemaking for estimating health risks from uranium mill tailings piles. EPA used "AIRDOS" for estimating the health risks from these piles in the 1989 rulemaking, which gives results essentially the same as "Cap–88–EPA."

10.7. Evaporation Ponds

Comment: Some commenters strongly support allowing evaporation ponds to remain open after emplacement of the permanent radon barrier.

Response: EPA received many comments to the Advanced Notice of Proposed Rulemaking (ANPR) noting that evaporation ponds should be excluded from the expeditious cover requirement. EPA reiterates that the Agency does not intend the expeditious radon cover requirement to extend to areas where evaporation ponds are located, even if on the pile itself, to the extent that such evaporation pond is deemed by the implementing agency (NRC or an affected Agreement State) to be an appropriate aspect to the overall remedial program for the particular site. Rather, the evaporation pond area may be covered to control radon after it is no longer in use and ready for covering. EPA believes the overall public health interest in comprehensively resolving the problems associated with each site is best served by requiring that the radon cover be expeditiously installed in a manner that does not require interruption of this aspect of remediation. Moreover, the ponds themselves serve as an effective radon barrier. EPA believes that provided all other parts of the pile are covered with the radon barrier, compliance with the 20 pCi/m^2-s standard will result, and this will be maintained by covering the evaporation pond area when it is no longer in use.

11. Miscellaneous

11.1. Amending UMTRCA

Comment: One commenter objects to an apparent EPA request to amend UMTRCA to include timing requirements.

Response: EPA did not intend to request that UMTRCA be amended when it stated in the preamble to the proposed rule "[T]hus the Agency believes that UMTRCA should be amended * * * in order to find that the NRC program protects the public with an ample margin of safety * * * *". EPA was referring to the proposed amendments to the UMTRCA regulations promulgated by EPA at 40 CFR 192 subpart D.

11.2. Provisions for the Impacts of Flooding at the Sites

Comment: EPA has not duly considered the possible implications of the current Midwest flooding on uranium mill tailings disposal sites, particularly one site located near the Colorado River.

Response: The MOU and this rule are directed to timely compliance with the 20 pCi/m^2-s flux standard and not erosion protection and groundwater remediation. This rulemaking addresses changes to the UMTRCA regulations which EPA believes are requisite to a finding that the NRC regulatory program protects the public health with an ample margin of safety. Milestones which are not reasonably calculated to advance timely compliance with the 20 pCi/m^2-s standard, e.g. installation of erosion protection and groundwater corrective actions, are not relevant to the tailings closure plans (radon) and are not the subject of this action. EPA does not intend today's amendments to subpart D to address groundwater and erosion protection concerns and in addition understands that no nonoperational uranium mill tailings disposal site was in jeopardy due to the recent flooding in the Midwest. EPA understands NRC and the Agreement States consider the possibility of flooding at a particular site in reviewing the site's reclamation and closure plan. Furthermore, EPA understands that the magnitude of floods considered by the NRC are based upon the probable maximum flood, or the probable maximum precipitation event. These events generally have a much lower probability of occurrence and larger magnitude for a given drainage area than the events that occurred in the Midwest this year. Design practices for protecting uranium mill tailings covers from erosion are described in NRC's *Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites* (1990).

VI. Miscellaneous

A. Paperwork Reduction Act

In light of NRC's conforming regulations and any recordkeeping regulations adopted thereunder, and the designation in UMTRCA of NRC and Agreement State authority to implement and enforce such regulations, any issues under the Paperwork Reduction Act are properly considered by NRC in its conforming regulations.

B. Executive Order Requirements

This action was submitted to the Office of Management and Budget (OMB) under Executive Order 12291, which was revoked by Executive Order 12866 on September 30, 1993. This action was not classified as "major" under Executive Order 12291. Therefore, the Agency did not prepare a Regulatory Impact Analysis (RIA). OMB completed their review under Executive Order 12866. OMB's written comments (if any) are available in the public docket.

C. Regulatory Flexibility Analysis

Section 603 of the Regulatory Flexibility Act, 5 U.S.C. 603, requires EPA to prepare and make available for comment an "initial regulatory flexibility analysis" which describes the effect of this rule on small business entities. However, section 605(b) of the Act provides that an analysis not be required when the head of an Agency certifies that the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.

It was found in the 1989 rule for 40 CFR Part 61, subpart T that there was no significant impact on small business entities. There has been no change in this finding, since no new tailings piles have been constructed since 1989. Pursuant to section 605(b) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), EPA certifies that this rule will not have a significant economic impact on a substantial number of small entities.

List of Subjects in 40 CFR Part 192

Air pollution control, Environmental protection, Groundwater protection, Hazardous constituents, Hazardous materials, Radiation protection, Radium, Radon, Thorium and Uranium.

Dated: October 29, 1993.

Carol M. Browner,

Administrator.

Part 192 of chapter I, subchapter F of title 40 of the Code of Federal Regulations is amended as follows:

PART 192—[AMENDED]

1. The authority citation for part 192 continues to read as follows:

Authority: Sec. 275 of the Atomic Energy Act of 1954, 42 U.S.C. 2022, as added by the Uranium Mill Tailings Radiation Control Act of 1978, Public Law 95–604, as amended.

Subpart D—[Amended]

2. Section 192.31 is amended by adding new paragraphs (k), (l), (m), (n), (o), (p), and (q) to read as follows:

§ 192.31 Definitions and cross-references.

* * * * *

(k) *As expeditiously as practicable considering technological feasibility* means as quickly as possible considering: the physical characteristics of the tailings and the site; the limits of available technology; the need for consistency with mandatory requirements of other regulatory programs; and factors beyond the control of the licensee. The phrase permits consideration of the cost of compliance only to the extent specifically provided for by use of the term "available technology."

(l) *Permanent Radon Barrier* means the final radon barrier constructed to achieve compliance with, including attainment of, the limit on releases of radon-222 in § 192.32(b)(1)(i).

(m) *Available technology* means technologies and methods for emplacing a permanent radon barrier on uranium mill tailings piles or impoundments. This term shall not be construed to include extraordinary measures or techniques that would impose costs that are grossly excessive as measured by practice within the industry or one that is reasonably analogous, (such as, by way of illustration only, unreasonable overtime, staffing or transportation requirements, etc., considering normal practice in the industry; laser fusion, of soils, etc.), provided there is reasonable progress toward emplacement of a permanent radon barrier. To determine grossly excessive costs, the relevant baseline against which cost increases shall be compared is the cost estimate for tailings impoundment closure contained in the licensee's tailings closure plan, but costs beyond such estimates shall not automatically be considered grossly excessive.

(n) *Tailings Closure Plan (Radon)* means the Nuclear Regulatory Commission or Agreement State approved plan detailing activities to accomplish timely emplacement of a permanent radon barrier. A tailings closure plan shall include a schedule for key radon closure milestone activities such as wind blown tailings retrieval and placement on the pile, interim stabilization (including dewatering or the removal of freestanding liquids and recontouring), and emplacement of a permanent radon barrier constructed to achieve compliance with the 20 pCi/m²-s flux standard as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee).

(o) *Factors beyond the control of the licensee* means factors proximately causing delay in meeting the schedule in the applicable license for timely emplacement of the permanent radon barrier notwithstanding the good faith efforts of the licensee to achieve compliance. These factors may include, but are not limited to, physical conditions at the site; inclement weather or climatic conditions; an act of God; an act of war; a judicial or administrative order or decision, or change to the statutory, regulatory, or other legal requirements applicable to the licensee's facility that would preclude or delay the performance of activities required for compliance; labor disturbances; any modifications, cessation or delay ordered by state, Federal or local agencies; delays beyond the time reasonably required in obtaining necessary governmental permits, licenses, approvals or consent for activities described in the tailings closure plan (radon) proposed by the licensee that result from agency failure to take final action after the licensee has made a good faith, timely effort to submit legally sufficient applications, responses to requests (including relevant data requested by the agencies), or other information, including approval of the tailings closure plan by NRC or the affected Agreement State; and an act or omission of any third party over whom the licensee has no control.

(p) *Operational* means that a uranium mill tailings pile or impoundment is being used for the continued placement of uranium byproduct material or is in standby status for such placement. A tailings pile or impoundment is operational from the day that uranium byproduct material is first placed in the pile or impoundment until the day final closure begins.

(q) *Milestone* means an enforceable date by which action, or the occurrence of an event, is required for purposes of achieving compliance with the 20 pCi/m² – s flux standard.

3. Section 192.32(a) is amended by redesignating paragraphs (a)(3) and (a)(4) as paragraphs (a)(5) and (a)(6), and by adding new paragraphs (a)(3) and (a)(4), to read as follows:

§ 192.32 Standards.

(a) * * *

(3) (i) Uranium mill tailings piles or impoundments that are nonoperational and subject to a license by the Nuclear Regulatory Commission or an Agreement State shall limit releases of radon-222 by emplacing a permanent radon barrier. This permanent radon barrier shall be constructed as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee) after the pile or impoundment ceases to be operational. Such control shall be carried out in accordance with a written tailings closure plan (radon) to be incorporated by the Nuclear Regulatory Commission or Agreement State into individual site licenses.

(ii) The Nuclear Regulatory Commission or Agreement State may approve a licensee's request to extend the time for performance of milestones if, after providing an opportunity for public participation, the Nuclear Regulatory Commission or Agreement State finds that compliance with the 20 pCi/m^2-s flux standard has been demonstrated using a method approved by the NRC, in the manner required in 192.32(a)(4)(i). Only under these circumstances and during the period of the extension must compliance with the 20 pCi/m^2-s flux standard be demonstrated each year.

(iii) The Nuclear Regulatory Commission or Agreement State may extend the final compliance date for emplacement of the permanent radon barrier, or relevant milestone, based upon cost if the new date is established after a finding by the Nuclear Regulatory Commission or Agreement State, after providing an opportunity for public participation, that the licensee is making good faith efforts to emplace a permanent radon barrier; the delay is consistent with the definition of "available technology" in § 192.31(m); and the delay will not result in radon releases that are determined to result in significant incremental risk to the public health.

(iv) The Nuclear Regulatory Commission or Agreement State may, in response to a request from a licensee, authorize by license or license amendment a portion of the site to remain accessible during the closure process to accept uranium byproduct material as defined in section 11(e)(2) of the Atomic Energy Act, 42 U.S.C. 2014(e)(2), or to accept materials similar to the physical, chemical and radiological characteristics of the in situ uranium mill tailings and associated wastes, from other sources. No such authorization may be used as a means for delaying or otherwise impeding emplacement of the permanent radon barrier over the remainder of the pile or impoundment in a manner that will achieve compliance with the 20 pCi/m^2-s flux standard, averaged over the entire pile or impoundment.

(v) The Nuclear Regulatory Commission or Agreement State may, in response to a request from a licensee, authorize by license or license amendment a portion of a pile or impoundment to remain accessible after emplacement of a permanent radon barrier to accept uranium byproduct material as defined in section 11(e)(2) of the Atomic Energy Act, 42 U.S.C. 2014(e)(2), if compliance with the 20 pCi/m^2-s flux standard of § 192.32(b)(1)(ii) is demonstrated by the licensee's monitoring conducted in a manner consistent with § 192.32(a)(4)(i). Such authorization may be provided only if the Nuclear Regulatory Commission or Agreement State makes a finding, constituting final agency action and after providing an opportunity for public participation, that the site will continue to achieve the 20 $pCi/m2-s$ flux standard when averaged over the entire impoundment.

(4)(i) Upon emplacement of the permanent radon barrier pursuant to 40 CFR 192.32(a)(3), the licensee shall conduct appropriate monitoring and analysis of the radon-222 releases to demonstrate that the design of the permanent radon barrier is effective in limiting releases of radon-222 to a level not exceeding 20 pCi/m^2-s as required by 40 CFR 192.32(b)(1)(ii). This monitoring shall be conducted using the procedures described in 40 CFR part 61, Appendix B, Method 115, or any other measurement method proposed by a licensee that the Nuclear Regulatory Commission or Agreement State approves as being at least as effective as EPA Method 115 in demonstrating the effectiveness of the permanent radon barrier in achieving compliance with the 20 pCi/m^2-s flux standard.

(ii) When phased emplacement of the permanent radon barrier is included in the applicable tailings closure plan (radon), then radon flux monitoring required under § 192.32(a)(4)(i) shall be conducted, however the licensee shall be allowed to conduct such monitoring for each portion of the pile or impoundment on which the radon barrier has been emplaced by conducting flux monitoring on the closed portion.

4. Section 192.32(b)(1), footnote number 1 is revised to read as follows:

§ 192.32 Standards.

* * * * *

(b) * * *

(1) * * *

[1]The standard applies to design with a monitoring requirement as specified in § 192.32(a)(4).

Subpart E—[Amended]

5. Section 192.41 is amended by revising the introductory text and adding paragraph (e) to read as follows:

§ 192.41 Provisions.

Except as otherwise noted in § 192.41(e), the provisions of subpart D of this part, including §§ 192.31, 192.32, and 192.33, shall apply to thorium byproduct material and:

* * * * *

(e) The provisions of § 192.32(a) (3) and (4) do not apply to the management of thorium byproduct material.

[FR Doc. 93-27707 Filed 11-12-93; 8:45 am]
BILLING CODE 6560-50-P

Enclosure 2

[7590-01]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 40

RIN 3150-AE77

Uranium Mill Tailings Regulations; Conforming NRC Requirements to EPA Standards

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations governing the disposal of uranium mill tailings. These changes conform existing NRC regulations to regulations published by the Environmental Protection Agency (EPA). The conforming amendments are intended to clarify the existing rules by ensuring timely emplacement of the final radon barrier and by requiring appropriate verification of the radon flux through that barrier. This action is related to another action by EPA to rescind its National Emissions Standard for Hazardous Air Pollutants (NESHAPs) for radon emissions from the licensed disposal of uranium mill tailings at non-operational sites.

EFFECTIVE DATE: This regulation becomes effective on (30 days after publication in the Federal Register).

FOR FURTHER INFORMATION CONTACT: Catherine R. Mattsen, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-3638.

SUPPLEMENTARY INFORMATION:

Background

On April 29, 1983 (48 FR 9584), EPA proposed general environmental standards for uranium and thorium mill tailings sites licensed by NRC or one of its Agreement States. Final standards were published on September 30, 1983 (48 FR 45926), and codified in 40 CFR part 192, subparts D and E. On October 16, 1985 (50 FR 41852), NRC published amendments to 10 CFR part 40 to conform its rules to EPA's general standards in 40 CFR part 192, as it affected matters other than ground water protection. Both NRC and EPA regulations included a design standard requiring that the tailings or wastes from mill operations be covered to provide reasonable assurance that radon released to the atmosphere from the tailings or wastes will not exceed an average of 20 picocuries per square meter per second (pCi/m^2s) for 1000 years, to the extent reasonably achievable, and in any case, for 200 years.

Neither the EPA standards of 1983 nor NRC's conforming standards of 1985 established compliance schedules to ensure that the tailings piles would be expeditiously closed and the 20 pCi/m^2s standard would be met within a reasonable period of time. *Criterion 6* of appendix A to part 40 was initially only a design standard and did not require verification that the radon releases meet this "flux standard."

In response to the separate requirements of the Clean Air Act (CAA), EPA promulgated additional standards in 40 CFR part 61 (subpart T for non-operational sites) to ensure that the piles would be closed in a timely manner (December 15, 1989; 54 FR 51654). This regulation applies only to uranium mill tailings and requires, in addition to the flux standard of 20 pCi/m^2s, that once a uranium mill tailings pile or impoundment ceases to be operational, it must be closed and brought into compliance with the standard within two years of the effective date of the standard (by December 15, 1991) or within two years of the day it ceases to be operational, whichever is later. If it were not physically possible for the mill owner or operator to complete disposal within that time, EPA contemplated a negotiated compliance agreement with the mill owner or operator pursuant to EPA's enforcement authority in order to assure that disposal would be completed as quickly as possible. Subpart T of 40 CFR part 61 also requires testing for all piles within the facility to demonstrate compliance with the emission limit and specifies reporting and recordkeeping associated with this demonstration.

Subpart T was challenged by a number of parties including the American Mining Congress (AMC), the Environmental Defense Fund (EDF), and the Natural Resources Defense Council (NRDC). In addition, AMC, the NRC, and others filed an administrative petition for reconsideration of subpart T. Among the concerns of these parties was the argument that the overlap between EPA's subpart D of 40 CFR part 192 (based on the Uranium Mill Tailings Radiation Control Act (UMTRCA)) and subpart T of 40 CFR part 61 (based on the CAA) resulted in regulations that are unnecessarily burdensome and duplicative. Among other things, the industry also alleged that subpart T was unlawful because it was physically impossible to come into compliance with subpart T in

the time required. In November 1990, Congress amended the CAA by including a new provision, section 112(d)(9). This provision authorized EPA to decline to regulate radionuclide emissions from NRC licensees under the CAA if EPA found, by rule, after consultation with NRC, that the regulatory program implemented by NRC protects the public health with an ample margin of safety.

In July 1991, EPA, NRC, and the affected Agreement States began discussions concerning the dual regulatory programs established under UMTRCA and the CAA. In October 1991, those discussions resulted in a Memorandum of Understanding (MOU) between EPA, NRC, and the affected Agreement States. The MOU outlines the steps each party would take to both eliminate regulatory redundancy and to ensure uranium mill tailings piles are closed as expeditiously as practicable. (The MOU was published by EPA on October 25, 1991 (56 FR 55434) as part of a proposal to stay subpart T.) The primary purpose of the MOU is to ensure that the owners and operators of all disposal sites that have ceased operation and those owners and operators of sites that will cease operation in the future effect emplacement of a final earthen cover to limit radon emissions to a flux of no more than 20 Pci/m^2s as expeditiously as practicable considering technological feasibility. The MOU presents a goal that all current disposal sites be closed and in compliance with the radon emission standard by the end of 1997 or within seven years of the date on which existing operations cease and standby sites enter disposal status. The attachment to the MOU lists specific target dates for completing emplacement of final earthen covers to limit radon emissions from non-operational tailings impoundments. These target dates were based on consultations with the licensed mill operators.

On December 31, 1991, the EPA published three Federal Register notices: a final rule to stay the effectiveness of 40 CFR part 61, subpart T, as it applies to owners and operators of uranium mill tailings disposal sites licensed by the NRC or an Agreement State (56 FR 67537); a proposed rule to rescind 40 CFR part 61, subpart T, as it applies to uranium mill tailings disposal sites licensed by the NRC or an Agreement State (56 FR 67561); and an advance notice of proposed rulemaking to amend 40 CFR part 192, subpart D, to require that site closure occur as expeditiously as practicable considering technological feasibility and to add a demonstration of compliance with the design standard for radon releases (56 FR 67569). The stay of effectiveness of subpart T is to remain in effect until EPA takes final action to rescind subpart T and amend 40 CFR part 192, subpart D, to ensure that the remaining rules are as protective of the public health with an ample margin of safety as implementation of subpart T, or until June 30, 1994. If EPA fails to complete these rulemakings by that date, the stay will expire and the requirements of subpart T will become effective.

The stay of effectiveness of subpart T was also challenged. Discussions continued between EPA, the litigants, and the NRC. In February 1993, final agreement was reached to settle the pending litigation and the administrative proceeding, avoid potential future litigation, and otherwise agree to a consensus approach to regulation of licensed non-operational uranium mill tailings disposal sites. EPA announced the settlement agreement in a notice of April 1, 1993 (58 FR 17230). The NRC was not a signatory to this agreement but agreed in principle with the settlement agreement. The settlement agreement further defined steps for implementing the MOU. It called for the NRC to amend its regulations in appendix A of part 40 to be substantially

consistent with a specific regulatory approach described in the settlement agreement. It also described actions to be taken by the parties to the agreement which were intended to implement the MOU and eliminate further litigation with respect to subpart T.

On June 8, 1993 (58 FR 32174), the EPA proposed minor amendments to 40 CFR part 192, subpart D, to ensure timely emplacement of the final radon barrier and to require monitoring to verify radon flux levels (a one-time verification). In that notice, the EPA stated its tentative conclusion that if those amendments to 40 CFR part 192, subpart D, were properly implemented by NRC and the Agreement States to ensure specific, enforceable closure schedules and radon level monitoring, the NRC's regulatory program for non-operational uranium mill tailings piles would protect the public health with an ample margin of safety. The EPA also noted its intent to publish a proposed finding for public comment on whether the NRC program protects public health with an ample margin of safety before taking final action on rescission of 40 CFR part 61, subpart T.

On November 3, 1993 (58 FR 58657), the NRC published a proposed revision to appendix A of part 40 intended to conform to EPA's proposed revisions to 40 CFR part 192, subpart D. On November 15, 1993 (58 FR 60340), the EPA published a final effective rule amending 40 CFR part 192, subpart D. This final amendment to appendix A of 10 CFR part 40 must conform to 40 CFR part 192, subpart D, as amended on November 15, 1993. Changes in this final rule that relate to changes made in EPA's final rule are noted in the detailed discussion.

On February 7, 1994 (59 FR 5674), the EPA published a supplement to its proposed rescission of subpart T as it applies to owners and operators of

uranium mill tailings disposal sites licensed by the NRC or an Agreement State. That action was also taken in accordance with the settlement agreement. That notice did not present a change from EPA's plans, strategies, or findings as discussed in the actions pertaining to the revision of 40 CFR part 192, subpart D. EPA invited comments on the proposed rescission of subpart T and on its determination that the NRC regulatory program protects public health and safety with an ample margin. It does not specifically address NRC actions except that EPA has again stated that this conforming rule is necessary to support the rescission of 40 CFR part 61, subpart T.

EPA's revision to 40 CFR part 192 is not intended to change EPA's original rationale or scheme set forth in its 1983 rule. The EPA rule "seeks to clarify and supplement that scheme in a manner that will better support its original intent." EPA's final rule and this NRC conforming rule require that when a uranium mill becomes non-operational, the final barrier to control radon will be emplaced as expeditiously as practicable considering technological feasibility (including factors beyond the control of the licensee). Setting interim dates for achieving milestones towards emplacement will support and better assure this progress. Also, post-emplacement determination of radon flux will serve as confirmation that the design of the cover is working as intended. EPA's June 8, 1993 (58 FR 32174), notice of proposed rulemaking and its November 15, 1993 (58 FR 60340), notice of final rulemaking provide detailed discussion of the rationale for the action and the legislative and regulatory history leading to its proposal.

Coordination with Affected NRC Agreement States

The affected Agreement States of Colorado, Texas, and Washington, as well as the State of Illinois, were provided a draft of the proposed rule before its promulgation. These States' comments and the Commission's responses were discussed in the notice of proposed rulemaking of November 3, 1993 (58 FR 58657). Copies of that notice were sent to the affected States. One State submitted comments, which are addressed below along with the other comments received.

Issue of Compatibility with Agreement States

The Commission has determined that these changes are a Division 2 matter of compatibility. Under Division 2, States must adopt the provisions of an NRC rule but can adopt more stringent provisions. A State may not adopt less stringent ones. This designation (Division 2) is compatible with section 274o of the Atomic Energy Act of 1954, as amended (AEA).

Description of the Rule

Section 84a(2) of the AEA requires the Commission to conform its regulations governing uranium mill tailings to applicable EPA requirements and standards. Based on this requirement and the plans and schedules related to the rescission discussed in this document, the NRC proposed to amend appendix A of 10 CFR part 40 to conform to EPA proposed amendments to 40 CFR part 192, subpart D, concerning non-operational, NRC or Agreement State licensed mill

tailings sites. *Criterion 6* of appendix A to part 40 requires that an earthen cover (or approved alternative cover) be placed over uranium mill tailings to control the release of radon-222 at the end of milling operations. This cover is to be designed to provide reasonable assurance that releases of radon will not exceed an average of 20 pCi/m^{2}s and that the barrier will be effective in controlling radon releases to this level for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. The design for satisfying the longevity requirement includes features for erosion control such as the placement of riprap over the earthen cover itself. (*Criterion 6* is also applicable to thorium mill tailings. These amendments to *Criterion 6* apply to uranium mill tailings only.)

This rule, both as proposed and as now being adopted, amends *Criterion 6*, adds a new *Criterion 6A*, and adds to the definitions contained in the *Introduction* to appendix A to part 40.

Paragraphs (1), (5), (6), and (7) of revised *Criterion 6* contain the previously existing requirements of *Criterion 6*. These provisions were not the subject of or affected by this rulemaking. These preexisting portions of *Criterion 6* appear in this notice only for the purpose of numbering the paragraphs for ease of reference to specific requirements contained within the criterion. However, minor conforming revisions, as proposed, have been made to paragraph (1) of *Criterion 6* and its footnotes for clarity and consistency with the new requirements.

This rule adds a requirement to *Criterion 6* for a one-time verification that the barrier, as constructed, is effective in controlling releases of radon from uranium byproduct material to levels no greater than 20 pCi/m^{2}s when averaged over the pile or impoundment. This provision, which appears at

paragraph (2), also specifies EPA method 115, as described in 40 CFR part 61, appendix B, as a standard for adequate demonstration of compliance. As is required by the recent amendments to 40 CFR part 192, subpart D, the licensee must use this method or another approved by the NRC as being at least as effective in demonstrating the effectiveness of the final radon barrier. A copy of 40 CFR part 61, appendix B, has been made available for inspection at the NRC Public Document Room, 2120 L Street, NW. (Lower Level), Washington, DC.

Because of practical reasons, the verification of radon flux levels must take place after emplacement of the final radon barrier but before completion of erosion protection features. In order for the results of the verification to remain valid, erosion protection features must be completed before significant degradation of the earthen barrier occurs. The NRC will consider this in a final determination of compliance with *Criterion 6*. The NRC could require, among other things, repetition of part or all of the verification procedures on a case-by-case basis if significant delay occurs before completion of erosion protection features.

Paragraph (3) of revised *Criterion 6* adds a requirement that, if the reclamation plan calls for phased emplacement of the final radon barrier, the verification of radon flux be performed on each portion of the pile or impoundment as the final radon barrier is completed.

Paragraph (4) specifies the reporting and recordkeeping to be made in connection with this demonstration of effectiveness of the final radon barrier. A one-time report that details the method of verification is to be made within 90 days of completion of the final determination of radon flux levels. Records will be required to be kept until license termination

documenting the source of input parameters and the results of all measurements on which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine compliance. These reporting and recordkeeping requirements are comparable to the EPA requirements in 40 CFR part 61, subpart T.

The Commission notes that the proper implementation of the design standard of paragraph (1) of *Criterion 6* is of primary importance in the control of radon releases. The addition of the requirement for verification of radon flux levels does not replace or detract from the importance of the radon attenuation tailings cover design standard.

The new *Criterion 6A* addresses the timeliness of achieving radon emission control in the case of uranium mill tailings. *Criterion 6A* requires that the emplacement of the earthen cover (or approved alternative cover) be carried out in accordance with a written, Commission-approved, reclamation plan that includes enforceable dates for the completion of key reclamation milestones. This plan will be incorporated as a condition of the individual license. This plan must provide for the completion of the final radon barrier as expeditiously as practicable considering technological feasibility after the pile or impoundment ceases operation. This timeliness requirement has the same goals for completing the final radon barrier as were in the MOU discussed above. In addition, erosion protection features must also be completed in a timely manner in accordance with the Commission-approved reclamation plan.

For the purposes of *Criterion 6A*, definitions are being added to the *Introduction* of appendix A to part 40 (in alphabetical order with the preexisting definitions) for: as expeditiously as practicable considering technological feasibility, available technology, factors beyond the control of

the licensee, final radon barrier, milestone, operation, and reclamation plan. These definitions are substantively the same as contained in the EPA's recent amendment to 40 CFR part 192, subpart D. However, reclamation plan covers a broader range of activities than required in EPA's tailings closure plan (radon). Reclamation of the tailings in accordance with appendix A to part 40 includes activities also occurring after the end of operation that are beyond those involved in the control of radon releases, such as groundwater remediation. Thus, it is appropriate and efficient for planning if these activities are addressed in a single document. (This rule would also allow the reclamation plan to be incorporated into the pre-existing closure plan, also required by appendix A, which includes other activities associated with decommissioning of the mill.)

A definition of final radon barrier was also included in the Commission's proposed rule to facilitate the drafting of clear regulatory text and to eliminate any ambiguity with respect to compliance with the 20 pCi/m^2s "flux standard" after completion of the final earthen barrier and not as a result of any temporary conditions or interim measures. This definition excludes the erosion protection features which were not a subject of EPA's amendment to 40 CFR part 192. The EPA's proposed rule had not provided a definition of this term or comparable term. However, in its final rule, the EPA added a definition of the term permanent radon barrier, also to reduce ambiguity. The EPA's definition is substantively the same as the NRC definition of final radon barrier. The EPA used the word "permanent" in keeping with the terminology of the settlement agreement but defined "permanent radon barrier" as "the final radon barrier constructed to achieve compliance with, including attainment of, the limit on releases of radon-222

in § 192.32(b)(1)(ii)." Both definitions refer to comparable standards requiring control of radon releases to levels not exceeding 20 pCi/m^{2}s after closure. This final NRC rule continues to use the word "final" as proposed, because it is more appropriate. The word "final" more accurately describes the last earthen cover over the tailings pile without the erosion protection features. The barrier would not provide permanent protection without the erosion protection features. Even after these features are completed, the applicable long-term design standard in paragraph (1) of *Criterion 6* is "effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years." Although not intended by EPA, the term "permanent" could be interpreted to imply "forever."

Factors beyond the control of the licensee are defined as factors proximately causing delay in meeting the schedule in the applicable reclamation plan for the timely emplacement of the final radon barrier notwithstanding the good faith efforts of the licensee to complete the barrier. Consistent with the final version of EPA's rule, the following description of possible factors beyond the control of the licensee has been added to the definition in this final rule: these factors may include, but are not limited to:

Physical conditions at the site;

Inclement weather or climatic conditions;

An act of God;

An act of war;

A judicial or administrative order or decision, or change to the statutory, regulatory, or other legal requirements applicable to the

licensee's facility that would preclude or delay the performance of activities required for compliance;

Labor disturbances;

Any modifications, cessation, or delay ordered by State, Federal, or local agencies;

Delays beyond the time reasonably required in obtaining necessary government permits, licenses, approvals, or consent for activities described in the reclamation plan proposed by the licensee that result from agency failure to take final action after the licensee has made a good faith, timely effort to submit legally sufficient applications, responses to requests (including relevant data requested by the agencies), or other information, including approval of the reclamation plan; and

An act or omission of any third party over whom the licensee has no control.

In the definition of available technology, the phrase "and provided there is reasonable progress toward emplacement of a permanent radon barrier" was not included in the Commission's proposed rule as it seemed inappropriate within the definition and the concept is incorporated into the standard itself, i.e., *Criterion 6A*. This phrase has been included in the final definition with the word "final" in place of "permanent" in keeping with the terminology used in this rule. A parenthetical with illustrative examples of grossly excessive costs has also been added consistent with EPA's final amendments.

The definitions for as expeditiously as practicable considering technological feasibility and reclamation plan have been specifically identified as applying to only *Criterion 6A* to prevent any potential

misapplication. This has not been done in the case of the other definitions because either the terms are not used elsewhere in appendix A or are used consistently with the definitions being added.

This rule goes beyond EPA's rule by requiring that the erosion protection barriers (or other features for longevity) be completed in a timely manner. However, the rule does not require that enforceable dates be established for completion of erosion protection as a condition of license. (The key reclamation activities or "milestones" for which enforceable dates are to be established are the same as in EPA's rule.) The reason for this difference is so that the NRC can assure that erosion protection is completed before the barrier could degrade significantly while allowing more flexibility in this regard than for the "key reclamation milestones." Allowing significant degradation of the cover before completion of other aspects of the design could violate the design basis.

As a result of the MOU, most affected licensees (those facilities that were non-operational at the time of the MOU) have voluntarily submitted reclamation plans which include proposed dates for attainment of key reclamation milestones. (Planning for reclamation activities with Commission approval was required by previously existing regulations.) The process of approving those reclamation plans, at least those portions dealing with control of radon emissions, and amending the licenses to make the dates for completion of key reclamation milestones a condition of license is complete with the exception of the Atlas site in Moab, Utah. (In this case, license amendment has been delayed pending resolution of issues raised when the action was noticed in the Federal Register.) These impoundments are in the process of being reclaimed with varying degrees of completion. Other affected NRC

licensees include one whose impoundment has ceased operation since the MOU and who is in the process of preparing a reclamation plan, and four with operational impoundments who will be affected at the time the impoundments cease to be operational.

The considerations made in these recent licensing actions have been consistent with those reflected in this rule, i.e., paragraph (1) of *Criterion 6A* has essentially been implemented prior to promulgation as a result of the MOU and the settlement agreement and in anticipation of the amendments to 40 CFR part 192 and this rulemaking. Thus, the deadlines for completion of milestones established in licenses will not need to be reconsidered as a result of this rule. Also, the actions taken since the MOU in the case of the Atlas site in Moab, Utah are consistent with this rulemaking. The licensee has submitted proposed revisions to its reclamation plans. The licensee has also supplied further information and proposed modifications to address concerns that have been raised. Notices of proposed amendments to the license to provide for public participation have been published. The most recent of these was published on April 7, 1994 (58 FR 16665). Delays in the schedule for radon barrier emplacement are as a result of difficulties in resolving technical issues related to the adequacy of plans for erosion protection and groundwater protection and the consideration of alternatives under the National Environmental Policy Act. Thus, delays result from a combination of "the need for consistency with mandatory requirements of other regulatory programs" and "factors beyond the control of the licensee." This case is primarily an example of factor number (8) in the definition of factors beyond the control of the licensee concerning delays in obtaining necessary approvals. The issues of concern in the

approval of this revised reclamation plan are yet to be resolved and further delays are possible. However, no new issues with regard to the scheduling of final radon barrier emplacement are added as a result of this rule. The license amendment process and the approval of the reclamation plans will not be adversely affected. The NRC staff is continuing to provide timely attention to the resolution of this case.

Paragraph (2) of *Criterion 6A* adds specific criteria for certain circumstances under which the NRC may extend the time allowed for completion of key milestones once enforceable dates have been established. An opportunity for public participation will be provided in a decision to extend the time allowed in these cases. The Commission may approve an extension of the schedule for meeting milestones if it is demonstrated that radon emissions do not exceed 20 pCi/m^{2}s averaged over the entire impoundment. The intent of this provision is that, if the radon release rates are as low as will be required after closure, there is no need for complex justifications for delaying completion of reclamation. However, the Commission may not necessarily extend deadlines for completion of milestones indefinitely on this basis alone. In addition, the Commission may approve an extension of the final compliance date for completion of the final radon barrier based upon cost if the Commission finds that the licensee is making good faith efforts to emplace the final radon barrier, that the delay is consistent with the definition of <u>available technology</u>, and that the radon releases caused by the delay will not result in a significant incremental risk to the public health. If the basis for approving a delay is that the radon levels do not exceed 20 pCi/m^{2}s, verification of radon levels will be required annually. Any other reconsideration of deadlines once established as a result of changing

circumstances would be evaluated under paragraph (1) of *Criterion 6A* giving consideration to all factors relevant to the "as expeditiously as practicable considering technological feasibility" standard.

Paragraph (3) of *Criterion 6A*, as proposed, was to allow for the continued acceptance of uranium byproduct material or such materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes in the pile or impoundment, from other sources, for disposal into a portion of the impoundment after the end of operation but during closure activities. This authorization was to be made only after providing an opportunity for public participation. This paragraph was intended to conform with proposed 40 CFR 192.32(a)(3)(iii). In the context of appendix A, "during closure activities" could include the period after emplacement of the final radon barrier. In this circumstance, the Commission may except completion of reclamation activities for a small portion of the impoundment from the deadlines established in the license. The proposed rule specified that the verification requirements for radon releases may still be satisfied in this case if the Commission finds that the impoundment will continue to achieve a level of radon releases not exceeding 20 pCi/m^2s averaged over the entire impoundment. However, reclamation of the remaining disposal area, as appropriate, would be required in a timely manner once the waste disposal operations cease.

This paragraph has been somewhat revised in the final rule consistent with revisions made in EPA's final rule; these provisions now appear at 40 CFR 192.32(a)(3)(iv) and (v). Both final rules are more consistent with the settlement agreement in this regard. The revisions are (1) that only byproduct material, not "similar" material, will be approved for disposal

after the final radon barrier is complete except for the continuing disposal area and the verification of radon flux levels has been made, and (2) that public participation is specifically to be provided for only in the case of continued disposal after radon flux verification.

The final rule has also been modified by changing the words "as expeditiously as practicable" in the last sentence of this paragraph to "in a timely manner" to avoid the unintended application of the definition of the term "as expeditiously as practicable considering technological feasibility" to activities beyond the emplacement of the final radon barrier. Additional clarifying language has also been added to this paragraph.

Note, as discussed in EPA's statements of consideration for its amendment of 40 CFR part 192 (at 58 FR 32183; June 8, 1993 and reiterated at 58 FR 60354; November 15, 1993), the reclamation of evaporation ponds may be dealt with separately from meeting the expeditious radon cover requirements if deemed appropriate by the Commission or the regulating Agreement State. This may be the case whether or not the evaporation pond area is being used for continued disposal of byproduct material.

The opportunities for public participation specified in *Criterion 6A* are in keeping with the MOU and the settlement agreement, and will be made through a notice in the Federal Register providing an opportunity for public comment on the proposed license amendment. This notice will also provide the opportunity to request an informal hearing in accordance with the Commission's regulations in 10 CFR part 2, subpart L.

Analysis of Comments

In response to the proposed rule, the Commission received comments from seven organizations including one State regulatory agency, the Environmental Protection Agency, and five industry organizations. Copies of the comments may be examined and copied for a fee at the Commission's Public Document Room at 2120 L Street, NW. (Lower Level), Washington, DC. The following discussion summarizes and responds to the comments.

General: Need and basis for rule

Comment. The commenters were generally in favor of the proposed rule. However, most had some suggestions for modifications. Many of these proposed modifications reflected a desire for stricter adherence to the words of the settlement agreement or to EPA's final rule. One commenter said that it understood the proposal to be consistent with the terms that industry litigants accepted in the related EPA proceedings. The American Mining Congress (AMC) and the Atlantic Richfield Company (ARCO), which incorporated all of the AMC comments by reference in its comments, specifically supported the rule for the purpose of implementing the settlement agreement and in order that the "duplicative" Clean Air Act requirements in 40 CFR part 61, subpart T, would be rescinded. AMC and ARCO contended that the rule was not needed to protect public health with the ample margin of safety required as a basis for rescinding subpart T, but that it would strengthen existing protection. Specifically, it was suggested that § 40.63 gives NRC the ability to provide post-closure testing; that § 40.42(c)(2)(i),(iii), and

(iv) can provide for timely reclamation of the tailings; that proper milestones have been added to licenses under the existing regulatory program; and that EPA has never issued a finding of unacceptable risk. In addition, AMC provided extensive background and support for rescission of subpart T and elimination of dual regulation.

Response. The Commission has stated and continues to believe that its program provides an adequate degree of protection of the public health and safety but that this rule provides greater assurance that the final radon barrier will be completed in a timely manner and in accordance with the design standard. The Commission disagrees with certain statements made by commenters to support their contention that this rule was not necessary to support the rescission of subpart T. With regard to § 40.63 and post-closure testing, because footnote 1 to *Criterion 6* specifically indicated that no radon monitoring was required, the Commission would not have considered it appropriate to use § 40.63 to require post-closure testing to verify that radon flux levels do not exceed 20 pCi/m^2s. It was also suggested that § 40.42 adequately addresses the timeliness of tailings reclamation. Although decommissioning normally includes cleanup of a site, appendix A provides the detailed closure requirements for mills in which the reclamation of tailings is covered as a separate activity and, thus, is an exception to the general requirements for decommissioning. This is a result of the unique treatment of tailings under UMTRCA, which provides for the ultimate custodial care of tailings by the Federal government rather than a return to unrestricted use. The timeliness statement in § 40.42(c)(2)(iv) is interpreted as applying to the decommissioning of the mill not to reclamation of the tailings. The background materials submitted by AMC have been reviewed

to assure that there are no gaps in the information previously available to the Commission in its deliberations.

As a general response concerning the use of the exact words of the settlement agreement and the EPA regulations, the Commission notes that it is required to "conform" to 40 CFR part 192 by section 84a(2) of the AEA and has agreed in principle to, but was not a party to, the settlement agreement. In past conforming changes, conformance has not been viewed as requiring identical wording and flexibility has been used for clarity and to account for different formats and contents of rules. Thus, the Commission is not bound to the exact words in either case. Some differences are necessary to avoid ambiguity or confusion. For example, with regard to this rulemaking, the scope of both the settlement agreement and the EPA amendments were limited to the completion of the final radon barrier and did not extend to the longevity aspect of radon control nor to other aspects of reclamation. The terms "reclamation" and "closure" have a broader meaning in appendix A than as used in the settlement agreement or in EPA's amendments to 40 CFR part 192. It would not be practical to limit the use of these terms for the purpose of these specific amendments to appendix A. There are other terms that must also be used carefully because of their use in NRC regulations or by the regulated industry. Beyond what was considered necessary to avoid ambiguity and to provide appropriate expansion beyond the scope of EPA's amendments, the Commission has attempted to be consistent with the words of the settlement agreement and 40 CFR part 192.

Definitions

Comment. The four industry commenters who suggested that changes were needed all believed it was important that the definitions of factors beyond the control of the licensee and available technology be completely consistent with the settlement agreement and the final amendments to 40 CFR part 192, subpart D, and specifically, to include all the illustrative examples within the definition, not just in the statement of considerations. Some also suggested that the words "complete the barrier" in the definition of factors beyond the control of the licensee be changed to "achieve compliance." They were concerned that the intent of the parties to the settlement agreement would not be carried out in the interpretation of these terms in the future. Some specifically noted the loss of personnel familiar with the issues that will accompany the close of the NRC uranium recovery field office (URFO). The EPA did not suggest that including all of the illustrative text was necessary for conformance but suggested it would be best to include the phrase "provided there is reasonable progress toward emplacement of the final radon barrier" (from 40 CFR 192.31(m)) in NRC's definition of available technology. The EPA also suggested adding "in compliance with *Criterion 6A*-(1)" after "complete the barrier" in the definition of factors beyond the control of the licensee for clarity and to assure proper implementation of subpart D of 40 CFR part 192.

Response. Explanations concerning the Commission's intent regarding its interpretation of its regulations that appear in statements of consideration stand as a record of the Commission's intent. However, inclusion within the regulatory text makes the illustrative examples more readily available so that

questions of interpretation are less likely to arise. Consistent with EPA's final amendments to 40 CFR part 192, all of the illustrative examples have been added in the final definitions. The additional text suggested by EPA has also been included in these definitions.

Comment. Most of the industry commenters also wanted the definition of milestone to be worded exactly as in 40 CFR part 192. The concern was primarily that milestones not be required to be established for actions beyond meeting the radon "flux standard." Some of the commenters also suggested that the use in the preamble of varying modifiers, "key," "interim," and "reclamation," to "milestones" and "milestone activities," which are used interchangeably, was confusing.

Response. The definition of milestone has not been changed because the Commission believes it is less confusing in that it is in better agreement with normal usage. There is no substantive difference in the standard as a result of this difference and it gives the Commission the flexibility to use the term generically. The concerns expressed are addressed alternatively through minor revisions to the definition of reclamation plan and paragraph (2) of *Criterion 6A* to further clarify that no deadlines are required to be established in the licenses beyond completing the final radon barrier as a result of this rulemaking and that any other schedules established in a license do not come under the specific provisions of paragraph (2) of *Criterion 6A.* The term "milestone activities" has been avoided in this final rule as it is redundant given this definition. The terms "key," "interim," and "reclamation" are used in accordance with their dictionary definitions and require no further definition. As is clear from the definition of reclamation plan, the term "reclamation" is not limited to radon control measures.

No comments were received concerning the definitions of: as expeditiously as practicable considering technological feasibility, final radon barrier, and operation.

Criterion 6 - Verification of radon release levels

Comment. Some commenters suggested that paragraph (4) of *Criterion 6* could be interpreted to require submission of the results of radon measurements after measurements are made on a portion of an impoundment in the case of phased emplacement of the radon barrier. Two commenters suggested that interim reports might be required in a particular case subject to the agreement of the licensee, but objected to the possible interpretation that separate reports be required routinely on each portion. One suggested that it should be clarified that the testing need not be done on each portion as the cover is completed.

Response. Paragraph (3) specifically requires testing to be done on each portion of the impoundment as the cover is completed in the case of phased emplacement. This was made a requirement rather than simply being allowed as in 40 CFR 192.32(b)(4)(ii) because of the requirement in paragraph (2) of this *Criterion* to conduct testing and analysis prior to placement of erosion protection features and the importance of timeliness in completing erosion protection features. There is, however, no specific time limit established in the regulation for these measurements on the individual portions of the impoundment.

Paragraph (4) requires submittal of a report 90 days after completion of the testing and analysis. Because this verification is of radon flux levels

averaged over the impoundment, it is not complete until all testing and analysis is complete for the whole impoundment. Thus, only one report is required, although further testing and analysis with associated reporting could be required in a particular case if the initial report is not acceptable. Minor editorial changes have been made to further clarify this point. Note, although it is impractical to do so routinely, riprap or other erosion protection barriers can be disturbed in order to take a radon emission measurement if necessary.

Comment. One commenter suggested that paragraph (2) of *Criterion 6* should contain details such as are contained in 40 CFR part 61 on the one-time measurement which are intended to assure that conditions under which the flux is measured lead to a reasonable average flux. It was suggested that this would eliminate confusion with footnote 2 that applies to the design criterion. Related to this, some commenters argued for deletion of part of existing footnote 2 regarding average radon emissions being "over a period of at least one year, but a period short compared to 100 years." These commenters were concerned that long-term monitoring could be implied. Also, two commenters said the footnote was contrary to the settlement agreement and the EPA rule. One said specifically that it was inconsistent with language of 40 CFR 192.12(b)(2).

Response. Footnote 2 applies only to the design criterion. Although the new testing and analysis is intended to verify the effectiveness of the radon barrier, it does not need to take place over the period of time specified in footnote 2. However, it should be reasonably representative of long-term radon releases. The details concerning conditions for flux measurements in 40 CFR part 61 are contained in the description of Method 115

in appendix B and address such matters as the weather conditions at the time measurements are performed. Method 115 is specifically identified in this standard as acceptable and, if used, the conditions embodied in the description in appendix B of 40 CFR part 61 would apply. Because Method 115 is also a standard for the adequacy of other verification methods in *Criterion 6*, alternative methods must be approved by the Commission as being at least as effective as Method 115. Similar considerations to those embodied in Method 115 concerning the representiveness of the measurement results of the long term radon releases will be made in judging alternative methods. Details of conditions for measurement need not be specified in this rule.

Modifying footnote 2 substantively, as was suggested by the commenters, would be outside the scope of this rulemaking. Footnote 2 is consistent with 40 CFR part 192, subpart D, which contains the same footnote (in the comparable design standard, 40 CFR 192.32(b)(1)(ii)). The footnote was not intended to and does not require long-term monitoring. The Commission agrees that long-term monitoring would be contrary to the settlement agreement.

Comment. One commenter argued that the existing requirement to reduce gamma exposure to background levels should be eliminated or applied only at the site boundary. This commenter stated that this requirement appears to be a misinterpretation of the intent of 40 CFR part 192, subpart A. This commenter also said that the radon cover will attenuate gamma radiation to near background levels in most cases; and that in an unusual case, adding to the cover to control gamma exposure levels could be unnecessarily expensive, as access is restricted. The commenter believed that, as a minimum, the Commission should specify a limit based on acceptable risk to the maximum-exposed individual that can be supported by a cost-benefit analysis.

Response. The criterion on gamma exposure levels is not based on 40 CFR part 192 nor any other EPA regulation. It has been in appendix A to part 40 since it was originally added to part 40 on October 3, 1980 (45 FR 65521). This aspect of *Criterion 6* is outside the scope of this rulemaking. However, if the cost of meeting any criterion in appendix A is excessive in a specific case due to unique conditions, the licensee may request an alternative approach in accordance with the *Introduction* to appendix A.

Criterion 6A, paragraph (1) - Requirement for timeliness

Comment. Two commenters were concerned that the parenthetical "(including factors beyond the control of the licensee)" was not included in the standard following, "as expeditiously as practicable considering technological feasibility" as in 40 CFR 192.32(a)(3)(i) even though it is contained in the definition of as expeditiously as practicable considering technological feasibility. They claimed that this could lead to misinterpretation that the standard deletes this essential concept.

Response. A parenthetical statement noting that the term as expeditiously as practicable considering technological feasibility is specifically defined in the *Introduction* and includes "factors beyond the control of the licensee" has been added.

Comment. Some of the commenters opposed the establishment of separate milestone deadlines for dewatering and recontouring, saying that the settlement agreement and 40 CFR part 192 specify only three required milestones including just one for interim stabilization. Dewatering and

recontouring are part of interim stabilization. These commenters said that this was also inconsistent with the practice with existing licenses. The EPA noted that it agreed with NRC's statement in the preamble of its proposed rule that the concept of milestones could not be omitted.

Response. The final rule has been changed to specifically require the establishment of deadlines for only three milestones: wind blown tailings retrieval and placement on the pile, interim stabilization (including dewatering or the removal of freestanding liquids and recontouring), and final radon barrier construction. The Commission, however, retains the authority to require the establishment of additional milestones determined to be "key" to the completion of the final radon barrier in an individual case (note the words "but not limited to" in the definition of reclamation plan). This is consistent with 40 CFR part 192, subpart D, and with the settlement agreement. The Commission has no intent at this time to change the milestones for which deadlines have already been approved in individual licensing actions.

Comment. The EPA noted that it understands that emplacement of the final radon barrier is a requisite milestone but was concerned that it could be interpreted otherwise, and suggested clarification. The EPA also noted that it understands "deadlines" to mean dates by which actions must be completed and "established as a condition of an individual license" to mean incorporation of a condition into a license by the Commission. However, the EPA was concerned that paragraph (1) of Criterion 6A may be ambiguous and provided specific suggested edits.

Response. Paragraph (1) of Criterion 6A has been modified slightly to address EPA's concerns, although not exactly as suggested. The Commission believes it is clear that completion of the final radon barrier is a requisite

milestone, that "deadlines" means dates by which actions must be completed, and that deadlines are to be established on the basis that the barrier is to be completed as expeditiously as practicable considering technological feasibility. The Commission also believes that its regulations are less subject to misinterpretation if there is consistency of style and terminology.

Comment. Two commenters were concerned about the NRC extending the scope of the timeliness requirement from that of 40 CFR part 192, subpart D, stating that the "as expeditiously as practicable considering technological feasibility" requirement should not be extended to erosion protection. They contended that this is a term of art limited to radon emissions, that EPA used this term to eliminate the cost-balancing standards of the AEA from radon control measures, and that applying it to erosion protection would constrain the use of AEA cost considerations. They also noted that NRC has adequate authority under other aspects of its UMTRCA program to deal with concern for degradation of the barrier and stated that NRC should handle this on a site-specific basis through license amendment.

Response. The final rule has been modified so that the terminology "as expeditiously as practicable considering technological feasibility" is used only for emplacement of the final radon barrier. A general timeliness standard for completing erosion protection features is retained. Thus, it is clear that the licensee must complete these actions in a timely way and that the NRC has the authority to take action if necessary in this regard. However, the restrictive cost considerations specified for the completion of the final radon barrier do not apply to decisions concerning the timeliness of completion of erosion protection features. Instead, the more flexible, general cost considerations of the AEA (Section 84a(1)) apply.

Comment. The same commenters sought clarification of NRC's intent in extending reclamation plans to cover groundwater protection. They asked whether the NRC could prevent licensees from continuing surface reclamation until groundwater issues are resolved, stating that this was not past practice. However, they also wanted the Commission to confirm that groundwater concerns could constitute a legitimate cause for delay.

Response. It is important for all aspects of reclamation to be addressed in one plan so that potential interactions of various activities can be accounted for and that reclamation can be planned for overall efficiency. Nonetheless, all aspects of a reclamation plan would not necessarily be approved at the same time. Past licensing practice has not necessarily required all details of reclamation planning to be in one document; however, approvals of activities have included consideration of impacts to other aspects of reclamation. The NRC would not necessarily prevent licensees from continuing surface reclamation until groundwater issues are resolved. However, the words "the need for consistency with mandatory requirements of other regulatory programs," in the definition of "as expeditiously as practicable considering technological feasibility" makes it clear that groundwater concerns could constitute a legitimate cause for delay. Whether or not a groundwater issue would be considered a legitimate cause for delay of radon control measures under paragraph (1) of *Criterion 6A* would depend on the nature of the interaction of the various reclamation activities in a particular case.

Criterion 6A, paragraph (2) - Special criteria for approval of delays

Comment. Two commenters stated that paragraph (2) of *Criterion 6A* does not fully implement the settlement agreement. They stated that the settlement agreement and 40 CFR 192.32(a)(3)(iii) include delay of interim milestones for reason of cost not just the dates for completion of the final radon barrier. These same commenters were concerned that it was not clear from paragraph (2) of *Criterion 6A* that deadlines for milestones could also be extended because of factors beyond the control of the licensee and also expressed strong agreement with the statement that there is "no need for complex justifications for delaying completion of reclamation" if the licensee demonstrates that the site meets 20 pCi/m^{2}s prior to final closure. These two commenters also stated that the intent of the settlement agreement is that interim milestones may be changed without meeting 20 pCi/m^{2}s, if there is no delay in final closure date. On this subject, the EPA specifically supported paragraph (2) of *Criterion 6A* as drafted. The EPA also specifically confirmed our interpretation of its amendments to 40 CFR part 192 in this regard and clarified that there may be other instances under which NRC may reconsider a date established for completion of a milestone. The EPA also stated in its comments that the alternative interpretation of its proposed amendments suggested in the Commission's preamble to its proposed rule (that meeting the 20 pCi/m^{2}s "flux standard" might be required in all cases) was incorrect.

Response. The Commission does not agree that the words "or relevant milestone" in section III.2.j of the settlement agreement and 40 CFR 192.32(a)(3)(iii) should be interpreted to mean that these paragraphs address delay of interim milestones for reason of cost. Also, approvals of

extensions of interim milestones without meeting 20 pCi/m²s are not necessarily limited to cases where there is no delay in final closure date.

Paragraph (2) of *Criterion 6A* and 40 CFR 192.32(a)(3)(ii) and (iii) set forth specific criteria for extensions of deadlines under certain circumstances. These provisions do not cover all circumstances under which extensions may be approved. This interpretation was confirmed by EPA in the preamble of its final rule and in its comments submitted on NRC's proposed rule. All other approvals of extensions must be made under paragraph (1) of *Criterion 6A* through applying all of the concepts involved in the requirement for completion of the final radon barrier "as expeditiously as practicable considering technological feasibility" (including within its definition "factors beyond the control of the licensee"). This was stressed in EPA's final rule notice of November 15, 1993, at 58 FR 60351. In response to a commenter that noted that NRC or an Agreement State may extend the date for emplacement of the radon barrier based on "factors beyond the control of the licensee" as that term is implicit in the definition of "as expeditiously as possible," EPA stated in part that "there is no bar to NRC or an Agreement State reconsidering a prior decision establishing a date for emplacement of the radon barrier that meets the standard of 'as expeditiously as possible.' Such reconsideration could, for example, be based on the existence of factors beyond the control of the licensee, or on a change in any of the various factors that must be considered in establishing a date that meets the 'as expeditiously as practicable' standard of § 192.32(a)(3)(i). However EPA stresses that such a change in circumstances would not automatically lead to an extension. It would be incumbent on NRC or an Agreement State to evaluate all of the factors relevant under § 192.32(a)(3)(i) before it could change a

previously established milestone or date for the emplacement of the final barrier, and any new date would have to meet the standard set out in § 192.32(a)(3)(i)." The comparable standard in this NRC rule is set out in paragraph (1) of *Criterion 6A*.

Criterion 6A, paragraph (3) - Continuing disposal during closure

Comment. Some commenters noted that *Criterion 6A*, paragraph 3, as proposed, was inconsistent with the final EPA rule. Some also suggested that it was inconsistent with the settlement agreement, could lead to premature closure, and would require radon monitoring during closure. One commenter said that "during closure activities" does not include the period after emplacement of the final radon barrier according to the EPA rule and the settlement agreement, and that the intent should be that "once the final radon barrier has been placed over the impoundment, excluding the area receiving byproduct material, the 'closure process' ceases." Two of the commenters specifically agreed with the interpretation that "during closure activities" could include the period after emplacement of the final radon barrier and wanted the NRC to confirm this so that similar materials would still be allowed at that time. These two commenters did not want paragraph (3) of *Criterion 6A* to require an opportunity for public participation in approving acceptance of byproduct material "during closure." The EPA submitted suggested revisions to make final paragraph (3) of *Criterion 6A* consistent with the final amendments in 40 CFR 192.32(a)(3)(iv) and (v).

Response. EPA, in its proposed revision of 40 CFR part 192, subpart D, combined the provisions of sections III.2.c (i) and (ii) of the settlement

agreement in one paragraph. In so doing, EPA, apparently inadvertently, differed somewhat from the settlement agreement but modified the final rule so that it is now consistent with the settlement agreement. The Commission must conform appendix A to 40 CFR part 192, as adopted, and has thus revised its final rule accordingly. The differences from the proposed rule are that (1) materials similar to byproduct material will not be approved for continued disposal after the verification of radon flux levels and (2) an opportunity for public participation will not specifically be provided in the case of continued disposal during closure prior to this point in time. Note, however, opportunity for public participation exists in any case under 10 CFR part 2, subpart L. The exact words suggested in EPA's comments have not been used but the revisions are substantively the same. The reasons for differing are the same as when the proposed rule was drafted: (1) the term "closure" in appendix A has a broader meaning than the scope of EPA's rule, and (2) the final radon barrier is not absolutely complete while disposal is continuing even though it may be adequate to demonstrate that average radon release levels meet the 20 pCi/m^{2}s "flux standard."

Miscellaneous comments

Comment. One State commenter strongly recommended that NRC offer guidance (not necessarily in the rule) on paragraph (3) of *Criterion 6A* on what materials are appropriately similar. The commenter suggested specification of limits to the range of variation of a critical property or concentration or activity.

Response. Guidance on considerations for the approval of disposal of non-11e(2) materials in tailings impoundments was published May 13, 1992 (57 FR 20525). This notice also presented a staff analysis on which the guidance is based and requested public comment to be considered in a decision on whether the guidance should be revised.

Comment. Two commenters stated, for the record, that they agreed with NRC that the implementation details of EPA's 40 CFR part 192, subpart D, are a special case and go beyond "generally applicable standards," and that these provisions should not set a precedent with regard to what constitutes a generally applicable standard. They contended that certain aspects of subpart D exceed EPA's statutory authority.

Response. The Commission noted in the preamble of the proposed rule that the nature of the revisions to 40 CFR part 192, subpart D, were influenced by the settlement agreement, that the settlement agreement included considerable detail concerning the specifics of the regulations that were to be developed, and that apparently as a result of this, 40 CFR part 192, subpart D, includes numerous details of implementation. The Commission also stated its view, which it still holds, that the inclusion of these implementation details is a special case because of the settlement agreement and does not establish any precedent with regard to what constitutes a generally applicable standard. With regard to the question of the limits of EPA's statutory authority, any challenge to EPA's authority to issue the November 15, 1993, final amendments to 40 CFR part 192 is outside the scope of this conforming action.

Comment. The AMC stated that even if the Commission makes this rule a Division 2 matter of compatibility, AMC will return to litigation if an Agreement State adopts more stringent provisions.

Response. UMTRCA provides the States an option for alternative, more stringent standards. The settlement agreement cannot eliminate this option. However, notice for comment and approval by NRC is required and AMC can raise appropriate issues at that time should a State propose more stringent standards. The Division 2 matter of compatibility is maintained.

Comment. The AMC contended that some statements in the preamble to the proposed rule were in error or in need of clarification. Among these contentions were that the summary of bases for AMC's challenge to subpart T implied that the limited bases mentioned were all inclusive.

Response. The primary bases for the various litigants' challenges were mentioned in a brief historical summary that was not presented as a complete background. The EPA's various notices are referenced in the background section of this notice for more details concerning subpart T and the related litigation.

Comment. AMC also stated that NRC had implied that EPA could not rescind subpart T if the planned rulemakings were not completed, arguing that EPA has adequate bases to rescind absent these rulemakings.

Response. NRC did not mean to imply that EPA could not rescind subpart T absent the planned rulemakings. However, EPA had made statements that it would not rescind subpart T unless comparable provisions were added to 40 CFR part 192 and 10 CFR part 40.

Comment. The AMC also stated that the timeliness of decommissioning rule should not have been suggested as in any way relevant and requested that

NRC note that Chairman Selin is on record suggesting that a blanket exemption of uranium recovery facilities may make sense.

Response. Final action on the proposed NRC rule to require timeliness in decommissioning (January 13, 1993; 58 FR 4099) would be expected to impact the timing of decommissioning of the mill, not necessarily the timing of the impoundment going from operational status to closure. ("Closure" in appendix A does include both decommissioning of the mill and reclamation of the tailings and/or waste disposal areas.) If subpart T is rescinded, there will be no regulatory requirement for the tailings impoundment to change from operational to non-operational status within any specified time after the mill ceases operation. The definition of "operational" in subpart T would have restricted the continued use of the impoundment for extended periods after the associated mill was decommissioned.

No comments were received on the regulatory analysis or the environmental assessment and finding of no significant impact.

Conclusion

As indicated in the responses to the comments, the Commission has decided to adopt the rule as proposed with minor modifications, which consist of revisions to conform to the final effective amendments to 40 CFR part 192 and clarifications.

Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. This final rule requires that enforceable dates be established for certain interim milestones and completion of the final radon barrier on non-operational mill tailings piles through an approved reclamation plan and that a determination of the radon flux levels be made to verify compliance with the existing design standard for the final radon barrier. It is intended to better assure that the final radon barrier is completed in a timely manner and is adequately constructed to comply with the applicable design standard. Thus, it provides an additional assurance that public health and the environment are adequately protected. Because the final rule is not expected to change the basic procedures or construction of the radon barrier, there should be no adverse environmental impacts. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the environmental assessment and finding of no significant impact are available from Catherine R. Mattsen, U. S. Nuclear Regulatory Commission, Washington, DC 20555, Phone: (301) 492-3638.

Paperwork Reduction Act Statement

This final rule amends information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget approval number 3150-0020.

Public reporting burden for this collection of information is estimated to average 156 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019 (3150-0020), Office of Management and Budget, Washington, DC 20503.

Regulatory Analysis

The Commission has prepared a regulatory analysis on this final regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Catherine R. Mattsen, U.S. Nuclear Regulatory Commission, Washington, DC 20555, (301) 492-3638.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities. There are only 19 NRC uranium mill licensees. Almost all of these mills are owned by large corporations. Although a few of the mills are partly-owned by companies that might qualify as small businesses under the Small Business Administration size standards, the Regulatory Flexibility Act incorporates the definition of small business presented in the Small Business Act. Under this definition, a small business is one that is independently owned and operated and is not dominant in its field. Because these mills are not independently owned, they do not qualify as small entities.

List of Subjects in 10 CFR part 40

Criminal penalties, Government contracts, Hazardous materials transportation, Nuclear materials, Reporting and recordkeeping requirements, Source material, Uranium.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR part 40.

PART 40--LICENSING OF SOURCE MATERIAL

1. The authority citation for part 40 continues to read as follows:

AUTHORITY: Secs. 62, 63, 64, 65, 81, 161, 182, 183, 186, 68 Stat. 932, 933, 935, 948, 953, 954, 955, as amended, secs. 11e(2), 83, 84, Pub. L. 95-604, 92 Stat. 3033, as amended, 3039, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2014(e)(2), 2092, 2093, 2094, 2095, 2111, 2113, 2114, 2201, 2232, 2233, 2236, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688 (42 U.S.C. 2021); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); sec. 275, 92 Stat. 3021, as amended by Pub. L. 97-415, 96 Stat. 2067 (42 U.S.C. 2022).

Section 40.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 40.31(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 40.46 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 40.71 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. In appendix A, add the definitions of as expeditiously as practicable considering technological feasibility, available technology, factors beyond the control of the licensee, final radon barrier, milestone, operation, and reclamation plan to the *Introduction* in alphabetical order; revise *Criterion 6*; and add *Criterion 6A* to read as follows:

Appendix A to Part 40--Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or

Concentration of Source Material From Ores Processed Primarily for Their Source Material Content

Introduction.

* * * * *

As expeditiously as practicable considering technological feasibility, for the purposes of *Criterion 6A*, means as quickly as possible considering: the physical characteristics of the tailings and the site; the limits of available technology; the need for consistency with mandatory requirements of other regulatory programs; and factors beyond the control of the licensee. The phrase permits consideration of the cost of compliance only to the extent specifically provided for by use of the term available technology.

Available technology means technologies and methods for emplacing a final radon barrier on uranium mill tailings piles or impoundments. This term shall not be construed to include extraordinary measures or techniques that would impose costs that are grossly excessive as measured by practice within the industry (or one that is reasonably analogous), (such as, by way of illustration only, unreasonable overtime, staffing, or transportation requirements, etc., considering normal practice in the industry; laser fusion of soils, etc.), provided there is reasonable progress toward emplacement of the final radon barrier. To determine grossly excessive costs, the relevant baseline against which cost shall be compared is the cost estimate for tailings impoundment closure contained in the licensee's approved reclamation plan, but costs beyond these estimates shall not automatically be considered grossly excessive.

* * * * *

Factors beyond the control of the licensee means factors proximately causing delay in meeting the schedule in the applicable reclamation plan for the timely emplacement of the final radon barrier notwithstanding the good faith efforts of the licensee to complete the barrier in compliance with paragraph (1) of *Criterion 6A*. These factors may include, but are not limited to--

(1) Physical conditions at the site;

(2) Inclement weather or climatic conditions;

(3) An act of God;

(4) An act of war;

(5) A judicial or administrative order or decision, or change to the statutory, regulatory, or other legal requirements applicable to the licensee's facility that would preclude or delay the performance of activities required for compliance;

(6) Labor disturbances;

(7) Any modifications, cessation or delay ordered by State, Federal, or local agencies;

(8) Delays beyond the time reasonably required in obtaining necessary government permits, licenses, approvals, or consent for activities described in the reclamation plan proposed by the licensee that result from agency failure to take final action after the licensee has made a good faith, timely effort to submit legally sufficient applications, responses to requests (including relevant data requested by the agencies), or other information, including approval of the reclamation plan; and

(9) An act or omission of any third party over whom the licensee has no control.

Final radon barrier means the earthen cover (or approved alternative cover) over tailings or waste constructed to comply with *Criterion 6* of this appendix (excluding erosion protection features).

* * * * *

Milestone means an action or event that is required to occur by an enforceable date.

* * * * *

Operation means that a uranium or thorium mill tailings pile or impoundment is being used for the continued placement of byproduct material or is in standby status for such placement. A pile or impoundment is in operation from the day that byproduct material is first placed in the pile or impoundment until the day final closure begins.

* * * * *

Reclamation plan, for the purposes of *Criterion 6A*, means the plan detailing activities to accomplish reclamation of the tailings or waste disposal area in accordance with the technical criteria of this appendix. The reclamation plan must include a schedule for reclamation milestones that are key to the completion of the final radon barrier including as appropriate, but not limited to, wind blown tailings retrieval and placement on the pile, interim stabilization (including dewatering or the removal of freestanding liquids and recontouring), and final radon barrier construction. (Reclamation of tailings must also be addressed in the closure plan; the detailed reclamation plan may be incorporated into the closure plan.)

* * * * *

Criterion 6 (1) In disposing of waste byproduct material, licensees shall place an earthen cover (or approved alternative) over tailings or wastes at the end of milling operations and shall close the waste disposal area in accordance with a design[1] which provides reasonable assurance of control of radiological hazards to (i) be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years, and (ii) limit releases of radon-222 from uranium byproduct materials, and radon-220 from thorium byproduct materials, to the atmosphere so as not to exceed an average[2] release rate of 20 picocuries per square meter per second (pCi/m^2s) to the extent practicable throughout the effective design life determined pursuant to (1)(i) of this *Criterion*. In computing required tailings cover thicknesses, moisture in soils in excess of amounts found normally in similar soils in similar circumstances may not be considered. Direct gamma exposure from the tailings or wastes should be reduced to background levels. The effects of any thin synthetic layer may not be taken into account in determining the calculated radon exhalation level. If non-soil materials are proposed as cover materials, it must be demonstrated that these materials will not crack or degrade by differential settlement, weathering, or other mechanism, over long-term intervals.

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[1] In the case of thorium byproduct materials, the standard applies only to design. Monitoring for radon emissions from thorium byproduct materials after installation of an appropriately designed cover is not required.

[2] This average applies to the entire surface of each disposal area over a period of at least one year, but a period short compared to 100 years. Radon will come from both byproduct materials and from covering materials. Radon emissions from covering materials should be estimated as part of developing a closure plan for each site. The standard, however, applies only to emissions from byproduct materials to the atmosphere.

(2) As soon as reasonably achievable after emplacement of the final cover to limit releases of radon-222 from uranium byproduct material and prior to placement of erosion protection barriers or other features necessary for long-term control of the tailings, the licensee shall verify through appropriate testing and analysis that the design and construction of the final radon barrier is effective in limiting releases of radon-222 to a level not exceeding 20 pCi/m^2s averaged over the entire pile or impoundment using the procedures described in 40 CFR part 61, appendix B, Method 115, or another method of verification approved by the Commission as being at least as effective in demonstrating the effectiveness of the final radon barrier.

(3) When phased emplacement of the final radon barrier is included in the applicable reclamation plan, the verification of radon-222 release rates required in paragraph (2) of this criterion must be conducted for each portion of the pile or impoundment as the final radon barrier for that portion is emplaced.

(4) Within ninety days of the completion of all testing and analysis relevant to the required verification in paragraphs (2) and (3) of this criterion, the uranium mill licensee shall report to the Commission the results detailing the actions taken to verify that levels of release of radon-222 do not exceed 20 pCi/m^2s when averaged over the entire pile or impoundment. The licensee shall maintain records until termination of the license documenting the source of input parameters including the results of all measurements on which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine compliance. These records shall be kept in a form suitable for

transfer to the custodial agency at the time of transfer of the site to DOE or a State for long-term care if requested.

(5) Near surface cover materials (i.e., within the top three meters) may not include waste or rock that contains elevated levels of radium; soils used for near surface cover must be essentially the same, as far as radioactivity is concerned, as that of surrounding surface soils. This is to ensure that surface radon exhalation is not significantly above background because of the cover material itself.

(6) The design requirements in this criterion for longevity and control of radon releases apply to any portion of a licensed and/or disposal site unless such portion contains a concentration of radium in land, averaged over areas of 100 square meters, which, as a result of byproduct material, does not exceed the background level by more than: (i) 5 picocuries per gram (pCi/g) of radium-226, or, in the case of thorium byproduct material, radium-228, averaged over the first 15 centimeters (cm) below the surface, and (ii) 15 pCi/g of radium-226, or, in the case of thorium byproduct material, radium-228, averaged over 15-cm thick layers more than 15 cm below the surface.

(7) The licensee shall also address the nonradiological hazards associated with the wastes in planning and implementing closure. The licensee shall ensure that disposal areas are closed in a manner that minimizes the need for further maintenance. To the extent necessary to prevent threats to human health and the environment, the licensee shall control, minimize, or eliminate post-closure escape of nonradiological hazardous constituents, leachate, contaminated rainwater, or waste decomposition products to the ground or surface waters or to the atmosphere.

Criterion 6A (1) For impoundments containing uranium byproduct materials, the final radon barrier must be completed as expeditiously as practicable considering technological feasibility after the pile or impoundment ceases operation in accordance with a written, Commission-approved reclamation plan. (The term as expeditiously as practicable considering technological feasibility as specifically defined in the *Introduction* of this appendix includes factors beyond the control of the licensee.) Deadlines for completion of the final radon barrier and, if applicable, the following interim milestones must be established as a condition of the individual license: windblown tailings retrieval and placement on the pile and interim stabilization (including dewatering or the removal of freestanding liquids and recontouring). The placement of erosion protection barriers or other features necessary for long-term control of the tailings must also be completed in a timely manner in accordance with a written, Commission-approved reclamation plan.

(2) The Commission may approve a licensee's request to extend the time for performance of milestones related to emplacement of the final radon barrier if, after providing an opportunity for public participation, the Commission finds that the licensee has adequately demonstrated in the manner required in paragraph (2) of *Criterion 6* that releases of radon-222 do not exceed an average of 20 pCi/m^2s. If the delay is approved on the basis that the radon releases do not exceed 20 pCi/m^2s, a verification of radon levels, as required by paragraph (2) of *Criterion 6*, must be made annually during the period of delay. In addition, once the Commission has established the date in the reclamation plan for the milestone for completion of the final radon barrier, the Commission may extend that date based on cost if, after providing

an opportunity for public participation, the Commission finds that the licensee is making good faith efforts to emplace the final radon barrier, the delay is consistent with the definition of available technology, and the radon releases caused by the delay will not result in a significant incremental risk to the public health.

(3) The Commission may authorize by license amendment, upon licensee request, a portion of the impoundment to accept uranium byproduct material or such materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes already in the pile or impoundment, from other sources, during the closure process. No such authorization will be made if it results in a delay or impediment to emplacement of the final radon barrier over the remainder of the impoundment in a manner that will achieve levels of radon-222 releases not exceeding 20 pCi/m^2s averaged over the entire impoundment. The verification required in paragraph (2) of *Criterion 6* may be completed with a portion of the impoundment being used for further disposal if the Commission makes a final finding that the impoundment will continue to achieve a level of radon-222 releases not exceeding 20 pCi/m^2s averaged over the entire impoundment. In this case, after the final radon barrier is complete except for the continuing disposal area, (a) only byproduct material will be authorized for disposal, (b) the disposal will be limited to the specified existing disposal area, and (c) this authorization will only be made after providing opportunity for public participation. Reclamation of the disposal area, as appropriate, must

be completed in a timely manner after disposal operations cease in accordance with paragraph (1) of *Criterion 6*; however, these actions are not required to be complete as part of meeting the deadline for final radon barrier construction.

Dated at Rockville, Maryland, this ___ day of _____, 1994.

For the Nuclear Regulatory Commission.

_____
Samuel J. Chilk,
Secretary of the Commission.

Enclosure 3

Regulatory Analysis

Rule to Amend 10 CFR Part 40, Appendix A

URANIUM MILL TAILINGS REGULATIONS; CONFORMING NRC REQUIREMENTS TO EPA STANDARDS

1. Statement of the Problem

Criterion 6 of Appendix A to Part 40 requires the covering of mill tailings to control the release of radon to the atmosphere, but before this action did not specifically require timeliness in placing the final radon barrier, nor a verification that the final radon barrier, as constructed, was effective in controlling radon emissions. The EPA has revised 40 CFR Part 192, Subpart D (to which Appendix A is required to conform) to add such requirements in the case of uranium mill tailings impoundments.

2. Objectives

The objectives of EPA's revision to 40 CFR Part 192, Subpart D and this conforming rule are: (1) to better assure that the health of the public is protected from potential releases from uranium mill tailings facilities by specifically requiring that the final radon barrier over the tailings be completed as expeditiously as practicable considering technological feasibility and that a verification be performed to demonstrate that the flux levels of radon have been adequately controlled by the final radon barrier as constructed, and (2) eliminate dual regulation by allowing the rescission of

EPA's Clean Air Act requirements for non-operational, licensed uranium mill tailings facilities in 40 CFR Part 61, Subpart T.

3. Alternatives

The Commission is required by section 84a(2) of the Atomic Energy Act, as amended, to conform its regulations governing uranium mill tailings to 40 CFR Part 192, Subpart D. The Commission has no alternative to rulemaking to conform to the changes made by EPA. The only discretionary aspects are some details of implementation. EPA, however, has included in their revision to 40 CFR Part 192, Subpart D a considerable level of detail concerning implementation, even though its rule is a generally applicable standard. EPA took this approach in this particular case in order to be consistent with a settlement agreement which they reached with a number of parties who had challenged its Clean Air Act regulations in 40 CFR Part 61, Subpart T or its stay of those regulations.

The primary implementation detail that this rule adds is a report of the results of the radon measurement (or other method of verification of radon flux) to NRC and a retention period for records pertaining to this demonstration of radon flux levels of "until license termination." At license termination, in this case, the responsibility for the site is transferred to a State or to DOE.

The Commission has considered alternative regulatory text and has attempted to conform substantively with EPA's rule while reducing ambiguity in the wording to eliminate potential problems with implementation.

4. Consequences

EPA's rules in 40 CFR Part 192, Subpart D and NRC's rules in *Criterion 6* of 10 CFR Part 40, Appendix A contain a design standard for covers required to be placed over uranium mill tailings. This design standard is that the cover be designed to control radon emissions so that the levels will not exceed 20 picocuries per square meter per second (pCi/m^2s) and that the cover be effective in controlling radiological hazards for 1000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. This rule is intended to provide a higher degree of assurance that the public is protected from radon emissions from uranium mill tailings by adding a timeliness requirement to assure that the cover to control radon releases is completed as soon as is practicable and a requirement for a verification that the flux levels after emplacement of the final radon barrier indeed meet the design standard.

The cost of an EPA measurement method (Method 115), which may be used for this verification, has been estimated in EPA's Background Information Document as $5,000-$6,000 per site, or as high as $10,000 if a contractor is used to perform the testing. Report preparation associated with this verification is estimated to cost $4410 and recordkeeping, $720. Requiring records to be kept until the responsibility for the site is transferred to government ownership is estimated to require essentially the same level of effort as the five years specified in 40 CFR Part 61, Subpart T, which this rule is basically intended to replace. The rule allows other alternative methods of verification if approved by the Commission as being at least as effective as EPA's method 115.

The alternative of not specifying reporting or recordkeeping would not reduce the effort, since some form of documentation is clearly necessary to meet the requirement for verification of flux levels. This would only add uncertainty concerning how to meet this requirement.

Although a reclamation plan is specified in this amendment, planning of reclamation activities and obtaining approval of these plans was required by previously existing regulations. These plans then become a condition of license. The difference resulting from this action is the requirement that dates for the completion of certain reclamation activities be established as a condition of license. For currently non-operational sites, this process has been taking place in the absence of this rule, also for the purpose of supporting the rescission of Subpart T of 40 CFR Part 61. For most of these licensees, the establishment of these schedules in the license is complete. Amendment of the reclamation plans would constitute an amendment of license in any case. However, the specific criteria in this rule relating to the reasons for allowing extensions of time allowed for the completion of certain activities could make this process more complicated.

However, indirect consequences of this rule will result if EPA completes action as planned to rescind Subpart T of 40 CFR Part 61: an overall reduction in administrative effort, and potentially other costs of reclamation, with no reduction in the degree of protection of the public health or the environment. If the stay of Subpart T expires without final action taking place on the rescission, all licensees with non-operational impoundments will have to negotiate agreements with EPA on the schedule of reclamation activities in addition to obtaining NRC approval of reclamation plans. Verification of

radon levels after construction of final radon barriers will also be required but with reports to be made to EPA.

5. Decision Rationale

This final rule conforms with EPA's amendments to 40 CFR Part 192, Subpart D as required by the Atomic Energy Act. The Commission also considered the details of the settlement agreement in the development of this rule. The settlement agreement dealt with specifics that needed to be addressed in this rule. Although NRC was not a signatory to the settlement agreement, the Commission did agree in principle with it and agreed to abide by it consistent with applicable law and available resources.

6. Implementation

a) Schedule for Implementation

The final rule will be effective 30 days after publication in the Federal Register.

b) Relationship to Other Existing or Proposed Requirements

As discussed above, this rule conforms to a rule promulgated on November 15, 1993 (58 FR 60340) by EPA to amend 40 CFR Part 192, Subpart D. It also provides support to EPA's planned rescission of 40 CFR Part 61, Subpart T with respect to non-operational, licensed uranium tailings facilities.

Enclosure 4

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

AMENDMENT TO 10 CFR PART 40, APPENDIX A URANIUM MILL TAILINGS REGULATIONS; CONFORMING NRC REQUIREMENTS TO EPA STANDARDS

The Nuclear Regulatory Commission is amending its regulations to add to the requirement to cover uranium mill tailings to control radon emissions a provision for timeliness in completing the cover and a one-time verification that the cover is effective.

Environmental Assessment

Identification of Action

Criterion 6 of Appendix A to Part 40 requires that uranium mill tailings be covered in order to control radon releases. This design standard specifies that the radon released will not exceed 20 picocuries per square meter per second (pCi/m^2s) and that the cover is effective in controlling releases of radon for 1000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. This action adds to the design standard in *Criterion 6* a one time verification that the radon releases are, in fact, adequately controlled to meet the 20 pCi/m^2s standard for radon. It also adds to Appendix A a *Criterion 6A* requiring timeliness in completing the cover (referred to as "final radon barrier"). These provisions are intended to

conform NRC regulations governing uranium mill tailings to 40 CFR Part 192, Subpart D of EPA's regulations, as amended November 15, 1993.

Need for the Action

Section 84a(2) of the Atomic Energy Act, as amended, requires the Commission to conform its rules governing mill tailings to EPA's generally applicable standards. The EPA recently amended its applicable general standard for uranium mill tailings (in 40 CFR Part 192, Subpart D). In addition, the EPA has proposed rescinding its Clean Air Act requirements (in 40 CFR Part 61, Subpart T) pertaining to radon releases from non-operational, licensed uranium mill tailings impoundments, if it finds that the NRC program governing uranium mill tailings provides an ample margin of safety to the public. The EPA has tentatively found that the NRC program would be adequate to allow rescission of 40 CFR Part 61, Subpart T, if NRC takes final action to conform its regulations in Part 40 to the amendments to 40 CFR Part 192, Subpart D promulgated on November 15, 1993. This would eliminate dual regulation in this area.

Environmental Impacts of the Action

The primary impact of this rulemaking is to provide further assurance that releases of radon from disposed uranium mill tailings will be adequately controlled. Thus, it provides additional assurance that public health and the environment are adequately protected.

The requirements for timeliness will not cause any change to the basic procedures or construction of the radon barrier. The rule requires all tailings reclamation activities to be addressed in a single document, the reclamation plan, so that planning for radon control is properly integrated with planning for other aspects of tailings reclamation. This is to assure that activities related to radon control do not adversely affect other necessary reclamation activities. These provisions are intended to assure that radon releases are reduced to the applicable allowable level for disposed tailings in a timely manner. This could potentially result in reductions to the total radon releases during closure.

The requirement for verification of the effectiveness of the final radon barrier will likely involve a direct measurement of radon levels to assure that the barrier, as constructed, has met the design standard. The rule specifies that the verification take place as soon as reasonably achievable after emplacement of the final barrier and prior to placement of the erosion protection barriers or other features necessary for long-term control of the tailings. This is so that erosion protection features such as riprap would not need to be disturbed after emplacement in order to take radon measurements. (Other methods of verification may be approved by the NRC in accordance with this final rule.)

Based on these considerations, this action will not result in a significant effect on the quality of the human environment.

Alternatives to the Action

As required by Section 102(2)(E) of NEPA (42 U.S.C. 4322(2)(E)), possible alternatives to the action have been considered. Because of the requirements of the Atomic Energy Act, as amended, to conform to EPA's generally applicable standards, the only alternatives to be considered by the Commission are with respect to some details of implementation.

As discussed above, the alternative of including planning for all reclamation activities in a single document for approval was chosen over the alternative of having a plan specified with only the minimum number of activities required to conform to EPA's rule. This was considered more efficient and would assure that these activities are planned appropriately considering all of the necessary reclamation activities. Assuring that radon control activities do not adversely affect other aspects of reclamation should minimize the environmental impacts of tailings disposal.

The rule adds details concerning reports and recordkeeping associated with the verification of radon levels. In order to satisfy the requirement for verification of radon levels, documentation is essential. It would be more efficient for the details of required documentation to be specified. The specifics of this requirement and the other minor details of implementation considered in this rule is not expected to have significant impact on the environmental impacts of tailings disposal.

Agencies and Persons Consulted

Consultation has been made with the EPA staff involved with the development of the rule to which this rule is intended to conform. A draft proposed rule was provided to the affected Agreement States (those licensing or having authority to license uranium mill tailings facilities) of Colorado, Texas, Washington and Illinois.

Finding of No Significant Impact

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in 10 CFR Part 51, that this amendment to 10 CFR Part 40, Appendix A will not have a significant effect on the quality of the human environment and that an environmental impact statement is not required. This determination is based on the foregoing environmental assessment performed in accordance with the procedures and criteria in Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

Enclosure 5

DRAFT CONGRESSIONAL LETTER

Dear Mr. Chairman:

In the near future, the Nuclear Regulatory Commission (NRC) intends to send to the Office of the Federal Register for publication, the enclosed final amendment to the Commission's rules in 10 CFR Part 40. The amendment will require uranium mill licensees to complete the required cover over non-operational tailings impoundments to control radon releases as expeditiously as practicable considering technological feasibility and to perform a one time verification that the radon barrier, as constructed, is effective. This final rule conforms the Commission's regulations governing uranium mill tailings disposal to recent amendments to the Environmental Protection Agency's (EPA's) general environmental standards in 40 CFR Part 192, Subpart D. The ultimate intent of these revisions is to provide the ample margin of safety necessary for the EPA to rescind its applicable National Emission Standard for Hazardous Air Pollutants (NESHAP's) in 40 CFR Part 61, Subpart T in accordance with section 112(d)(9) of the Clean Air Act and eliminate dual regulation of this category of licensees. This rulemaking has been conducted in accordance with a Memorandum of Understanding between NRC, EPA, and the Agreement States that regulate uranium mill tailings disposal on the Clean Air Act Standards in Subparts T and W of 40 CFR Part 61 and a settlement agreement between EPA and litigants on Subpart T and its stay.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure:
Federal Register Notice

Enclosure 5

Enclosure 6

DRAFT PUBLIC ANNOUNCEMENT

NRC AMENDS URANIUM MILL TAILINGS REGULATIONS TO CONFORM TO EPA STANDARDS

The Nuclear Regulatory Commission is amending its regulations governing the disposal of uranium mill tailings to conform them to recent amendments of the Environmental Protection Agency's generally-applicable standards, an action required by the Atomic Energy Act of 1954, as amended.

As adopted, the amendments add to previously existing requirements to cover uranium mill tailings to control the release of radon, a requirement for timeliness in completing the cover and a requirement to verify that the cover over the tailings is effective in controlling the release of radon.

The Environmental Protection Agency also has proposed rescinding similar requirements issued under the Clean Air Act if it finds that the NRC program in this area provides an ample margin of public safety. This would eliminate dual regulation of this group of licensees and provide adequate protection of the public from releases of radon from uranium mill tailings piles.

Before these amendments, the NRC required:

-- that an earthen cover (or approved alternative cover) be placed over uranium mill tailings to control the release of radon-222 gases at the end of milling operations; and

-- that the earthen cover be designed to provide reasonable assurance that releases of radon will not exceed an average of

20 picocuries per square meter per second and that the barrier be effective in controlling radon releases for 1,000 years to the extent reasonably achievable and, in any case, for at least 200 years.

As a result of this action, the agency now also requires:

-- that the emplacement of the earthen cover be carried out in accordance with a written, NRC-approved plan that includes enforceable dates for the completion of key reclamation activities (milestones);

-- that the plan must provide for the completion of the final radon barrier as expeditiously as is practicable considering technological feasibility after the pile or impoundment ceases operation;

-- that testing and analysis must be carried out to verify that releases of radon do not exceed an average of 20 picocuries per square meter per second;

-- and that erosion protection features must also be completed in a timely manner;

-- for specified non-operational uranium mill tailings impoundments, there would be a goal of completing the final radon barrier by December 31, 1997, and for all other impoundments, seven years after the date on which the impoundments cease operation.

The amendment to Part 40 of the NRC's regulations will become effective on (date 30 days after publication).

Enclosure 7

2. In appendix A, add the definitions of as expeditiously as practicable considering technological feasibility, available technology, factors beyond the control of the licensee, final radon barrier, milestone, operation, and reclamation plan to the *Introduction* in alphabetical order; revise *Criterion 6*; and add *Criterion 6A* to read as follows:

Appendix A to Part 40--Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content

Introduction.

* * * * *

As expeditiously as practicable considering technological feasibility, for the purposes of *Criterion 6A*, means as quickly as possible considering: the physical characteristics of the tailings and the site; the limits of available technology; the need for consistency with mandatory requirements of other regulatory programs; and factors beyond the control of the licensee. The phrase permits consideration of the cost of compliance only to the extent specifically provided for by use of the term available technology.

Available technology means technologies and methods for emplacing a final radon barrier on uranium mill tailings piles or impoundments. This term shall not be construed to include extraordinary measures or techniques that would impose costs that are grossly excessive as measured by practice within the industry (or one that is reasonably analogous), (such as, by way of

illustration only, unreasonable overtime, staffing, or transportation requirements, etc., considering normal practice in the industry; laser fusion of soils, etc.), provided there is reasonable progress toward emplacement of the final radon barrier. To determine grossly excessive costs, the relevant baseline against which cost shall be compared is the cost estimate for tailings impoundment closure contained in the licensee's approved reclamation plan, but costs beyond these estimates shall not automatically be considered grossly excessive.

* * * * *

Factors beyond the control of the licensee means factors proximately causing delay in meeting the schedule in the applicable reclamation plan for the timely emplacement of the final radon barrier notwithstanding the good faith efforts of the licensee to complete the barrier in compliance with paragraph (1) of *Criterion 6A.* These factors may include, but are not limited to--

(1) Physical conditions at the site;

(2) Inclement weather or climatic conditions;

(3) An act of God;

(4) An act of war;

(5) A judicial or administrative order or decision, or change to the statutory, regulatory, or other legal requirements applicable to the licensee's facility that would preclude or delay the performance of activities required for compliance;

(6) Labor disturbances;

(7) Any modifications, cessation or delay ordered by State, Federal, or local agencies;

(8) Delays beyond the time reasonably required in obtaining necessary government permits, licenses, approvals or consent for activities described in the reclamation plan proposed by the licensee that result from agency failure to take final action after the licensee has made a good faith, timely effort to submit legally sufficient applications, responses to requests (including relevant data requested by the agencies), or other information, including approval of the reclamation plan; and

(9) An act or omission of any third party over whom the licensee has no control.

Final radon barrier means the earthen cover (or approved alternative cover) over tailings or waste constructed to comply with *Criterion 6* of this appendix (excluding erosion protection features).

* * * * *

Milestone means an action or event that is required to occur by an enforceable date.

* * * * *

Operation means that a uranium or thorium mill tailings pile or impoundment is being used for the continued placement of byproduct material or is in standby status for such placement. A pile or impoundment is in operation from the day that byproduct material is first placed in the pile or impoundment until the day final closure begins.

* * * * *

Reclamation plan, for the purposes of *Criterion 6A*, means the plan detailing activities to accomplish reclamation of the tailings or waste disposal area in accordance with the technical criteria of this appendix. The reclamation plan must include a schedule for ~~key~~ reclamation milestones

~~activities~~that are key to the completion of the final radon barrier including as appropriate, but not limited to, wind blown tailings retrieval and placement on the pile, interim stabilization (including dewatering or the removal of freestanding liquids and recontouring), and final radon barrier construction. (Reclamation of tailings must also be addressed in the closure plan; the detailed reclamation plan may be incorporated into the closure plan.)

* * * * *

Criterion 6 (1) In disposing of waste byproduct material, licensees shall place an earthen cover (or approved alternative) over tailings or wastes at the end of milling operations and shall close the waste disposal area in accordance with a design[1] which provides reasonable assurance of control of radiological hazards to (i) be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years, and (ii) limit releases of radon-222 from uranium byproduct materials, and radon-220 from thorium byproduct materials, to the atmosphere so as not to exceed an average[2] release rate of 20 picocuries per square meter per second (pCi/m^2s) to the extent practicable throughout the effective design life determined pursuant to (1)(i) of this *Criterion*. In computing required tailings cover

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[1] In the case of thorium byproduct materials, the standard applies only to design. Monitoring for radon emissions from thorium byproduct materials after installation of an appropriately designed cover is not required.

[2] This average applies to the entire surface of each disposal area over a period of at least one year, but a period short compared to 100 years. Radon will come from both byproduct materials and from covering materials. Radon emissions from covering materials should be estimated as part of developing a closure plan for each site. The standard, however, applies only to emissions from byproduct materials to the atmosphere.

thicknesses, moisture in soils in excess of amounts found normally in similar soils in similar circumstances may not be considered. Direct gamma exposure from the tailings or wastes should be reduced to background levels. The effects of any thin synthetic layer may not be taken into account in determining the calculated radon exhalation level. If non-soil materials are proposed as cover materials, it must be demonstrated that these materials will not crack or degrade by differential settlement, weathering, or other mechanism, over long-term intervals.

(2) As soon as reasonably achievable after emplacement of the final cover to limit releases of radon-222 from uranium byproduct material and prior to placement of erosion protection barriers or other features necessary for long-term control of the tailings, the licensee shall verify through appropriate testing and analysis that the design and construction of the final radon barrier is effective in limiting releases of radon-222 to a level not exceeding 20 pCi/m^2s averaged over the entire pile or impoundment using the procedures described in 40 CFR part 61, appendix B, Method 115, or another method of verification approved by the Commission as being at least as effective in demonstrating the effectiveness of the final radon barrier.

(3) When phased emplacement of the final radon barrier is included in the applicable reclamation plan, the verification of radon-222 release rates required in paragraph (2) of this criterion must be conducted for each portion of the pile or impoundment as the final radon barrier for that portion is emplaced.

(4) Within ninety days of the completion of all testing and analysis relevant to the required verification in paragraphs (2) and (3) of this criterion, the uranium mill licensee shall report to the Commission the

results ~~of the testing and analysis~~, detailing the actions taken to verify that levels of release of radon-222 do not exceed 20 pCi/m^{2}s when averaged over the entire pile or impoundment. The licensee shall maintain records until termination of the license documenting the source of input parameters including the results of all measurements on which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine compliance. These records shall be kept in a form suitable for transfer to the custodial agency at the time of transfer of the site to DOE or a State for long-term care if requested.

(5) Near surface cover materials (i.e., within the top three meters) may not include waste or rock that contains elevated levels of radium; soils used for near surface cover must be essentially the same, as far as radioactivity is concerned, as that of surrounding surface soils. This is to ensure that surface radon exhalation is not significantly above background because of the cover material itself.

(6) The design requirements in this criterion for longevity and control of radon releases apply to any portion of a licensed and/or disposal site unless such portion contains a concentration of radium in land, averaged over areas of 100 square meters, which, as a result of byproduct material, does not exceed the background level by more than: (i) 5 picocuries per gram (pCi/g) of radium-226, or, in the case of thorium byproduct material, radium-228, averaged over the first 15 centimeters (cm) below the surface, and (ii) 15 pCi/g of radium-226, or, in the case of thorium byproduct material, radium-228, averaged over 15-cm thick layers more than 15 cm below the surface.

(7) The licensee shall also address the nonradiological hazards associated with the wastes in planning and implementing closure. The licensee shall ensure that disposal areas are closed in a manner that minimizes the need for further maintenance. To the extent necessary to prevent threats to human health and the environment, the licensee shall control, minimize, or eliminate post-closure escape of nonradiological hazardous constituents, leachate, contaminated rainwater, or waste decomposition products to the ground or surface waters or to the atmosphere.

Criterion 6A (1) For impoundments containing uranium byproduct materials, ~~actions required to achieve compliance with *Criterion 6*~~the final radon barrier must be completed as as expeditiously as practicable considering technological feasibility after the pile or impoundment ceases operation. ~~These controls must be carried out~~ in accordance with a written, Commission-approved reclamation plan. (The term as expeditiously as practicable considering technological feasibility as specifically defined in the *Introduction* of this appendix includes factors beyond the control of the licensee.) Deadlines for completion of the final radon barrier and, if applicable, the following ~~key~~ interim milestones ~~activities~~ must be established as a condition of the individual license: windblown tailings retrieval and placement on the pile, and interim stabilization ~~, dewatering, and recontouring~~ (including dewatering or the removal of freestanding liquids and recontouring). The placement of erosion protection barriers or other features necessary for long-term control of the tailings must also be completed in a timely manner in accordance with a written, Commission-approved reclamation plan.

(2) The Commission may approve a licensee's request to extend the time for performance of milestones related to emplacement of the final radon barrier if, after providing an opportunity for public participation, the Commission finds that the licensee has adequately demonstrated in the manner required in paragraph (2) of *Criterion 6* that releases of radon-222 do not exceed an average of 20 pCi/m^{2}s. If the delay is approved on the basis that the radon releases do not exceed 20 pCi/m^{2}s, a verification of radon levels, as required by paragraph (2) of *Criterion 6*, must be made annually during the period of delay. In addition, once the Commission has established the date in the reclamation plan for the milestone for completion of the final radon barrier, the Commission may extend that date based on cost if, after providing an opportunity for public participation, the Commission finds that the licensee is making good faith efforts to emplace the final radon barrier, the delay is consistent with the definition of available technology, and the radon releases caused by the delay will not result in a significant incremental risk to the public health.

(3) The Commission may authorize by license amendment, upon licensee request, a portion of the impoundment to accept uranium byproduct material or such materials that are similar in physical, chemical, and radiological characteristics to the uranium mill tailings and associated wastes already in the pile or impoundment, from other sources, during the closure process. ~~This authorization may not~~No such authorization will be made if it results in a delay or impediment to emplacement of the final radon barrier over the remainder of the impoundment in a manner that will achieve levels of radon-222 releases not exceeding 20 pCi/m^{2}s averaged over the entire impoundment. ~~Authorization to remain accessible will only be made after providing~~

~~opportunity for public participation.~~ The verification required in paragraph (2) of *Criterion 6* may be completed with a portion of the impoundment being used for further disposal if the Commission makes a final finding that the impoundment will continue to achieve a level of radon-222 releases not exceeding 20 pCi/m^{2}s averaged over the entire impoundment. In this case, after the final radon barrier is complete except for the continuing disposal area, (a) only byproduct material will be authorized for disposal, (b) the disposal will be limited to the specified existing disposal area, and (c) this authorization will only be made after providing opportunity for public participation. Reclamation of the disposal area, as appropriate, must be completed ~~as expeditiously as practicable~~ in a timely manner after disposal operations cease in accordance with paragraph (1) of ~~this~~ *Criterion 6*; however, these actions are not required to be complete as part of meeting the deadline for final radon barrier construction.