[7590-01-P]

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).

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SUPPLEMENTARY INFORMATION:

## Background

On April 29, 1983 (48 FR 19584), 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/$m^2$s 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 $pCi/m^2s$ 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 $pCi/m^2s$ 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 $pCi/m^2s$ 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 available technology, 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 $pCi/m^2s$, 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 or 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" make 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/m$^2$s 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 expeditious' 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 $pCi/m^2s$ "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) 415-6264.

## 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 (T-6 F33), 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) 415-6264.

## 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.)

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*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/$m^2$s 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/$m^2$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, 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 24th day of May, 1994.

For the Nuclear Regulatory Commission.

John C. Hoyle,
Acting Secretary of the Commission.

CONGRESSIONAL CORRESPONDENCE SYSTEM
DOCUMENT PREPARATION CHECKLIST

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1. BRIEF DESCRIPTION OF DOCUMENT(S) Ltr to RepSharp

2. TYPE OF DOCUMENT X Correspondence ____ Hearings (Qs/As)

3. DOCUMENT CONTROL ____ Sensitive (NRC Only) X Non-Sensitive

4. CONGRESSIONAL COMMITTEE and SUBCOMMITTEES (if applicable)

____ Congressional Committee

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5. SUBJECT CODES

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(a) ____ 5520 (document name _____

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