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NUCLEAR REGULATORY COMMISSION

10 CFR Parts 30, 40, 50, 52, 53, 70, 72

[NRC-2025-1204]

RIN 3150-AL48

In Situ Recovery Monitoring and Decommissioning Timeliness

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule and draft guidance; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) proposes to amend its regulations that govern the licensing of uranium mills and the disposition of tailings and waste that arise from the extraction and milling of uranium by issuing risk-informed requirements for groundwater protection at uranium in situ recovery (ISR) facilities. The NRC's current regulations are focused on conventional uranium milling and do not expressly address uranium extraction by the ISR process. Additionally, NRC proposes to amend its regulations that govern decommissioning timeliness for all licensees to provide additional flexibility for licensees to delay the initiation of decommissioning activities in situations where safety would not be impacted.

DATES: Comments must be submitted electronically using <https://www.regulations.gov> no later than 11:59 p.m. eastern time on **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Submit your comments, identified by Docket ID NRC-2025-1204, at <https://www.regulations.gov>. If your material cannot be submitted using <https://www.regulations.gov>, call or email the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document for alternate instructions.

Do not include any personally identifiable information (such as name, address, or other contact information) or confidential business information that you do not want publicly disclosed. All comments are public records; they are publicly displayed exactly as received, and will not be deleted, modified, or redacted. Comments may be submitted anonymously.

Follow the search instructions on <https://www.regulations.gov> to view public comments.

You can read a plain language description of this proposed rule at <https://www.regulations.gov/docket/NRC-2025-1204>. For additional direction on obtaining information and submitting comments, see “Obtaining Information and Submitting Comments” in the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: Timothy Mossman, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone: 301-287-9100, email: Timothy.Mossman@nrc.gov.

EXECUTIVE SUMMARY:

A. Need for the Regulatory Action

The Nuclear Regulatory Commission (NRC) is proposing to amend its regulations in appendix A to part 40 that govern the licensing of uranium mills and the disposition of tailings and waste that arise from the extraction and milling of uranium by issuing risk-informed requirements for groundwater protection at uranium in situ recovery (ISR) facilities.

The NRC is also proposing to amend its regulations in parts 30, 40, 52, 53, 70, 72 of title 10 of the *Code of Federal Regulations* (10 CFR) to extend the timeframe for notifications and provide additional flexibilities to delay the initiation of decommissioning activities where it is in the public interest or when a licensee has a business need for continued possession of the license. The NRC is also proposing to amend its regulations in 10 CFR part 50 to allow licensees to use the established exemption process in 10 CFR 50.12 “Specific exemptions” to request to delay completion of decommissioning beyond the required 60-year timeframe for power reactors.

B. Major Provisions

Major provisions of the proposed rule include changes that would:

1. Establish regulations specific to ISR facilities to protect groundwater from the radiological and nonradiological hazards associated with the generation of byproduct material;
2. Add several new ISR-specific definitions and revise other definitions in Appendix A;
3. Clarify that alternate concentration limits (ACLs) are an allowable cleanup standard for groundwater at ISR facilities;
4. Increase flexibility, clarity, and efficiency related to decommissioning requirements for power reactors and non-power reactors,
5. Streamline and extend regulations related to the initiation of decommissioning of nuclear materials facilities, and
6. Streamline extension request reviews by risk-informing the information that must be included in the request.

C. Costs and Benefits

The NRC prepared a draft regulatory analysis to determine the expected quantitative costs and benefits of this proposed rule and associated draft guidance as well as qualitative factors to be considered in the NRC's rulemaking decision. The proposed rule would result in net cost savings for industry and NRC, which will increase in proportion to the number of affected licensing actions as detailed in this report. For each ISR Application industry would save \$288,600 and the NRC would save \$316,200 due to the more efficient process of the proposed rule. For each power reactor decommissioning exemption request avoided due to the provisions of the proposed rule industry would save \$5,920 and the NRC would save \$39,500. The future extent of the ISR sector and decommissioning materials and reactor facilities could not be reliably projected, so total values were not calculated. Agreement States and the EPA would incur minor costs in implementing the proposed rule. Agreement States would incur a cost of \$106,300 to implement the changes in their regulations. The EPA would incur a cost of \$12,600 to provide a required review of the final rule.

The draft regulatory analysis also considers qualitative factors, such as regulatory efficiency. These benefits would result from clarifications, administrative changes, and streamlining of processes (such as notifications).

For more information, please see the draft regulatory analysis (available in the NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML25337A100).

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I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID NRC-2025-1204 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2025-1204.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "Begin ADAMS Public Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by email to PDR.Resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the "Availability of Documents" section.

- **NRC's PDR:** The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time, Monday through Friday, except Federal holidays.

- **Public Meeting:** The NRC may conduct a public meeting to describe the proposed amendments and answer questions from the public on the proposed rule. If the NRC determines it will hold a public meeting, NRC will publish a notice of the location, time, and agenda of the meeting on the NRC's public meeting website within 10 calendar days of the meeting. Stakeholders should monitor the NRC's public meeting website for information about the public meeting at <https://www.nrc.gov/public-involve/public-meetings/index.cfm>.

B. Submitting Comments

Comments must be submitted electronically using <https://www.regulations.gov> no later than 11:59 p.m. eastern time on **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Please include Docket ID NRC-2025-1204 in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <https://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Executive Order 14300: Ordering the Reform of the Nuclear Regulatory Commission

On May 23, 2025, President Donald J. Trump signed Executive Order (E.O.) 14300, “Ordering the Reform of the Nuclear Regulatory Commission.” Section 5, “Reforming and Modernizing the NRC’s Regulations,” which requires the NRC to undertake a review and wholesale revision of its regulations and guidance documents as guided by the policies set forth in section 2 of the E.O. In accordance with E.O.14300 the NRC identified changes across title 10 of the *Code of Federal Regulations* (10 CFR) Parts 30, 40, 50, 52, 53, 70, and 72. These changes would yield significant efficiencies and reduce regulatory burden for

licensees, NRC, and Agreement States while upholding our shared commitment to public safety.

III. Background: In Situ Recovery

A. Conventional Mills and In Situ Recovery Facilities

The NRC licenses and regulates uranium mills under its regulations in part 40 of title 10 of the *Code of Federal Regulations* (10 CFR), “Domestic Licensing of Source Material,” because these facilities possess and process uranium source material, as defined in § 40.4, “Definitions.” The possession and processing of source material are activities that require a license from the NRC under the Atomic Energy Act of 1954, as amended (AEA). Prior to the 1990s, uranium ore was processed primarily at conventional mills. Mills using the conventional milling process receive ore in the form of rock containing uranium and grind the ore to remove and concentrate the uranium. The leftover rock from this process is a sand-like material, known as tailings, that is consolidated into tailings piles. Tailings are contaminated with chemicals used in the uranium extraction process and contain heavy metals and radionuclides. Additionally, conventional milling generates a variety of liquid wastes, such as leaching fluids. These tailings and wastes, which contain radiological and nonradiological constituents, are classified as a form of byproduct material and are regulated by the NRC under the AEA.

The ISR process is another uranium milling process that was first used commercially in the United States in the late 1970s. As discussed in more detail in Section B, the first regulations for uranium milling facilities were promulgated in 1983. These regulations were focused on conventional uranium mills, not the ISR process. Since the 1990s, the ISR process has become the predominant means of extracting uranium in the United States. The

ISR process eliminates the steps of digging ore from the ground, transporting it to a mill, grinding it, and leaching it to dissolve the uranium. At ISR facilities, the chemical leaching occurs underground in a portion of an aquifer containing the ore body known as a production unit. A leaching solution, known as a lixiviant, containing either an alkaline solution including oxygen and/or bicarbonate or an acid solution such as sulfuric acid, is pumped to the ore body in the production unit through injection wells, thereby inducing a chemical change in the ore body that releases the uranium from the host rock. The lixiviant that carries the recovered uranium is pumped to the surface using production wells. All of the injection and production wells that are used to recover the uranium from the ore body in a production unit are located in an area known as a wellfield.

After being pumped to the surface, the lixiviant is transferred to a processing facility where an ion exchange process is used to separate the recovered uranium from the lixiviant. The recovered uranium is processed into a solid form called “yellowcake.” The lixiviant is then pumped back from the processing facility to the ore body in the production unit to continue uranium recovery. The yellowcake is ultimately used in the manufacture of fuel for nuclear reactors.

The processing facilities supporting ISR operations (e.g., ion exchange columns, precipitation and drying circuits), and wastes produced by ISR operations (e.g., hazardous constituents released in the groundwater by lixiviant injection, soil contaminated from spills, process wastes in surface impoundments), come under the NRC’s regulatory authority. To ensure that byproduct material stays within the production unit and does not migrate from the production unit to surrounding groundwater during or after ISR operations, the NRC enforces requirements regarding the construction of wells, the design of ISR wellfields, and groundwater monitoring. The NRC also requires restoration of groundwater in the production unit to ensure hazardous constituent concentrations that exist during the ISR operations are

below NRC approved limits prior to license termination and release of the site. The restoration process begins when lixiviant injection into the production unit permanently ceases.

The ISR process does not generate tailings but does produce wastes that constitute byproduct material, which requires proper management. The NRC's current regulations for byproduct material generated by uranium milling are focused on operations at conventional mill sites and are set forth in appendix A to 10 CFR 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." Therefore, the NRC currently regulates groundwater protection at ISR facilities using site-specific license conditions that incorporate risk-informed and best management practices that have been shown to be successful for more than 40 years. Best management practices for groundwater protection, in the context of ISR facilities, are those practices that have been demonstrated to be the most effective and practical means to prevent, detect, and correct any leakage or migration of radiological and nonradiological contaminants to surrounding groundwater.

These risk-informed and best management practices are provided in the NRC regulatory guidance in NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications." Many of the risk-informed practices presented in NUREG-1569 are further described in NUREG/CR-6733, "A Baseline Risk-Informed, Performance-Based Approach for In Situ Leach Uranium Extraction Licensees." The principal purpose of NUREG-1569 is to ensure the quality and uniformity of the NRC staff's review and evaluation of ISR license applications (for the initial application and any amendments thereto). The NRC also uses this guidance to inform the development of site-specific license conditions.

B. Statutory Background

In 1978, Congress enacted the Uranium Mill Tailings Radiation Control Act (UMTRCA) to address the radiological and nonradiological hazards associated with the tailings or wastes generated in the uranium milling process, particularly with the tailings piles accumulating at conventional mill sites. The UMTRCA amended several provisions of the AEA, including the classification of these tailings or wastes as a form of byproduct material, provided that the tailings or wastes resulted from the extraction of uranium or thorium from ores processed primarily for their source material content. Such byproduct material is generally referred to as “AEA section 11e.(2) byproduct material.”

Through its amendments to the AEA, Title II of UMTRCA established a complementary regulatory scheme for active and decommissioning uranium milling facilities between the EPA and the NRC (Title II of UMTRCA applies to sites where a viable, legally responsible entity could be identified when the legislation was developed, whereas Title I applies to named inactive uranium milling sites). No ISR facilities are covered by Title I; all Title I sites are inactive conventional milling sites. The UMTRCA added AEA section 275, which authorizes the EPA to issue standards of general application for the protection of public health and safety, and the environment from radiological and nonradiological hazards associated with the processing, possession, transfer, and disposal of AEA section 11e.(2) byproduct material. For nonradiological hazards, it directs the EPA to establish standards of general application consistent with the standards required under subtitle C of the Solid Waste Disposal Act, as amended (SWDA). The SWDA is now commonly referred to as the Resource Conservation and Recovery Act (RCRA).

The UMTRCA also added AEA section 84, which requires that the NRC or the appropriate Agreement State ensure the proper management of AEA section 11e.(2) byproduct material in such a manner as the NRC deems appropriate to protect public health

and safety and the environment from radiological and nonradiological hazards associated with its processing and possession. In doing so, the NRC must conform with the standards of general application issued by the EPA under AEA section 275b. Any general requirements established by the NRC regarding its management of AEA section 11e.(2) byproduct material must, to the maximum extent practicable, be at least comparable to requirements that are applicable to the possession, transfer, and disposal of similar hazardous material regulated by the EPA under RCRA. Under AEA section 84a.(3), the EPA would concur on whether such general requirements were in fact comparable to the RCRA requirements for similar hazardous material.

The NRC or the applicable Agreement State agency is the regulatory or licensing agency for all uranium recovery facilities, including ISR facilities, and is responsible for evaluating any license application for an ISR facility or amendment to an existing license, regulating and inspecting the operation and decommissioning of the ISR facility, and enforcing the terms and conditions of the operating license. In 1983, the NRC Authorization Act for Fiscal Year 1982-1983, Pub. L. No. 96-415 § 202, Stat. 2067, 2079 (1983) added a new paragraph 84c. to AEA section 84 while UMTRCA had amended the AEA to add section 274o. These amendments gave authority to the NRC and Agreement States, respectively, to establish site-specific alternatives to the specific requirements adopted and enforced by the NRC including the standards of general application promulgated by EPA under AEA section 275.

The EPA issued its initial standards of general application under UMTRCA for conventional mills in the *Federal Register* in the form of regulations in “Environmental Standards for Uranium and Thorium Mill Tailings at Licensed Commercial Processing Sites” (48 FR 45926; October 7, 1983), and then amended these standards in “Health and Environmental Standards for Uranium and Thorium Mill Tailings” (58 FR 60340; November

15, 1993). Subpart D of 40 CFR part 192 establishes the EPA's standards of general application for uranium byproduct materials at UMTRCA Title II sites, including those standards concerning groundwater protection. The EPA addressed its statutory requirement under AEA section 275b.(2), to establish standards for nonradiological hazards consistent with those in RCRA, by issuing regulations 40 CFR 192.31 through 192.33 that cross-reference specific EPA RCRA requirements for groundwater protection in 40 CFR part 264.

The regulations in 40 CFR 192.32(a)(2) directly reference the RCRA standards, with certain exceptions as set forth in 40 CFR 192.32(a)(2)(i)-(v). The requirements in 40 CFR 264.92 specify that hazardous constituents detected in groundwater at a regulated unit must not exceed the concentration limits provided in § 264.94 in the uppermost aquifer beyond the point of compliance. As defined in § 264.95, the point of compliance is a set location, as determined by the regulator, where the § 264.92 groundwater protection standards must be met and where monitoring must be conducted.

As made applicable to uranium byproduct materials by 40 CFR 192.32(a)(2), the RCRA groundwater protection standard in 40 CFR 264.92 requires compliance with § 264.94, "Concentration limits," which allows for a licensee to meet one of three different hazardous constituent concentration limits that must not be exceeded in groundwater at the point of compliance. The first is the establishment of a background level for each hazardous constituent based upon sampling to determine the concentration or quantity of that hazardous constituent present in the groundwater prior to the commencement of ISR operations. The second establishes a maximum concentration as the standard for certain listed hazardous constituents (e.g., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) if the background level of the constituent is below the value given in Table 1 of § 264.94. The third allows for the establishment of an ACL by the regulatory agency if the agency finds that the licensee cannot meet either the background level or the

maximum concentration for a given hazardous constituent. The RCRA regulations state that the regulatory agency may approve an ACL for a hazardous constituent based on a finding that the constituent will not pose a threat to human health or the environment as long as the ACL is met. Section 264.94(b)(1) includes a list of groundwater protection factors that the regulatory agency must consider in determining whether to approve or disapprove an ACL.

Other aspects of the RCRA groundwater protection standard that are made applicable to the management of uranium byproduct materials include the establishment of a detection monitoring program, as provided in § 264.98. In addition, the regulations in 40 CFR 192.33 require that if the hazardous constituent concentration limit for any hazardous constituent is exceeded, a corrective action program as specified in 40 CFR 264.100 must be put into operation.

The NRC initially issued two regulations to implement UMTRCA: “Uranium Mill Tailings Licensing” (44 FR 50012; August 24, 1979) and “Uranium Mill Licensing Requirements” (45 FR 65521; October 3, 1980). The 1979 rule added definitions for the terms “byproduct material” and “uranium milling” to 10 CFR 40.4, “Definitions.” The 1979 rule defined “uranium milling” to mean any activity that results in the production of byproduct material. The NRC’s definition of “byproduct material” sets forth the UMTRCA definition of byproduct material but adds that the term includes discrete surface wastes resulting from uranium solution extraction processes. The definition also stipulates that underground ore bodies that remain after ISR operations do not constitute byproduct material. In its 1980 final rule, the NRC further amended 10 CFR part 40 and added its primary UMTRCA implementing regulations as appendix A to 10 CFR part 40. When EPA first issued its UMTRCA implementing standards in 1983, its definition of “uranium byproduct material” was essentially the same as the NRC’s definition of “byproduct material” except that EPA did not

reference thorium and did not include the clause concerning the discrete surface wastes resulting from uranium solution extraction processes.

Following the EPA's issuance of its 40 CFR part 192, subpart D standards, the NRC made two conforming amendments to appendix A to 10 CFR part 40: "Uranium Mill Tailings Regulations; Conforming NRC Requirement to EPA Standards" (50 FR 41852; October 16, 1985) and "Uranium Mill Tailings Regulations; Ground-Water Protection and Other Issues" (52 FR 43553; November 13, 1987). Currently, appendix A applies the EPA RCRA groundwater protection regulations in 40 CFR part 264 that are listed in 40 CFR part 192, subpart D, but it does not explicitly cross-reference them. Although the current criterion 5B requirements in Appendix A are focused on conventional uranium mills, the NRC has applied these requirements to ISR facilities through the use of site-specific license conditions.

C. Current Rulemaking Context and Development

A detailed history of this topic can be found in SECY-21-0067, Enclosure 1 -Proposed Rule. In short, beginning in the 1990s, the uranium recovery industry expressed concerns to the NRC over perceived dual regulation between the NRC and the EPA with respect to the protection of groundwater impacted by ISR operations. Since that time, there have been a number of efforts at the NRC to address the concerns and increase transparency and clarity regarding NRC's ISR requirements. As relevant here, in SRM-SECY-19-0123, "Staff Requirements—Regulatory Options for In-Situ Recovery Facilities," the Commission approved the NRC staff's recommendation to resume a rulemaking "to provide risk-informed ISR-specific requirements that would provide increased consistency and transparency in licensing reviews between the NRC and Agreement States and to clarify the applicability of existing requirements to ISR activities in 10 CFR part 40, in particular the applicability of alternate concentration limits for ISR facilities." In addition, the Commission directed a limited

scope rulemaking, stating that given “diminished domestic ISR activity, the rulemaking should be narrowly targeted and its costs should be included in fee relief.” In 2025, the effort to develop ISR specific rules was placed under the NRC’s broader E.O.14300 rulemaking response. E.O. 14300 tasked the NRC with a wholesale revision to its regulations and guidance. Moving this rulemaking under the E.O. 14300 effort was done to facilitate a timely and efficient rulemaking in recognition of the significant efficiencies and reduction in regulatory burden that could be achieved by changes in this rule, while upholding public safety. Additionally, the NRC received several letters related to groundwater protection at ISR facilities. The letters are publicly available and are listed in the “Availability of Documents” section.

D. July 2020 EPA-NRC Memorandum of Understanding on ISR Rulemaking

In July 2020, the NRC and EPA entered into a Memorandum of Understanding (MOU) entitled, “Memorandum of Understanding Between the U.S. Nuclear Regulatory Commission and the U.S. Environmental Protection Agency Concerning the Regulation of Uranium in situ Recovery Activities,” which delineates the roles and responsibilities of each agency under Title II of UMTRCA for regulating uranium ISR activities. The purpose of the MOU is to 1) provide a framework for cooperation and coordination between the NRC and the EPA for implementing each party’s statutory responsibilities under AEA sections 84 and 275 with respect to regulating uranium ISR activities in a timely, efficient, and thorough manner; 2) describe the responsibilities of each party in regulating uranium ISR activities; and 3) foster opportunities for effective and efficient communication between the NRC and the EPA, including the exchange of written information, and interagency meetings.

The July 2020 MOU contains several provisions to ensure that NRC and EPA align on the regulatory basis for technical requirements in any future rulemaking efforts addressing

groundwater protection at ISR facilities. For example, Section VII.c. of the MOU addresses the length of the post-restoration groundwater monitoring period by providing that the corrective action framework of Subtitle C of RCRA is the appropriate regulatory framework for ISR facilities, including the use of ACLs approved by the applicable regulatory agency.

E. NRC's Current Regulatory Practice for Groundwater Protection at ISR Facilities

The NRC has, to date, regulated groundwater protection at ISR facilities by using site-specific license conditions that incorporate the relevant regulations for groundwater protection found in appendix A to 10 CFR part 40 and that are otherwise informed by the NRC's operational experience and best management practices. The NRC requires, as a standard condition of its site-specific ISR license, that a licensee demonstrate that it has all necessary permits, including a UIC aquifer exemption for the groundwater in the production unit (to the extent such an exemption is required), before a licensee can commence ISR operations. More information on the criteria under which EPA may issue an aquifer exemption is available at 40 CFR 146.4. The NRC regulations that address groundwater protection requirements for the management of uranium byproduct material are currently found in criteria 5, 7, 7A, 9, and 13 of appendix A to 10 CFR part 40. The NRC has applied the groundwater protection standards in these criteria to hazardous constituents in the production unit for groundwater protection at ISR facilities using site-specific license conditions, as informed by the applicable regulatory guidance. Additional discussion on the NRC's current regulatory practices for groundwater protection at ISR facilities can be found in the 2021 proposed ISR rule package presented to the Commission in SECY-21-0067: Enclosure 1 – Proposed Rule. The discussion in the 2021 rule package explains the differences between conventional mill tailings impoundments and ISR facilities with respect to

groundwater protection, point of compliance wells, monitoring for excursions, corrective actions, and groundwater restoration.

IV. Discussion: In Situ Recovery

A. Proposed Changes to 10 CFR Part 40 and Appendix A to Part 40

Appendix A to part 40 contains requirements primarily related to the operation of conventional uranium mills rather than ISR facilities. In the absence of NRC regulations specific to ISR facilities, licensing reviews for each applicant and approval of other requirements for licensees may vary—depending on differences among NRC and Agreement State licensing reviewers. The proposed regulations are expected to make the licensing process more efficient, and the NRC's regulatory oversight more predictable and consistent for the NRC, licensees, and the public.

Specifically, the NRC proposes to revise appendix A to part 40 by adding a new section VI, "Additional Technical Criteria for ISR Operations," which consists of a new criterion 14 that establishes groundwater protection requirements specific to ISR facilities. This proposed rule would also revise the preamble paragraph of criterion 5 in appendix A, and paragraphs 5B(1), 5B(2), 5B(5)(b), and 5C to clarify that several of the current conventional uranium milling requirements apply to ISR operations, including the use of ACLs. The proposed rule would further add a new paragraph 5(B)(1)(b) to criterion 5 that would establish the applicable groundwater protection standard for ISR facilities and explicitly cross-reference to paragraph 5B(5), which sets the hazardous constituent concentration limits that must not be exceeded at the groundwater point of compliance. The new paragraph 5(B)(1)(b) would also provide that the Commission will establish the point of compliance and compliance period on a site-specific basis pursuant to criterion 14, and that the Commission

will identify hazardous constituents, establish concentration limits, and may adjust the point of compliance, if needed.

The proposed rule would revise the current definition of *Byproduct Material* in 10 CFR 40.4 to include liquid wastes from ISR facilities that may impact groundwater. The proposed rule would also add, in the introduction to appendix A, new definitions for *Aquitard*, *Corrective action*, *Excursion*, *ISR facility*, *Indicator constituent*, *In situ recovery*, *Production unit*, and *Wellfield*; and revise, the current definition of *Point of compliance* to add requirements specific to ISR operations.

In addition to these definition changes related to ISR facilities, the proposed rule also defines the term *abandoned uranium mine waste remediation*. The purpose of this definition is to clarify the difference between abandoned uranium mine waste remediation activities and uranium milling activities. Abandoned uranium mine waste remediation activities are regulated under the source material framework in 10 CFR part 40 while uranium milling activities are regulated under the source and byproduct material framework in 10 CFR part 40 and Appendix A to 10 CFR part 40.

The proposed rule would also add a preamble paragraph to section I, "Technical Criteria," of appendix A to explain that this proposed rule, if adopted, would apply to an application for, and the licensing, operation, and decommissioning of, a new ISR facility, a new wellfield within a licensed ISR facility, or a new production unit within an operating wellfield of a licensed ISR facility, if the application is submitted after the effective date of this rule. Finally, this proposed rule would cross-reference the values for the maximum concentrations for groundwater protection for all uranium mills (both conventional mills and ISR facilities) to the EPA's Maximum Contaminant Level (MCL) regulations for drinking water.

B. Proposed New Criterion 14

The NRC proposes to add a new criterion 14 to appendix A to 10 CFR part 40 that would establish regulations specific to uranium ISR facilities to protect groundwater from the radiological and nonradiological hazards associated with the generation of AEA section 11e.(2) byproduct material, thus codifying the risk-informed and best management practices for groundwater protection used by the NRC in site-specific license conditions. Together, with the revised applicable requirements in criterion 5, and the existing requirements in criteria 7, 7A, 9 and 13, the criterion 14 requirements would establish a standardized groundwater protection program for the NRC regulation of ISR facilities.

The proposed requirements in criterion 14 are set out in eight specific provisions: a) site characterization and suitability demonstration; b) wellfield pre-operational requirements; c) well design and construction requirements; d) operating, monitoring, and reporting requirements; e) mechanical integrity; f) wellfield restoration; g) plugging and abandonment; and h) corrective action. The criterion 14 provisions set out technical requirements for groundwater protection that would enable the NRC staff to determine if the ISR facility can be operated to prevent, detect, and correct leakage or migration of contaminants from the production unit to surrounding groundwater.

Criterion 14(a) would require that the applicant submit specific, detailed geologic and hydrologic site characterization information (e.g., a description of the local and regional hydrogeologic gradient and hydrostratigraphy; past, current and future groundwater use, etc.) to demonstrate the suitability of a site to undertake ISR operations in such a manner that there would be no significant impact to the groundwater. The NRC has determined that this information is needed because the production unit is a subsurface natural system, in contrast to an engineered and manufactured system where the design, operation, and behavior are understood and can be tested or simulated to predict its performance.

Criterion 14(b) would set out wellfield pre-operational requirements that must be satisfied after the issuance of the license or license amendment (in the case of a new production unit or new wellfield), but prior to the injection of lixiviant into the production unit. The licensee would be required to undertake sampling and analysis of radiological and nonradiological hazardous constituents described or otherwise identified under criterion 14(b)(2) to determine the background hazardous constituent concentration levels in the groundwater at all point of compliance wells in the production unit in each wellfield, and in the immediately overlying, underlying, and adjacent aquifers to the production unit in each wellfield. The licensee would be required to take at least four independent samples at each point of compliance well as provided in criterion 14(b)(3)(ii) to be consistent with the comparable RCRA regulation in 40 CFR 264.97(g)(1). These samples must be taken at a minimum of two weeks apart or at an interval approved by the NRC. The background hazardous constituent concentration levels would be used by the NRC to establish the approved hazardous constituent concentration limits in paragraph 5B(5)(a) or (b) for groundwater restoration for the production unit and for any corrective action in the aquifers immediately overlying, underlying, and adjacent to the production unit.

The licensee also would be required by criterion 14(b)(4) to select at least three indicator constituents to minimize the likelihood of false positives for excursion detection as described in NUREG/CR 3967, "An Analysis of Excursions at Selected In Situ Uranium Mines in Wyoming and Texas." The licensee also would be required to measure background concentration levels to determine the upper control limit for each indicator constituent at point of compliance wells in the aquifers immediately overlying, underlying, and adjacent to the production unit. The licensee also would be required by criterion 14(b)(5) to provide a wellfield restoration plan demonstrating how it will meet the approved hazardous constituent concentration limits in the production unit after restoration. The NRC must approve both the

background hazardous concentration levels submitted in accordance with criterion 14(b)(3), the selection of the three indicator constituents and the determination of the upper control limit for each indicator constituent in accordance with criterion 14(b)(4), and the wellfield restoration plan submitted in accordance with criterion 14(b)(5), before the licensee may inject lixiviant into the production unit.

Criterion 14(c) would include requirements for injection, production, and monitoring well design and construction.

Criterion 14(d) would include requirements for ISR wellfield operation and monitoring to ensure the control of byproduct material within the wellfield so that the leakage or migration of byproduct material into surrounding groundwater would be prevented and detected so that corrective action could be taken. The licensee would be required to measure injection pressures to demonstrate that the maximum injection pressure has not been exceeded and to measure injection and production flow rates or volume to demonstrate an inward hydraulic gradient in the production unit to prevent migration of byproduct material. The licensee also would be required to conduct monitoring at point of compliance wells to detect any excursion that may signal the migration of byproduct material into surrounding groundwater, to establish a program to detect leaks and spills into the uppermost aquifer, and to meet specific reporting requirements.

Criterion 14(e) would include requirements for mechanical integrity testing to ensure that any leaks caused by failures in specific well installation components (e.g., casings) are detected and corrected to prevent leakage of AEA section 11e.(2) byproduct material into surrounding groundwater.

Criterion 14(f) would include requirements for groundwater restoration in the production unit in the wellfield. The licensee would be required to meet the approved hazardous constituent concentration limits in paragraph 5B(5)(a) or (b) in the production unit

after restoration is completed. If the licensee cannot practically achieve these limits, then under paragraph 5B(5)(c), the licensee may propose, and the NRC may establish, an ACL for a hazardous constituent, after a demonstration that there is no present or potential hazard to groundwater or surface water quality pursuant to paragraphs 5B(4) and 5B(6). Under Criterion 14, groundwater restoration would occur to the approved hazardous constituent concentration limits set forth in paragraph 5B(5)(a) or (b) or to an approved ACL. As such, criterion 14(f) would require at least one year of quarterly post-restoration monitoring at the points of compliance in the production unit after groundwater restoration has met the approved hazardous constituent concentration limits or to an approved ACL. Additionally, the licensee would be required to demonstrate that there has been no statistically significant exceedance of the approved hazardous constituent concentration limits or to an approved ACL for one year. The licensee would be required to submit a wellfield restoration report for NRC approval after these requirements are met. This proposed change to the rule, which would codify the current practice of a minimum of one year of post-restoration groundwater monitoring to verify that conditions remain protective, could necessitate revisiting the July 2020 EPA MOU.

Criterion 14(g) would include requirements for the licensee to submit a plugging and abandonment plan for all wells to ensure that byproduct material fluids do not leak from plugged and abandoned wells into surrounding groundwater.

Criterion 14(h) would include requirements for corrective action pursuant to criterion 5D for three specific events. Specifically, corrective action would be required for 1) a confirmed excursion that lasts more than 60 days and has demonstrated an exceedance of an approved hazardous constituent concentration limit; 2) a statistically significant exceedance of an approved hazardous constituent concentration limit at a point of compliance well in the production unit during post-restoration monitoring; or

3) the detection of leakage into the uppermost aquifer.

C. Proposed Revisions to Paragraph 5B(5) and Table 5C

The proposed rule would update paragraph 5B(5)(b) and remove the criterion 5C table in appendix A and replace it with cross references to specified EPA groundwater protection numerical standards. Currently, paragraph 5B(5)(b) provides a licensee the option to restore the level of a given hazardous constituent present in the groundwater so that it is at or below the maximum concentration for that constituent found in the criterion 5C table, "Maximum Values for Groundwater Protection," in appendix A if the value is higher than its background concentration level. The current criterion 5C table, which was added to appendix A by the NRC in its 1987 rulemaking, lists the then available MCLs from the EPA's standards for protection of drinking water and the maximum concentrations for other selected constituents expected to be commonly found at uranium milling sites. The proposed paragraph 5B(5)(b) would reference the proposed criterion 5C, which would no longer be in a tabular format but would instead cross reference the EPA's 40 CFR part 141 tables that contain the various hazardous constituent MCLs for drinking water and the 40 CFR 264.94 Table 1, "Maximum Concentration of Constituents for Ground-water Protection," for those constituents not listed in the 40 CFR part 141 tables (e.g., lead and silver). The references to the criterion 5C table in the revised paragraph 5B(5)(b) and the table itself would be removed. These proposed changes would be applicable to both conventional mills and ISR facilities.

The NRC is considering these proposed changes to paragraph 5B(5)(b) and to the criterion 5C table because when the NRC added the criterion 5C table in 1987, the EPA was still in the process of developing the MCLs and the EPA has subsequently revised certain MCLs and added new constituents of concern to the standards for protection of drinking

water (40 CFR part 141). By adding cross references in a revised criterion 5C to the EPA's 40 CFR part 141 MCLs for hazardous constituents and to the EPA's maximum concentrations in 40 CFR part 264, Table 1, appendix A should not require future revision if the EPA later revises these standards.

D. Proposed Definition of a Point of Compliance Well

A point of compliance well plays an integral groundwater protection role both in the NRC's current practice of regulating ISR facilities by site-specific license conditions and in this proposed rule as it represents the location where the approved hazardous constituent concentration limits set forth in paragraph 5B(5) of appendix A to 10 CFR part 40 must be met. The proposed rule would continue to define the term the *Point of compliance* as a site-specific location in the uppermost aquifer where the groundwater protection standard must be met; however, the proposed rule would add, for ISR operations, that the point of compliance also includes a site-specific location below the uppermost aquifer in the production unit in the wellfield, or in aquifers adjacent to, above, or below the production unit, where the groundwater protection standard must be met.

With this revised definition, a licensee would be required to install point of compliance wells not only in the production unit but also in the immediately overlying, underlying, and adjacent aquifers to the production unit. The point of compliance wells in the production unit would be used to establish the background hazardous constituent concentration levels before lixiviant injection, and subsequent to the termination of ISR operations, would act as the points of compliance to determine if the approved background hazardous constituent limits are achieved after restoration of the production unit and for post-restoration monitoring.

The point of compliance wells in the immediately overlying, underlying, and adjacent aquifers would be used to establish the background hazardous constituent concentration

levels and the indicator constituent upper control limits for excursion detection before leachate injection. During ISR operations, these point of compliance wells in the immediately overlying, underlying, and adjacent aquifers to the production unit would be used to detect excursions. If corrective action is required as a result of an excursion being detected, these point of compliance wells would be used to determine if the corrective action has met the approved hazardous constituent concentration limits.

Paragraph 5A(1) sets forth the primary groundwater protection standard for a conventional mill's surface impoundment, namely, the installation of a liner "that is designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil, groundwater, or surface water." The regulatory assumption is that the liner will not fail. If leakage of byproduct material occurs due to a failure of the liner to contain the material, then the licensee must take corrective action, which may include the installation of one or more point of compliance wells. Point of compliance wells are, thus, not part of the design of the conventional mill or its surface impoundment, but are only installed in the event of a leakage from the impoundment that will require corrective action.

In contrast, point of compliance wells are a critical part of groundwater protection in the ISR wellfield. The point of compliance wells are required to be installed before operations to measure background hazardous constituent concentration levels in the production unit and in the immediately overlying, underlying, and adjacent aquifers. The point of compliance wells are also used during operations for excursion detection in the immediately overlying, underlying, and adjacent aquifers and for any required corrective action. Finally, after restoration of the production unit, the point of compliance wells are used to demonstrate compliance with the approved hazardous constituent concentration limits pursuant to paragraph 5B(5) and to conduct post-restoration monitoring.

E. Proposed Definition of Excursion

The proposed rule would define the term *Excursion* to mean the detection of indicator constituents that may signal the movement of fluids containing byproduct material from the production unit into surrounding groundwater. The term *Indicator constituent* is defined to mean a parameter, such as chloride, conductivity, total alkalinity, or other conservative solute, whose value is used to detect an excursion. Indicator constituents travel at or close to the same velocity as the groundwater and are not slowed by geochemical or physical processes that impact the migration of hazardous constituents in the byproduct material (e.g., uranium, radium). As such, the detection of an excursion, i.e., the presence of indicator constituents, serves as an early warning system of the movement of fluids containing byproduct material from the production unit into surrounding groundwater, so that the licensee can take action to eliminate migration of hazardous constituents caused or introduced by the licensee's operations into the surrounding groundwater.

To prevent the movement of byproduct material into surrounding groundwater, the proposed criterion 14 would require the licensee to establish a monitoring program to detect excursions, including the installation of point of compliance wells in the immediately overlying, underlying, and adjacent aquifers to the production unit that could be affected by migration of byproduct material. Under the proposed criterion 14(d)(2)(iii), after lixiviant injection begins in the production unit, the licensee would be required to take samples to measure the three selected indicator constituents every two weeks from the point of compliance wells in the aquifers immediately overlying, underlying, and adjacent to the production unit. In accordance with proposed criterion 14(d)(2)(iii)(A), an excursion would be deemed to have occurred if, in any point of compliance well, two or more excursion indicator constituents exceed their upper control limits. An adequate excursion indicator constituent is

one that is found in significantly higher concentrations in the production unit during ISR operations than in the surrounding groundwater outside the production unit.

The licensee should choose excursion indicator constituents that are not significantly attenuated by geochemical or physical processes. Selection of indicator parameters should be reflective of the lixiviant used at the facility. Because a sample may result in a false positive, an excursion confirmation sample must be taken within 48 hours after the initial analysis that indicates that an excursion occurred. If that second sample does not indicate the upper control limits were exceeded, a third sample would be taken. If either the second or the third sample confirms that an excursion has occurred, the licensee would be required to take corrective action according to the requirements in criterion 14(h)(1). If neither of the samples confirm an excursion, the point of compliance well would be removed from excursion status.

F. Details Regarding Proposed Alternate Concentration Limits Applicable to Groundwater Restoration at ISR Wellfields

The proposed regulations for groundwater restoration in criterion 14(f) state that after completion of ISR operations in a production unit, the licensee must restore the hazardous constituents in the production unit identified under criterion 14(b)(2) to the constituent's approved concentration limit listed in either paragraphs 5B(5)(a) or (b) pursuant to the wellfield restoration plan described in criterion 14(b)(5). The approved concentration limit would be either the approved background concentration for that hazardous constituent (paragraph 5B(5)(a)) or one of the values referenced in criterion 5C (e.g., MCLs), if the background concentration is below these values (paragraph 5B(5)(b)).

Under proposed criterion 14(f), if the licensee cannot practically achieve the approved concentration limit for a hazardous constituent, the licensee may propose an ACL pursuant to paragraph 5B(5)(c). In such an instance, criterion 14(f) would require that the licensee submit an application for an ACL as an amendment to its license in accordance with 10 CFR 40.44. After receiving a licensee's application requesting an ACL and consistent with the requirements of 10 CFR 2.104, the NRC would publish a notice of opportunity for hearing in the *Federal Register*.

Pursuant to proposed criterion 14(f), the NRC would consider the factors specified in criterions 5B(4) and 5B(6) in its evaluation of the ACL application. Criterion 5B(4) requires the NRC to consider the presence of any underground source of drinking water (USDW) and exempted aquifers.

Criterion 5B(6) states that the background concentrations pose no incremental hazard and the other values referenced in criterion 5C, including the MCLs, which are drinking water limits, provide an acceptable hazard. Criterion 5(B)(6) provides the criteria for when that the NRC may establish a site-specific ACL for a hazardous constituent.

Additionally, criterion 5B(6) provides 9 factors to evaluate potential adverse effects on groundwater quality and 10 factors for potential adverse effects on hydraulically connected surface water quality that will be considered by the NRC for the present and potential hazard finding for a proposed ACL. An evaluation of the criterion 5B(6) factors would enable the NRC to make the appropriate present and potential hazard findings with respect to the proposed ACL. In its license amendment application proposing the ACL, the licensee must provide sufficient site-specific information to enable the NRC to adequately address the criterion 5B(6) factors and to determine whether the proposed ACL for that hazardous constituent in the production unit presents no hazard or potential hazard to groundwater or surface water quality.

These factors are then considered by the NRC to evaluate the ACL for that hazardous constituent in a production unit. An ACL may not be proposed or established until after ISR operations have ceased in the production unit and the licensee has demonstrated that meeting either the approved background concentration or the MCL for the subject hazardous constituent is not practically achievable at that production unit.

Although this proposed rule would not apply to current ISR facility licensees who are not seeking to install a new wellfield within a licensed ISR facility or a new production unit within an operating wellfield of a licensed ISR facility, such current ISR facility licensees can request that the NRC approve the use of an ACL in accordance with criterion 5B(5)(c). The NRC would process such an ACL request in a similar manner as described in the proposed rule's criterion 14(f), including the publication of a notice of opportunity for hearing in the *Federal Register*.

G. Proposed Post-Restoration Groundwater Monitoring Requirements for ISR Wellfields

Presently, the NRC requires the licensee to conduct post-restoration monitoring at the applicable points of compliance wells on a quarterly basis for at least one year, after the approved hazardous constituent concentration limits are met, using a practice currently known as stability monitoring. This practice is required through site-specific license conditions. Post-restoration groundwater monitoring, as proposed in criterion 14(f)(1), would occur after all activities to restore the groundwater in a wellfield have ended and all monitored hazardous constituents are at or below their approved concentration limits in criterion 5B(5). As proposed, post-restoration monitoring would continue the staff's current practice of quarterly monitoring for at least one year following completion of groundwater restoration at point of compliance wells in the restored production unit to ensure that there is no statistically significant exceedance of the approved hazardous constituent concentration limits.

If any point of compliance well shows a statistically significant exceedance, the proposed rule would require the licensee to undertake corrective action pursuant to criterion 14(h)(2). Depending on the results of the corrective action, the NRC may require the licensee to restart post-restoration monitoring after the corrective action is completed. Restoration of the production unit would be deemed complete when concentrations for all hazardous constituents remain at or below approved limits for one year.

The proposed post-restoration monitoring requirement would be applicable to each production unit in a wellfield and would ensure that the hazardous constituent concentration levels in each production unit are maintained after restoration at or below the approved hazardous constituent concentration limits.

H. Proposed Monitoring and Corrective Action Requirements for Protecting the Uppermost Aquifer

Although groundwater impacts from ISR operations are more likely to occur in the aquifers immediately overlying, underlying, and adjacent to the production unit where uranium is extracted, it is important to ensure that groundwater in the uppermost aquifer is also protected from the effects of near surface and above surface ISR operations. Areas in which these operations occur include waste fluid evaporation ponds, facilities processing lixiviant, source, and byproduct material, and associated wellfield infrastructure. Experience to date shows that leakage or spills into the uppermost aquifer can occur as a result of ISR operations in each of these areas.

The proposed rule's criterion 14(d)(4) would require each licensee to establish a program, to be approved by the NRC, to detect leaks or spills of lixiviant, source, or byproduct material into the uppermost aquifer. If the licensee detects leakage or spills of lixiviant, source, or byproduct material in the uppermost aquifer, the licensee would be

required to notify the NRC under proposed criterion 14(d)(5)(iii). Upon detection, the licensee would have to undertake corrective action following the requirements of criterion 14(h)(3). The licensee would be required to notify the NRC of the corrective action taken and the results within 60 days of detection. Corrective action would not be considered complete until the source of the leakage from the licensee's operations has been eliminated and the hazardous constituent concentration levels were restored to the approved hazardous constituent concentration limits.

I. Interface Between EPA's Underground Injection Control Program Requirements with the Proposed New Criterion 14

Permits for underground injection wells—a broad class of wells that includes EPA UIC Class III injection wells used in ISR operations, as well as Class I and V disposal wells also commonly utilized at ISR facilities—are issued under the EPA's UIC program authority set forth in the EPA's regulations in 40 CFR parts 144 and 146. Under EPA's UIC program, the licensee must apply to the EPA to exempt the groundwater in the production unit if the groundwater is defined as a USDW from the protections of the SDWA before injection in Class III wells can begin. The EPA's regulations in 40 CFR 144.3 define an *Exempted aquifer* as an aquifer or a portion thereof that meets the criteria in the definition of USDW but which has been exempted according to the procedures in 40 CFR 144.7. The criteria to determine when a USDW may be designated as an exempted aquifer by the EPA Administrator are found in 40 CFR 146.4. When the EPA Administrator approves and issues an aquifer exemption, the EPA provides an exempted aquifer boundary that includes the production unit in a wellfield and a buffer zone outside the production unit.

Several UIC requirements are similar to those currently required by the NRC in site-specific licenses. The NRC proposes to use the UIC regulations for Class III injection wells as

a regulatory framework with slight modifications to be specific to ISR operations, such as mechanical integrity testing, and considers these proposed regulations as complementary to the EPA's UIC regulations. The NRC's licensees would still be subject to the UIC program requirements through direct regulatory oversight by the EPA or those States to which the EPA has delegated its UIC program authority. The requirements in the proposed criterion 14 would only be applied to Class III wells at ISR facilities.

The EPA's UIC program regulates injection wells, whereas the NRC intends to regulate both injection and production wells under the proposed rule. The NRC is proposing to include production wells in the rule as they may be converted to injection wells in order to modify groundwater flow paths during operations, particularly during any corrective actions. Furthermore, to the extent the Class III permittee is granted an aquifer exemption, the UIC program does not require the UIC Class III well permittee (i.e., the NRC licensee) to restore the groundwater quality of the production unit of the exempted aquifer. The NRC requires restoration of groundwater in the production unit under UMTRCA. The intent of these complementary requirements is to prevent contamination of any USDW surrounding the exempted aquifer (e.g., outside the aquifer exemption boundary) where an aquifer is exempted. In the proposed criterion 14(f), the NRC would expressly require restoration of the exempted aquifer. Another difference between the two programs is that the UIC regulations require only an initial integrity test prior to operations for uranium Class III injection wells. In this regard, the EPA premised its UIC regulations on the determination that most injection wells would have a relatively short service life.¹ Based upon the NRC's regulatory experience, injection wells at ISR facilities may need to be operational throughout the term of the ISR facility license and, as such, the proposed criterion 14(e) will require a mechanical

¹ In its June 1980 final rule promulgating 40 CFR Part 146, "Underground Injection Control Program: Criteria and Standards," the EPA stated that "the periodic demonstration of mechanical integrity will apply only to the wells with longer [useful] life, i.e., salt and geothermal wells." 45 FR 42472, 42485 (June 24, 1980).

integrity test for both injection and production wells before initial use and before reuse of wells that have been serviced with equipment or procedures that could damage the well casing, and at least once every five years thereafter. Also, the UIC regulations require routine monitoring of pressure and flows to the injection wells. The purpose for this monitoring is to ensure that the formation fracture pressure is not exceeded during operations and the integrity of the wells is maintained. In the proposed criterion 14(d), the NRC would require routine monitoring of pressure and flows to ensure that the inward gradient is maintained during both ISR operations and groundwater restoration.

Finally, proposed criterion 14(f) would ensure protection of the USDWs when establishing an ACL for a hazardous constituent after groundwater restoration. Specifically, criterion 14(f) would require compliance with the existing criterion 5B(4), which requires that in making any determination concerning groundwater use for establishment of an ACL for a hazardous constituent under criterion 5B(6), the NRC must consider the presence of any USDWs and exempted aquifers.

J. Agencies that participated in the development of this proposed rule

In 2021, the working group involved in the preparation of an earlier version of this proposed rule included NRC staff and two Agreement State representatives, one each from the respective regulatory agencies of Texas and Wyoming. In 2025, the working group involved in preparation of this proposed rule included NRC staff and Agreement State representatives from the respective regulatory agencies of Utah and Wyoming. The Organization of Agreement States approved these representatives for both rulemakings. The EPA and Agreement States will be able to provide comments during the formal comment period for this proposed rule.

The NRC prepared an unofficial redline version of the proposed changes to regulatory text that is intended to help the reader identify the proposed changes. The unofficial redline strikeout version of the proposed rule is publicly available and is listed in the “Availability of Documents” section.

V. Specific Request for Comment: ISR

The NRC is seeking advice and recommendations from the public on the proposed rule. The NRC is particularly interested in comments and supporting rationale from the public on the following:

The proposed changes for ISR facilities are intended to codify the NRC’s existing licensing practices and provide regulatory certainty and clarity with respect to groundwater protection.

1. For new and existing Part 40 ISR licensees, do the rulemaking changes add regulatory clarity or regulatory certainty? If not, what additional changes should the staff consider?

2. Does the proposed rule or supplemental guidance create conditions that would be contrary to the rule’s purpose and objectives? If so, which portions are contrary to the rule’s purpose and objectives, and why? Are there unintended consequences? If so, what are the unintended consequences, and how should they be addressed?

ISR facilities typically require several permits at the Federal and/or State level. For example, ISR facilities are required to obtain a permit under EPA’s (or an authorized State’s) UIC program to inject lixiviant into the subsurface. The NRC has developed this proposed rule language to be complementary to EPA’s UIC program but is interested in any potential regulatory conflicts introduced by the rule.

3. Does the proposed rule or supplemental guidance create a conflict with another federal regulation? If so, which regulation, and how should the conflict be resolved?

The regulations in 10 CFR part 40 contain provisions requiring submission of documents to the NRC. One example is the semi-annual effluent reporting requirement contained in 10 CFR part 40.65.

4. Are there any reporting requirements in this proposed rule, or in the existing language in 10 CFR Part 40 that should be reconsidered by the staff? Staff is interested in identifying reporting requirements that could be submitted less frequently, that could be maintained on site for review during inspections, or could be satisfied in some other manner.

After completion of ISR operations, the facility must restore groundwater to the approved constituent concentration limits at all point of compliance wells in the production unit. If all efforts to restore ground water have failed and the facility cannot practically achieve the approved concentration limit for a hazardous constituent, the facility may apply for an alternate concentration limit (ACL). The NRC may approve a site-specific ACL after considering practicable corrective actions, and that the constituent will not pose a hazard to human health or the environment as long as the ACL is not exceeded. The factors to make this hazard finding are currently codified in 5B(4) and 5B(6). This rulemaking proposes to apply the same criteria for ISR.

5. What additional factors or criteria should the NRC consider in either this rulemaking or through the development of guidance documents for the consideration of ACL's at ISR facilities?

VI. Background: Decommissioning Timeliness

A. Timeliness in Decommissioning of Nuclear Materials Facilities

The NRC has consistently determined that decontamination should be accomplished and the license terminated as soon as practical. In the 1994 final rule, "Timeliness in Decommissioning of Materials Facilities." (59 FR 36026, July 15, 1994), the NRC amended its regulations to establish specific time periods for decommissioning unused portions of operating nuclear materials facilities and for decommissioning the entire site upon license expiration, termination of operations by choice, or termination of operations caused by a period of inactivity. The NRC revised these requirements in recognition of the difficulties associated with a case-by-case approach to decommissioning issues at nuclear materials sites.

In finalizing the associated time periods in that rule, the NRC relied upon an evaluation that indicated that, in general, for materials facilities, further health and safety benefits derived from radiological decay are not likely to be gained by delaying decommissioning beyond approximately 3 years from the date that operations cease. However, the evaluation showed that incremental benefits due to radioactive decay between the second and third years are small, and NRC considered 2 years as a sufficient period for a licensee to make a business decision regarding the future use of the currently-inactive license, separate building, or outdoor area. Therefore, NRC determined that a reasonable time period to permit no principal activities to be conducted under the license or for a building or outdoor area to remain inactive without undergoing decommissioning was 24 months. In doing so, the NRC considered both the health and safety benefits to be obtained by allowing short-lived isotopes to decay before beginning decommissioning operations and the licensee's need to make business decisions concerning the initiation of decommissioning.

B. Timely Completion of Decommissioning of Power Reactors and Nonpower Utilization Facilities

In 1988, in a final rule, “General Requirements for Decommissioning Nuclear Facilities.” (53 FR 24018, June 27, 1988), NRC amended its decommissioning requirements and established a 60-year period after permanent cessation of operations for an electric utility licensee to complete decommissioning. The proposed rule, “Decommissioning Criteria for Nuclear Facilities,” (50 FR 5600, February 11, 1985) introduced defined decommissioning alternatives, including decontamination (DECON) and safe storage (SAFSTOR). The proposed rule indicated that both DECON or SAFSTOR would be reasonable decommissioning alternatives for light water power reactors for up to 50 years. The NRC explained that, based on the half-life of the typical remaining radionuclides, the reduction of occupational doses beyond about 30 years would be marginally significant, although a significant volume reduction in contaminated waste would result from 50 years in safe storage. At the time, NRC considered both 30- and 50-year periods as acceptable for decommissioning activities. The final rule established the requirement in § 50.82(a)(3) for a licensee to terminate its license within 60 years of permanent cessation of operations, explaining that the NRC considered a 50-year period sufficient for the benefits of radiological decay and a 10-year period for dismantlement and decontamination activities to be completed.

Additionally, in finalizing the rule, the Commission also stated that consideration would be given to a decommissioning alternative which provides for completion of decommissioning beyond 60 years for power reactors only when necessary to protect public health and safety. The amended regulations identified factors to be considered by NRC in support of a request to extend decommissioning beyond 60 years, including the unavailability of waste disposal capacity, presence of other nuclear facilities at the site, and other site-specific factors affecting capability to carry out decommissioning safely. The 60-year decommissioning requirement for nuclear reactor facilities licensed under 10 CFR part 50, §

50.82(a)(3), is identical to the requirement for reactor facilities licensed under parts 52 and 53, § 52.110(c) and § 53.1070(c), respectively.

Other than the acknowledgment in Regulatory Guide (RG) 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," that states any such request will be reviewed on a case-by-case basis, there was little precedent or guidance regarding how to apply the considerations currently included in §§ 50.82(a)(3), 52.110(c), and 53.1070(c) for an alternative schedule for decommissioning. Therefore, recently, in SECY-24-0073 "Site-Specific Considerations for Review of Requests to Complete Power Reactor Decommissioning Beyond 60 Years from Permanent Cessation of Operations," the staff informed the Commission of how it would evaluate such a request. As explained in SECY-24-0073, the staff's approach when evaluating alternative decommissioning schedule requests draws on the methods historically used for nuclear safety reviews and the seven safety cornerstones of the Reactor Oversight Process, and considers issues including waste disposal capacity, the presence of other nuclear facilities, SAFSTOR conditions, physical security, and partial approvals.

The regulatory language in 10 CFR 50.82(a)(3), § 52.110(c), and § 53.1070(c) essentially provides that a licensee can request an alternative decommissioning schedule beyond the 60-year requirement if a licensee can demonstrate that approval of the alternative decommissioning schedule is "necessary to protect public health and safety." For other regulatory requirements in parts 50, 52, and 53 that do not have specific criteria for relief, exemptions are sought under the associated provision in §§ 50.12, 52.7, and 53.080, "Specific exemptions." The Atomic Energy Commission established § 50.12 in 1956 in a final rule, "Part 50 – Licensing of Production and Utilization Facilities," (21 FR 355, January 19, 1956) to provide flexibility for the Commission to grant exemptions from regulatory requirements as it determines are authorized by law, will not present an undue risk to the

public health and safety, and are consistent with the common defense and security, and when a special circumstance is present. The regulatory criteria for approving an alternate decommissioning schedule in §§ 50.82(a)(3), 52.110(c), and 53.1070(c), which allow approval "only when necessary to protect public health and safety," are much more restrictive than the criteria for review of specific exemptions in §§ 50.12, 52.7, and 53.080.

VII. Discussion: Decommissioning Timeliness

A. Timeliness In Decommissioning of Nuclear Materials Facilities

The proposed rule would offer several changes to the NRC's decommissioning regulations. For nuclear materials facilities, the proposed changes focus on the requirements to initiate timely decommissioning and the process to request an extension to the associated timeframes. The proposed rule would extend the timeframe for notifications related to the initiation of decommissioning, broaden the reasons acceptable for extensions to those timeframes, and streamline the process to request extensions, thereby reducing the regulatory burden on licensees while maintaining public health and safety.

Specifically, the proposed revisions to 10 CFR parts 30, 40, 70, and 72 would restructure the decommissioning requirements in paragraphs (d) of the applicable sections (§§ 30.36(d); 40.42(d); 70.38(d); and 72.54(d)) to separate the requirement to notify NRC if any of four criteria are met, from the requirement for the licensee to initiate decommissioning actions. Also, the proposed rule would extend the period of no principal activities that would trigger the notification provisions from 24-months to 36- or 48-months, depending on the licensee. Additionally, to increase flexibility, the proposed rule would also amend the process to request extensions of the timeframes established in paragraphs (d) of the applicable sections by broadening the reasons for extension, reducing the amount of information contained in the extension request, and increasing the time to develop the extension request

from 30 days prior to notification to 45 days after notification required by paragraph (d). (§§ 30.36(f); 40.42(f); 70.38(f); 72.54(f)). This rule does not propose to amend any requirements related to the timely completion of decommissioning of nuclear materials facilities (e.g., within 24 months of commencement of decommissioning).

Restructuring Requirements to Increase Regulatory Clarity and Flexibility in Requesting

Exemptions:

The NRC has identified efficiencies to be gained in modifying the regulatory structure for the requirements related to the initiation of decommissioning and decommissioning planning of nuclear materials licensed under §§ 30.36, 40.42, 70.38, and 72.54 of chapter 10. Currently, nuclear materials licensees are required to notify the NRC and begin decommissioning activities within 60 days of the occurrence of any of four triggering criteria. Because the requirements to notify the NRC and initiate decommissioning or decommissioning planning are collocated in the regulations, a failure to comply with one portion of the regulation results in a violation of the entire regulation. However, failure to provide timely notification after the occurrence of one of the four criteria may be more or less risk significant than a failure to initiate decommissioning activities in a timely manner.

Under current regulations, the NRC may grant requests to extend such time periods if a licensee submits the request no later than 30 days before notification pursuant to paragraph (d) of the applicable section, in accordance with §§ 30.36(f), 40.42(f), 70.38(f), and 72.54(f)(1). To approve such a request, the NRC must determine that this relief is not detrimental to the public health and safety and is otherwise in the public interest. However, because the time period that licensees have to request the exemption is located within paragraph (f) of the aforementioned regulations, neither the licensee nor NRC can use the process established in paragraph (f) to provide relief for a licensee that needs more than 30

days to develop its extension request. Instead, a licensee must request relief from the 30 day requirement using the specific exemptions process established in §§ 30.11, 40.14, 70.17, or 72.7, as applicable.

Additionally, a licensee may request an alternate schedule for submittal of a decommissioning plan in accordance with §§ 30.36(g)(2), 40.42(g)(2), 70.38(g)(2), and 72.54(f)(2). To approve the alternate schedule, the NRC must determine that the alternate schedule is necessary to the effective conduct of decommissioning operations, presents no undue risk from radiation to public health and safety, and is otherwise in the public interest.

The proposed rule revises the current structure of the sections and the differing standards for relief requests or extension requests to be more efficient and flexible. Specifically, this proposed rule would restructure the regulatory requirements in paragraph (d) of the applicable sections to separate the four criteria that trigger notification to NRC from the licensee actions that must be taken to initiate decommissioning after notifying NRC. The proposed change would enhance regulatory clarity as to when licensee actions are required and increase flexibility in when and how licensees may perform these actions. The proposed rule change would allow a licensee to use one process to request an extension to all these timeframes, as described in the proposed §§ 30.36(f), 40.42(f), 70.38(f), and 72.54(f)(1).

Extend the Period of No Principal Activities before Initiation of Decommissioning is Required

The NRC's policy has always been, and continues to be, that decontamination should be accomplished and the license terminated as soon as practical. Additionally, the agency continues to believe that timely initiation of decommissioning for nuclear material licensees, with notification and commencement of decommissioning activities when there is a period of no principal activities in a separate building or outdoor area or under the license, is appropriate.

However, over the years, it has become clear that business decisions regarding the use or non-use of licensed materials can take longer than the 24 months currently provided in NRC regulations as the length of time in which no principal activity triggers action by a licensee. As an example, a portable gauge licensee may not have a contract to use its gauges for a period that exceeds 24 months and thus would be required to initiate decommissioning or request an extension. The termination of the license would result in an inability to bid on contracts that require the use of a portable gauge for field operations. This creates an unnecessary regulatory burden on the licensee by requiring one of three options: (1) the licensee could terminate the license until a contract bid is found, at which time the licensee would need to apply for a new portable gauge license but would be unable to bid on the contract until the license was issued by the NRC (meanwhile, the licensee may lose the ability to bid on the contract as the license issuance time may be longer than the bidding process); (2) the licensee could request an extension under 10 CFR 30.36(f) if it can demonstrate that the request is not detrimental to public health and safety and is otherwise in the public interest; or (3) the licensee could request a “storage only” license and submit the regulatory information needed. In the third scenario, once a contract is available for bidding, a licensee would then need to request a change for the “storage only” license to be reinstated as an operational license, which can take up to 90 days for NRC to review and approve. In such cases, developing, submitting, reviewing, approving, and issuing license amendments for such administrative actions is a significant resource burden on the licensee and NRC with minimal safety benefit.

On numerous occasions, licensees have been required to implement one of the above three options to ensure their business can continue to deliver the safe and secure use of civilian nuclear energy technologies and radioactive materials for the benefit of society and the environment. In at least one instance, access to certain medical imaging technologies or

nuclear medicine treatments could have been impacted by a licensee who had not performed principal activities within 24 months because it did not have a qualifying patient. However, the licensee maintained its health and safety program throughout that period of time and was the only facility in a remote location to provide this type of medical care. Therefore, it may have been a detriment to public health and safety if NRC had not granted an extension from the 24-month period of no principal activities in this case. The changes proposed in this rule would alleviate this risk.

The proposed rule addresses this issue by amending the regulations to extend the 24-month period of no principal activities to 36 months for part 30 licensees and 48 months for licensees under parts 40, 70, and 72. In gathering data to inform the proposed 36-month period of no principal activities for part 30 licensees, NRC confirmed that incremental benefits due to radioactive decay between the second and third years are small and diminish significantly beyond 3 years. NRC also considered 3 years a reasonable amount of time in which licensees could adequately assess their future business needs in order to make a determination as to whether they should request an extension or initiate decommissioning. Additionally, because each record of receipt and transfer of byproduct material must be retained for 3 years following transfer or disposal of the material in accordance with § 30.51, any period beyond 3 years may present risk of institutional knowledge being lost. Finally, in establishing the 36 month period of no principal activities for part 30 licensees, the NRC also recognized that routine NRC inspections range from 1- to 5-year periodicity, depending upon the type of licensed activities. Therefore, a licensee would reasonably have at least one inspection within the proposed 36-month period of no principal activities before it is required to report to NRC. In the case that a licensee was not inspected during that period, the next periodic inspection would occur within a short period of time after the extension request is

submitted and/or approved, thereby providing reasonable assurance of adequate protection of public health and safety, common defense and security, and the environment.

While NRC is proposing a 36 month period of no principal activities for part 30 licensees, the NRC is proposing a 48 month period of no principal activities for parts 40, 70, and 72 licensees. The NRC is proposing the 48 month period of no principal activities for these licensees because compared to part 30 licensees, facilities licensed under parts 40, 70, and 72 typically have a lower risk of abandoned material because they have greater financial resources, and are subject to greater regulatory oversight given the nature of the materials, including higher inspection frequency. Additionally, source material, special nuclear material, and independent spent fuel storage installation licensees may experience certain economic conditions that would necessitate pausing operations for a longer period of time, such as changes in the price of uranium for a period of time. In general, an increase in radiological risk, and non-radiological risk at uranium recovery facilities, for the public could occur when nuclear material is abandoned and begins to migrate through the environment, potentially contaminating drinking water resources. However, as indicated above, licensees under 10 CFR parts 40, 70 and 72 typically have a lower risk of abandoned material. Therefore, NRC has determined that 48 months is a reasonable amount of time for no principal activities to occur at these facilities before requiring action by the licensee.

These proposed changes would extend the existing period of no principal activities from 24 to either 36 or 48 months (depending upon the type of license) before requiring NRC notification, thereby reducing reporting frequency, reducing costs for licensees and NRC, and providing licensees flexibility to make business decisions while retaining their NRC license, all while providing reasonable assurance of adequate protection of public health and safety. Further, these proposed changes retain the core safety principle that materials facilities should be decommissioned as soon as practical.

In this proposed rule, the NRC is maintaining a focus on safety by protecting against potentially abandoned radioactive material while providing flexibility to licensees based on foreseeable (e.g., grant funding lapse, gap in patient population for highly specialized nuclear medicine procedures, delays in contract implementation or obtaining new contacts, patient care considerations) or unforeseeable (e.g., pandemic, sudden and lasting economic shift) impacts that may cause a reasonable pause in principal activities under the license. Extending the period of no principal activities will also reduce the number of requests to extend, transitions to a “possession only” status, and premature license terminations and subsequent new license applications, all of which are administratively intensive for the NRC to review and disposition, and impose a regulatory burden on licensees.

Increase Flexibility in Decommissioning Timeliness Extension Requests

Under the current §§ 30.36(f), 40.42(f), § 70.38(f), or § 72.54(f)(1), the NRC may approve a request for extension to certain decommissioning timeliness requirements if it determines the request is “not detrimental to the public health and safety and is otherwise in the public interest.” While the NRC continues to support the position that nuclear facilities should be decommissioned as soon as practical, operational history has demonstrated that successful decommissioning may require delays to the schedules that do not impact public health and safety or the environment. The proposed rule would remove the current requirement to demonstrate that such requests are not detrimental to public health and safety and in the public interest and replace it with a streamlined process that risk-informs NRC’s review of the extension request by specifically focusing the review on safety-significant elements. The proposed paragraph (f) of the applicable sections (§§ 30.36(f), 40.42(f), § 70.38(f), and § 72.54(f)) provides the streamlined request process and includes specific, safety-related information that must be submitted as part of the request to delay the initiation

of decommissioning. Namely, the licensee must discuss (1) the business need for continued possession or authorization of licensed material or how the request is otherwise in the public interest (2) the health and safety plan that will be in effect during the extension period and (3) the current decommissioning cost estimate and the potential for increased decommissioning costs if an extension of the time period is or is not approved. Currently, Section 2.6 of NUREG-1757 Vol. 3, "Financial Assurance, Recordkeeping, and Timeliness," includes guidance on the type of information the NRC may need to make a determination on an extension request. This proposed rule aims to explicitly identify, in the regulation itself, a list of the information required to support the request. The goal of these proposed changes is to reduce the size and technical complexity of these requests and streamline NRC review by focusing on the most safety-significant information. As part of this proposed rule package, the NRC is issuing draft Interim Staff Guidance (ISG) DUWP-ISG-04, "Requirements for the Initiation of Decommissioning for Nuclear Materials Facilities," to provide additional considerations for licensees developing an extension request in accordance with the proposed regulations.

Additionally, the proposed rule would require the request include a timeframe for which the licensee will resume principal activities, which will not exceed 36 months from the date of notification that principal activities ceased under the license or in a separate building or outdoor area, as well as a commitment that the licensee will provide notification to the NRC if principal activities do not resume within the specified timeframe. The NRC is proposing the 36-month maximum timeframe for extension because, beyond 3 years, there is increased uncertainty in the licensee's specific business projections and decreased ability to project foreseeable shifts in the nuclear industry and free market. Moreover, NRC routine inspections for nuclear materials facilities are on a 1- to 5-year periodicity, ensuring that each

licensee would be inspected at least once between the initial 36-month period of no principal activities and a maximum of 36 additional months of inactivity during the extension period.

Currently, to request relief from the initiation of decommissioning and decommissioning planning requirements under §§ 30.36(f), 40.42(f), 70.38(f), or 72.54(f)(1), a licensee must submit a request to extend initiation 30 days prior to the notification date required by paragraph (d). In essence, a licensee must develop and submit the request for extension to the notification and timely decommissioning requirement before making such notification. The NRC recognizes that this brief timeframe may not allow for licensees to develop and submit adequate documentation to support the extension request. Additionally, if a licensee was in violation of the notification requirement pursuant to §§ 30.36(d), 40.42(d), 70.38(d), or 72.54(d), as applicable, it would have missed the opportunity for a request to delay initiation of decommissioning, as well.

The proposed rule would allow more time for licensees to develop and submit a request to delay the initiation of decommissioning activities. The changes proposed also include an option for licensees to indicate the intent to request a delay in the initiation of decommissioning as part of the notification required by §§ 30.36(d), 40.42(d), 70.38(d), or 72.54(d), as applicable. Then, a licensee must submit the request to delay the initiation of decommissioning 45 days later. This would allow for licensees to take advantage of the full 60 days provided by the requirement to notify the NRC of the initiation of decommissioning. In turn, the licensee would be able to make an informed business decision based on its needs or the public interest and then decide whether to request a delay in initiating decommissioning under §§ 30.36(f), 40.42(f), 70.38(f), and 72.54(f)(1), or proceed with decommissioning or decommissioning planning, if required.

To increase efficiency, NRC is proposing to include all timeliness requirements related to the initiation of decommissioning and decommissioning planning in the proposed

§§ 30.36(d), 40.42(d), 70.38(d), and 72.54(d). This would allow a licensee to request an extension to any of the timelines in these provisions by using the straightforward process described in proposed paragraph (f) of §§ 30.36, 40.42, 70.38, and 72.54. The proposal is intended to reduce unnecessary regulatory burden by limiting the number of extension requests submitted and reviewed by NRC and streamline the request for extensions to the initiation of decommissioning and decommissioning planning timeliness requirements without compromising the NRC's ability to properly regulate licensed material when principal activities have ceased. For licensees that are required to submit a decommissioning plan, the NRC is specifically seeking stakeholder feedback in Section VII, "Specific Request for Comment: Decommissioning Timeliness," on the applicability and usefulness of the proposed streamlined approval of alternate schedule requests in paragraph (f) of the §§ 30.36, 40.42, 70.38, and 72.54. NRC is evaluating potential alternative approaches to streamline alternate schedule requests to ensure the regulations adequately address the unique public health and safety concerns associated with a delay in submitting the decommissioning plan while providing for a streamlined process, where feasible.

B. Timely Completion of Decommissioning of Power Reactors and Nonpower or Utilization Facilities

The proposed rule offers several changes to the decommissioning regulations. For nuclear reactor, nonpower, or utilization facilities licensed under 10 CFR parts 50, 52, or 53, the proposed changes focus on the requirement to complete decommissioning in a timely manner and the process to request an extension to the required decommissioning timeframe. The proposed revisions to §§ 50.82(a)(3), 50.82 (b)(4)(i), 52.110(c), and 53.1070(c) would remove the criteria that exemptions to timely completion of decommissioning may be approved "only when necessary to protect public health and safety." Because the

requirements would not have criteria for exemption, exemptions would be governed by the specific exemptions process §§ 50.12, 52.7, and 53.080, broadening the scope of factors that NRC may consider in its approval of a specific exemption for licensees to delay completion of decommissioning beyond the required timeframe. This rule does not propose to amend the required timeline to complete decommissioning nor any requirements related to the beginning of the decommissioning process (e.g., timely certification to the NRC of permanent cessation of operations and removal of fuel, submittal and implementation of the post-shutdown decommissioning activities report (PSDAR), submittal of the license termination plan (LTP), or implementation of the LTP.)

The NRC continues to support the position noted in the final rule, "Amendments Specifying Licensee Responsibility for Nuclear Materials and Procedures for Termination of Specific Licenses," that all nuclear facilities should be decommissioned as soon as practical (48 FR 32324, July 15, 1983). In a 1988 final rule, "General Requirements for Decommissioning Nuclear Facilities," (53 FR 24018, June 27, 1988), the NRC's analysis demonstrated that a timeframe of 60 years was considered to be as soon as practical for reactor decommissioning. When considering decommissioning beyond the 60-year timeframe, in general, the NRC explained that there are a number of risks that must be carefully analyzed and mitigated. While the radiological risk of licensed material to the public decreases exponentially over time, long-lived activation products will remain in significant quantities that require continued monitoring and controls for the duration of the extension period. Although extended decommissioning periods benefit from natural radioactive decay, they do not eliminate the need for robust health and safety programs to properly manage remaining nuclear material from potentially migrating through the environment while remaining in safe storage. NRC continues to support the position that the 60-year period after permanent cessation of operations is sufficient for most facilities to complete

decommissioning. It should not be common for licensees to have a site-specific condition that rises to the level of requesting an exemption from the requirement to complete decommissioning in a timely manner.

However, as the current regulations recognize, certain site-specific conditions, such as the presence of other nuclear facilities at the site, may make it impractical to decommission within 60 years. For example, decommissioning one permanently shutdown reactor unit while another unit remains operational may present safety and environmental challenges that must be carefully considered, especially if the two units are physically located close to one another and/or share common infrastructure. Delaying decommissioning of a permanently shutdown reactor may support continued operations of the existing reactor fleet for licensees that have multiple reactors at one site. The NRC has long recognized that the presence of other nuclear facilities at a site is a site-specific factor that can impact a licensee's capability to complete decommissioning within the 60-year timeframe. However, the current process to request an exemption is nebulous, burdensome, and overly conservative without providing commensurate safety benefits for the public.

The proposed rule seeks to remedy this by simplifying and broadening the criteria for requesting an alternative schedule for decommissioning and aligning the request with the well-established specific exemption process familiar to NRC, licensees, and the public.

To reduce administrative and resource burden on the nuclear power reactor industry and the NRC, this proposed rule would amend the regulation to leverage the existing, well-understood "Specific exemptions" process in §§ 50.12, 52.7, and 53.080. The proposed rule would retain the requirement to complete decommissioning with 60 years of permanent cessation of operations and move the criteria for requesting an alternative decommissioning schedule from §§ 50.82(a)(3), 52.110(c), and 53.1070(c) to the proposed specific exemption provision in §§ 50.12(a)(2)(vi) and 53.080(b)(6). The proposed rule does not amend 10 CFR

52.7 because, unless other criteria are provided for in part 52, specific exemptions for requirements in part 52 are governed by § 50.12. Because the requirements for an alternate decommissioning schedule are proposed to be removed from § 52.110(c), those requests would now be handled under § 50.12. Thus, under the proposed rule, requests for completion of decommissioning beyond 60 years by reactor facilities licensed under parts 50 and 52 as well as requests for completion of decommissioning with significant delay by nonpower or utilization facilities would be governed by the specific exemption process in § 50.12. Requests for completion of decommissioning beyond 60 years by reactor facilities licensed under part 53 would be governed by § 53.080.

In addition to moving these requests into the well-established specific exemption process, the proposed rule would also increase clarity and flexibility by removing the specific examples of site-specific factors currently listed in the regulations (e.g., unavailability of waste disposal capacity, the presence of other nuclear facilities) and instead, refer broadly to “site-specific factors affecting the licensee’s capability to carry out decommissioning.” Using the proposed exemption process, under §§ 50.12(a) and 53.080, the NRC would approve an exemption request if the request is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security, and if a special circumstance is present. To address requests for decommissioning to extend beyond the required timeframe, this proposed rule would add an additional special circumstance in §§ 50.12(a)(2)(vi) and 53.080(b)(6). This additional special circumstance provides that the Commission may consider granting an exemption that would provide only temporary relief from the timely decommissioning requirement for cases in which site-specific factor(s) affect the licensee’s capability to complete timely decommissioning and the extension will not adversely affect public health and safety for the duration of the extension period. To approve

the exemption, NRC must conclude that public health and safety would not be adversely impacted for the duration of the extension period.

Similarly, the proposed rule would amend § 50.82(b)(4)(i) to remove specific timeliness criteria for decommissioning and include similar criteria in § 50.12(a)(2) in order to improve efficiency in reviews where safety is not adversely impacted. Currently, nonpower production and utilization facilities (NPUFs) are required to decommission without significant delay. Because the proposed rule would add a special circumstance for which a licensee may request to delay decommissioning, licensees may leverage the existing, well-understood § 50.12 process to request exemption from this requirement. In this way, NRC intends to streamline its reviews of exemption requests for NPUFs to delay decommissioning by pursuing SAFSTOR in certain cases.

VIII. Specific Request for Comment: Decommissioning Timeliness

The NRC is seeking advice and recommendations from the public on the proposed rule. The NRC is particularly interested in comments and supporting rationale from the public on the following:

Requesting Extensions to the Requirement for Timely Completion of Decommissioning for Power Reactors and Nonpower, and Utilization Facility (NPUF) Licensees

1. Does the Specific Exemptions process in §§ 50.12 and 53.080 provide the most efficiency for reactor, nonpower, and utilization facility licensees to request extensions to the timely decommissioning requirements while presenting no undue risk to public health and safety? Is there additional information NRC could provide to increase clarity in this approach? Are there unintended consequences to this approach? If so, what are the unintended consequences, and how should they be addressed?

2. Are there additional site-specific factors that may affect a reactor or NPUFs licensee's capability to complete decommissioning in a timely manner that NRC should consider in its guidance? Provide why the NRC should consider this factor as a substantial reason that a licensee could not complete decommissioning in a timely manner.

3. What NRC oversight activities (e.g., inspections, reporting) would be appropriate during extended decommissioning periods for power, nonpower, or utilization facilities to ensure continued safety? Provide the basis for your response.

Extending the Period of No Principal Activities Before Triggering Initiation of Decommissioning for Nuclear Materials Facility Licensees

1. Are there other factors that NRC should consider in determining an appropriate timeframe for which a licensee may conduct no principal activities before triggering the initiation of decommissioning? Provide the basis for your response.

2. Are the other enhancements to the requirements for the initiation of decommissioning that the NRC should consider to improve regulatory clarity and reduce administrative burden? Should the NRC consider additional guidance or other outreach options?

Requesting Extensions to the Timeframes Before Initiating Decommissioning for Nuclear Materials Facility Licensees

The NRC is proposing to restructure paragraph (f) in §§ 30.36, 40.42, 70.38, and 72.54 to create a single, streamlined process for requesting exemptions from any timeliness requirement in paragraph (d) of those same sections, including extensions to the period of no principal activities and alternate schedules for submitting decommissioning plans (DPs). This approach consolidates multiple similar exemption processes into one risk-

informed process focused on safety-significant elements, reducing administrative burden for both licensees and NRC. The proposed paragraph (f) contains specific information requests and commitments that were adapted from the evaluation criteria in Section 2.6 of NUREG-1757 Vol. 3 to focus reviews of such extension requests to the safety-related elements.

1. Are there additional information elements NRC should consider in extension requests that may be supplemental to the information requests and commitments included in the proposed (f)(1)-(5) of proposed §§ 30.36, 40.42, 70.38, and 72.54? Provide a basis for your response.

2. Do the proposed requirements in paragraph (f) to request delays in the initiation of decommissioning, in general, adequately address the request to submit a DP on an alternate schedule (i.e., later than 12 months after notification pursuant to paragraph (d)(1))? How can the NRC adapt the proposed paragraph (f) to better accommodate alternate schedule requests for DPs? Should NRC reconsider the elimination of the requirement for delaying submittal of an alternate decommissioning plan in §§ 30.36(g)(2), 40.42(g)(2), 70.38(g)(2), or 72.54(f)(2), and instead, develop a separate regulation that specifically addresses alternate schedule for DPs using this enhanced approach? Provide the basis for your response.

3. Are there other enhancements to the streamlined extension process that the NRC should consider to increase flexibility and ensure usefulness and applicability for licensees to reduce the number of licensees that request a license amendment for a “storage only” license out of necessity? Provide a basis for your response. Are there unintended consequences? If so, what are the unintended consequences, and how should they be addressed?

IX. Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule, if adopted, will not have a significant negative economic impact on a substantial number of small entities.

This proposed rule would affect a number of “small entities” as defined by the Regulatory Flexibility Act or the size standards established by the NRC (10 CFR 2.810). However, as indicated in the draft regulatory analysis available under the “Availability of Documents” section, the proposed amendments, if promulgated, would not have a significant negative economic impact on the affected small entities.

Any small entity subject to this regulation that determines, because of its size, it is likely to bear a disproportionate adverse economic impact should notify the Commission of this opinion in a comment that indicates —

(a) The licensee’s size and how the proposed regulation would impose a significant economic burden on the licensee as compared to the economic burden on a larger licensee;

(b) How the proposed regulations could be modified to take into account the licensee’s differing needs or capabilities;

(c) The benefits that would accrue or the detriments that would be avoided if the proposed regulations were modified as suggested by the licensee;

(d) How the proposed regulation, as modified, would more closely equalize the impact of NRC regulations or create more equal access to the benefits of Federal programs as opposed to providing special advantages to any individual or group; and

(e) How the proposed regulation, as modified, would still adequately protect public health and safety.

Comments should be submitted as indicated under the ADDRESSES caption.

X. Regulatory Analysis

The NRC has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the NRC. The NRC requests public comment on the draft regulatory analysis. The regulatory analysis is available as indicated in the “Availability of Documents” section of this document. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES caption of this document.

XI. Backfitting and Issue Finality

The NRC has determined that this proposed rule would not constitute backfitting as that term is defined in the NRC’s backfitting provisions in §§ 50.109, 70.76, 72.62, and 76.76, all titled “Backfitting,” or affect the issue finality of an approval issued under 10 CFR part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants.” The reasons for this conclusion for the changes related to in situ recovery and decommissioning timelines are discussed below.

In Situ Recovery Monitoring

The class of licensees subject to this rulemaking are applicants for a new ISR facility license or current ISR facility licensees that submit an application for a license amendment for a new wellfield within a licensed ISR facility or a new production unit within an operating wellfield of a licensed ISR facility, the application for which is submitted after the effective date of this rule. The rulemaking would also revise the MCLs for hazardous constituents in all uranium mills (conventional or ISR) to those provided in EPA regulations under 40 CFR. This class of licensees would be regulated in accordance with 10 CFR part 40, which contains no backfitting provisions.

Decommissioning Timeliness

The proposed rule would extend the timeframe for notifications and allow flexibility for initiation of decommissioning for materials facilities, as well as streamline the process to request exemptions from decommissioning requirements, thereby reducing the regulatory burden on licensees. Specifically, the proposed revisions to 10 CFR parts 30, 40, 70, and 72 would restructure the regulatory requirements in paragraphs (d) of the applicable sections to separate the four criteria that trigger notification to NRC from the licensee actions that must be taken to initiate decommissioning. The proposed rule would also extend the period of no principal activities from 24 months to 36 or 48 months and extend the time to request a delay of initiation of decommissioning from 30 days prior to notification to 45 days after notification required by paragraph (d). Finally, the revisions to 10 CFR §§ 50.12 and 53.080 would broaden the scope of factors that NRC may consider in its review for a request for a specific exemption for power reactors and NPUFs to delay completion of decommissioning. The proposed changes would not constitute backfitting because the proposed changes would provide non-mandatory relaxations of current requirements. Licensees could continue to comply with the current requirements and satisfy the proposed rule.

For these reasons, the proposed rule would not meet the definition of “backfitting” under § 50.109, 70.76, 72.62, or 76.76, or affect the issue finality of an approval issued under 10 CFR part 52.

This proposed rule also includes the draft guidance documents described in section XIX, “Availability of Guidance.” These documents if finalized, would not constitute backfitting as defined in § 50.109, 70.76, 72.62, or 76.76 or affect the issue finality of any approval issued under 10 CFR part 52 because the guidance would not inextricably affect activities of licensees that are within the scope of the backfitting or issue finality provisions. The guidance

would not impose new or modified requirements on existing licensees, applicants, or certificate holders that are within the scope of a backfitting or issue finality provision.

XII. Cumulative Effects of Regulation

The NRC seeks to minimize potential negative consequences resulting from the cumulative effects of regulation (CER). The NRC believes that the deregulatory impacts of this rulemaking activity are unlikely to cause implementation challenges for stakeholders. In addition, during the pendency of this rulemaking, the NRC is deprioritizing issuance of regulatory actions that might influence the implementation date for the new rule requirements (e.g., orders, generic communications, license amendment requests, and inspection findings of a generic nature).

To fully understand any potential CER implications that could result from this rulemaking, the NRC is asking the following questions. Response to these questions is voluntary and any input will be considered during development of the final rule.

1. The NRC is proposing an effective date that will be 30 days after the date of publication of a final rule. Does this provide sufficient time to implement the proposed requirements? Please provide a rationale for your response.

2. Are there unintended consequences related to this rulemaking and how should they be addressed? Please provide a rationale for your response.

3. Please comment on the NRC's cost and benefit estimates in the regulatory analysis that supports this proposed rule.

XIII. Plain Writing

The Plain Writing Act of 2010 (Pub. L. 111-274) requires Federal agencies to write documents in a clear, concise, and well-organized manner. The NRC has written this document to be consistent with the Plain Writing Act as well as the Presidential Memorandum, "Plain Language in Government Writing," published June 10, 1998 (63 FR 31885). The NRC requests comment on this document with respect to the clarity and effectiveness of the language used.

XIV. National Environmental Policy Act

A. Introduction

In accordance with the National Environmental Policy Act of 1969, as amended (NEPA) and NRC's NEPA implementing regulations in 10 CFR part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," the NRC has determined that the proposed rule is the type of action eligible for categorical exclusion because it meets criterion described in 10 CFR 51.22 (a)(1), regarding actions that are administrative, procedural, or solely financial in nature. The amendments to part 40 clarify applicability to, and add definitions for ISR activities, as well as uranium mine waste remediation. The amendments to Criterion 5 and 14 of Appendix A to part 40 would establish regulations for the technical criteria necessary for groundwater protection for ISR activities. These criteria were previously described in guidance, established through the course of licensing practice, and enforced through license conditions. This proposed rule would codify these criteria in regulations. The NRC is not proposing to change any technical criteria, and accordingly, there would be no change to any environmental impact. The proposed rule would provide the basis for granting an ISR facility license but would not, by its own operation, provide a license for ISR-related activities. Any licensing action that specifically authorizes activities pursuant to these amendments would involve an environmental analysis

of the impacts of such activities at the time of the licensing action. Applicants would be required to demonstrate compliance with relevant NRC or Agreement State regulations before they can receive an ISR facility operating license.

Amendments to 50.12; 50.82; 52.110; 53.080; 53.1070 would modify the procedures for filing and reviewing requests for various decommissioning activities. These amendments would not authorize any site-specific action on the part of the NRC or licensee. Any licensing action that specifically authorizes activities pursuant to these amendments would involve an environmental analysis of the impacts of such activities at the time of the licensing action. In addition, amendments to 30.36; 40.42; 70.38; 72.54 would amend reporting requirements in these regulations.

The agency action, therefore, belongs to a category of actions that the Commission, by rule or regulation, has declared to be a categorical exclusion, after first finding that the actions within the category do not individually or cumulatively have a significant effect on the human environment. Therefore, neither an environmental impact statement nor environmental assessment has been prepared for this proposed rule.

XV. Paperwork Reduction Act

This proposed rule contains new or amended collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq). This proposed rule has been submitted to the Office of Management and Budget for review and approval of the information collections.

Type of submission: New

The title of the information collection: In Situ Recovery Monitoring and
Decommissioning Timeliness Proposed Rule

OMB Approval Numbers: 3150-0007, 3150-0010, 3150-0011, 3150-0014, 3150-0020, 3150-0132, 3150-0164, 3150-0165, 3150-0166

The form number if applicable: Not applicable.

How often the collection is required or requested: Information would be collected whenever an application is submitted for a new ISR facility, a license amendment for a new wellfield within a licensed ISR facility, or a new production unit within an existing wellfield of a licensed ISR facility, or when an licensee is looking for an exemption for decommissioning requirements.

Who will be required or asked to respond: The information collections would apply to persons who submit an application for a new ISR facility, a license amendment for a new wellfield within a licensed ISR facility, or a new production unit within an existing wellfield of a licensed ISR facility, if the application is submitted after the effective date of this rule. The information collections would also apply to licensees wishing to delay the initiation of decommissioning activities.

An estimate of the number of annual responses:

10 CFR Part 30: -90 (-90 reporting responses + 0 recordkeepers)

10 CFR Part 40: -4 (-4 reporting responses + 0 recordkeepers)

10 CFR Part 50: 0.7 (0 reporting responses + 0.7 recordkeepers)

10 CFR Part 52: 0 (0 reporting responses + 0 recordkeepers)

10 CFR Part 70: -3 (-3 reporting responses + 0 recordkeepers)

10 CFR Part 72: 0 (0 reporting responses + 0 recordkeepers)

The estimated number of annual respondents:

10 CFR Part 30: -90 respondents

10 CFR Part 40: -4 respondents

10 CFR Part 50: 0.7 respondents

10 CFR Part 52: 0 respondents

10 CFR Part 70: -2 respondents

10 CFR Part 72: 0 respondents

An estimate of the total number of hours needed annually to comply with the information collection requirement or request:

10 CFR Part 30: -90 (-90 reporting + 0 recordkeeping)

10 CFR Part 40: -32 (-32 reporting + 0 recordkeeping)

10 CFR Part 50: 0 (-26.8 reporting + 26.8 recordkeeping)

10 CFR Part 52: 0 (0 reporting + 0 recordkeeping)

10 CFR Part 70: 0 (0 reporting + 0 recordkeeping)

10 CFR Part 72: 0 (0 reporting) + 0 recordkeeping

Abstract:

The U.S. Nuclear Regulatory Commission (NRC) proposes to amend its regulations that govern the licensing of uranium mills and the disposition of tailings and waste that arise from the extraction and milling of uranium by issuing risk-informed requirements for groundwater protection at uranium in situ recovery (ISR) facilities. The NRC's current regulations are focused on conventional uranium milling and do not expressly address uranium extraction by the ISR process. Additionally, NRC proposes to amend its regulations that govern decommissioning timeliness for all licensees to provide additional flexibility for licensees to delay the initiation of decommissioning activities in situations where safety would not be impacted.

The NRC is seeking public comment on the potential impact of the information collections contained in this proposed rule and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility? Please explain your response.

2. Is the estimate of the burden of the proposed information collection accurate? Please explain your response.

3. Is there a way to enhance the quality, utility, and clarity of the information to be collected? Please explain your response.

4. How can the burden of the proposed information collection on respondents be minimized, including the use of automated collection techniques or other forms of information technology?

A copy of the Office of Management and Budget (OMB) clearance package and proposed rule are available in the “Availability of Documents” section of this document or may be viewed free of charge by contacting the NRC’s Public Document Room reference staff at 1-800-397-4209, at 301-415-4737, or by email to PDR.Resource@nrc.gov. You may obtain information and comment on submissions related to the OMB clearance package by searching on <https://www.regulations.gov> under Docket ID NRC-2025-1204.

You may submit comments on any aspect of these proposed information collection(s), including suggestions for reducing the burden and on the above issues, by the following methods:

Federal rulemaking website: Go to <https://www.regulations.gov> and search for Docket ID NRC-2025-1140.

Submit comments by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

XVI. Executive Orders

The following are E.O.s that are related to this proposed rule:

A. Executive Order 12866: Regulatory Planning and Review (as amended by Executive Order 14215, Ensuring Accountability for All Agencies)

The Office of Information and Regulatory Affairs (OIRA) has determined that this proposed rule is a significant regulatory action under section 3(f) of E.O. 12866. Accordingly, the NRC submitted this proposed rule to OIRA for review. The NRC is required to conduct an economic analysis in accordance with section 6(a)(3)(B) of E.O. 12866. More can be found in the regulatory analysis document, which is available as indicated in the “Availability of Documents” section of this document.

B. Executive Order 14154: Unleashing American Energy

NRC has examined this proposed rule and has determined that it is consistent with the policies and directives outlined in E.O. 14154.

C. Executive Order 14192: Unleashing Prosperity Through Deregulation

This action is a deregulatory action as defined by E.O. 14192. Details on the estimated costs of proposed rule can be in the regulatory analysis, which is available as indicated in the “Availability of Documents” section of this document.

D. Executive Order 14270: Zero-Based Regulatory Budgeting to Unleash American

Energy

E.O. 14270, “Zero-Based Regulatory Budgeting to Unleash American Energy,” requires the NRC to insert a conditional sunset date into all new or amended NRC regulations provided the regulations are (1) promulgated under the AEA, the Energy Reorganization Act of 1974, as amended (ERA), or the Nuclear Waste Policy Act of 1982, as amended (NWPA); (2) not statutorily required; and (3) not part of the NRC’s permitting regime. The NRC determined that the regulatory changes proposed in this rulemaking are part of the NRC’s permitting regime. Therefore, the NRC views this rulemaking to be outside the scope of Executive Order 14270 and did not insert conditional sunset dates for the regulatory changes in this proposed rule.

E. Executive Order 14294: Fighting Overcriminalization in Federal Regulations

This proposed rule includes Federal regulations that, if adopted, would be enforceable by criminal penalty, as authorized by Section 223 of the AEA. Therefore, per E.O. 14294, those regulations constitute “criminal regulatory offenses.”

For the purposes of Section 223 of the AEA, the NRC is issuing this proposed rule that would amend 10 CFR parts 30, 40, 50, 52, 53, 70, and 72, under one or more of Sections 161b, 161i, or 161o of the AEA, except as noted in §§ 30.64(b), 40.82(b), 50.111(b), 52.203(b), § 53.9010(b), 70.92(b), and 72.86(b). The applicability of criminal penalties to regulations in parts 30, 40, 50, 52, 53, 70, and 72 is set forth in §§ 30.64, 40.82, 50.111, 52.203, § 53.9010, 70.92, and 72.86. Willful violations of the parts 30, 40, 50, 52, 53, 70, and 72 regulations, other than those listed in §§ 30.64(b), 40.82(b), 50.111(b), 52.203(b), § 53.9010(b), 70.92(b), and 72.86(b) (including as updated by this proposed rule), would be subject to criminal enforcement.

XVII. Coordination with NRC Agreement States

The working group involved in the preparation of this proposed rule included two representatives from the Organization of Agreement States. The rule was shared with the Standing Committee for Compatibility.

XVIII. Compatibility of Agreement State Regulations

On the basis of the “Agreement State Program Policy Statement” approved by the Commission on October 2, 2017, and published in the Federal Register (82 FR 48535; October 18, 2017), NRC program elements can be placed into six categories (A, B, C, D, NRC, or health and safety (H&S)) to form the basis for evaluating and classifying the program elements. Under the Policy Statement, a program element means any component or function of a radiation control regulatory program, including regulations and other legally binding requirements imposed on regulated persons, which contributes to implementation of that program.

Compatibility Category A are those program elements that include basic radiation protection standards and scientific terms and definitions that are necessary to understand radiation protection concepts. Compatibility Category A program elements adopted by an Agreement State should be essentially identical to those of the NRC to provide uniformity in the regulation of agreement material on a nationwide basis.

Compatibility Category B pertains to a limited number of program elements that cross jurisdictional boundaries and should be addressed to ensure uniformity of regulation on a nationwide basis. For Compatibility Category B, the Agreement State program element shall be essentially identical to that of NRC.

Program elements in Compatibility Category C include those program elements that are important for an Agreement State to have in order to avoid conflict, duplication, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a national basis. An Agreement State program shall embody the essential objectives of the Category C program elements. Under Category C, Agreement State program elements may be more restrictive than NRC program elements; however, they should not be so restrictive as to prohibit a practice authorized by the Atomic Energy Act of 1954 (AEA), as amended, and in the national interest without an adequate public health and safety or environmental basis related to radiation protection.

Compatibility Category D are those program elements that do not meet any of the criteria of Category A, B, or C, and are not required to be adopted by Agreement States for purposes of compatibility. An Agreement State has the flexibility to adopt and implement program elements within the State's jurisdiction that are not addressed by the NRC or that are not required for compatibility (i.e., Compatibility Category D). However, such program elements of an Agreement State relating to agreement material shall (1) not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis; (2) not preclude a practice authorized by the AEA and in the national interest; and (3) not preclude the ability of the NRC to evaluate the effectiveness of Agreement State programs for agreement material with respect to protection of public health and safety.

Compatibility Category NRC are those program elements that address areas of regulation that cannot be relinquished to the Agreement States under the AEA, or provisions of Title 10 of the *Code of Federal Regulations*. The NRC maintains regulatory authority over these program elements and the Agreement States must not adopt these NRC program elements. However, an Agreement State may inform its licensees of these NRC

requirements through a mechanism under the State's administrative procedure laws, as long as the State adopts these provisions solely for the purposes of notification, and does not exercise any regulatory authority as a result.

Category H&S program elements embody the basic health and safety aspects of the NRC's program elements. Although H&S program elements are not required for purposes of compatibility, they do have particular health and safety significance. The Agreement State must adopt the essential objectives of such program elements to maintain an adequate program.

The proposed rule would be a matter of compatibility between the NRC and the Agreement States, thereby providing consistency among Agreement State and NRC requirements. The compatibility (A, B, C, D, and NRC) and adequacy (H&S) categories are designated in the following tables:

Draft Compatibility Table for 10 CFR Part 30

Section	Change	Subject	Compatibility	
			Existing	New
30.36(f)	Revised	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	D	D
30.36(d), (e), (g)	Revised	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	H&S	H&S

Draft Compatibility Table for 10 CFR Part 40

Section	Change	Subject	Compatibility	
			Existing	New
40.4	Revised	Definition - Byproduct material	H&S	H&S
40.42(d), (e), (g)	Revised	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	H&S	H&S
40.42(f)	Revised	Expiration and termination of licenses and decommissioning	H&S	D

		of sites and separate buildings or outdoor areas		
Appendix A	New	Definition – Abandoned uranium mine waste remediation	---	C
Appendix A	New	Definition - Aquitard	---	C
Appendix A	New	Definition - Corrective action	---	C
Appendix A	New	Definition - Excursion	---	C
Appendix A	New	Definition - In situ recovery	---	B
Appendix A	New	Definition - Indicator constituent	---	C
Appendix A	New	Definition - ISR facility	---	C
Appendix A	New	Definition - Production unit	---	B
Appendix A	New	Definition - Wellfield	---	C
Appendix A	Revised	Definition - Point of compliance	A	A
Appendix A	Revised	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.	Definitions - A for States with authority to regulate uranium mill activities (11e.(2) byproduct material) Criterion 11A.thru F and Criterion 12 are NRC. All of the remaining portions of the section are C-for States with authority to regulate uranium mill activities D- States without authority	Definitions - A for States with authority to regulate uranium mill activities (11e.(2) byproduct material) Criterion 5 and 6 are B - for States with authority to regulate uranium mill activities D- States without authority. Criterion 11A.thru F and Criterion 12 are NRC. All of the remaining portions of the section are C-for States with authority to regulate uranium mill activities D- States without authority

Appendix A	New	Section VI, "ADDITIONAL TECHNICAL CRITERIA FOR IN-SITU RECOVERY OPERATIONS", Criterion 14	---	C
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Draft Compatibility Table for 10 CFR Part 70

Section	Change	Subject	Compatibility	
			Existing	New
70.38(d), (e), (g)	Revised	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	H&S	H&S
70.38(f)	Revised	Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas	H&S	D

The NRC is proposing that the new definitions in Part 40 be classified as Compatibility Category B or C. These definitions provide information that would be essential to the common understanding beyond the plain dictionary meaning and as such, a State's program element should essentially be identical to the NRC's program (for Category B) or adopt the essential objectives of the program (for Category C). To be included in Category B, the NRC determined that these definitions apply to activities that cross jurisdictional boundaries and should be addressed to ensure uniformity of regulation on a nationwide basis for regulating ISR facilities. To be included in Category C, the NRC determined that these definitions are important for an Agreement State to have in order to avoid conflict, duplication, gaps, or other conditions that would jeopardize an orderly pattern in regulating agreement material on a national basis for regulating ISR facilities.

The NRC is proposing to change the compatibility category of 10 CFR part 40, Appendix A for Criterion 5 and 6 from Category C to Category B. These criteria in part

40, Appendix A, contain the groundwater and stabilization and control of material requirements that must be achieved prior to license termination of uranium mills. Under the Agreement State Policy Statement, Category B “pertains to a limited number of program elements that cross jurisdictional boundaries and that should be addressed to ensure uniformity of regulation on a nationwide basis.” In Management Directive 5.9, “Adequacy and Compatibility of Program Elements for Agreement State Programs,” the NRC defines “cross jurisdictional” with respect to Category B as “a practice or licensed activity that necessitates identical requirements to ensure an orderly regulatory pattern for the use and regulation of agreement material between all Agreement States and NRC jurisdictions.”

On January 29, 2025, the President issued E.O. 14156, “Declaring a National Energy Emergency.” The E.O. declares a national energy emergency and instructs heads of agencies to “identify and exercise lawful emergency and other authorities available to facilitate the identification, leasing, siting, production, transportation, refining, and generation of domestic energy resources.” On that same day, the President also issued E.O. 14154, “Unleashing American Energy.” The E.O. sets forth several U.S. policies, including “to protect the United States's economic and national security and military preparedness by ensuring that an abundant supply of reliable energy is readily accessible in every State and territory of the Nation.” Subsequently, on May 23, 2025, the President issued E.O. 14299, “Deploying Advanced Nuclear Reactor Technologies for National Security,” which discusses the national security aspects of the need for additional nuclear energy nationwide.

The domestic milling of uranium is an essential part of the nuclear fuel cycle and, therefore, important to national security, consistent with the policies set forth in the above E.O.s. Criterion 5 to Appendix A establishes applicable groundwater protection standards

during operations and prior to the end of closure. Criterion 6 establishes additional requirements for the stabilization and control of material prior to the end of closure. As uranium milling occurs in multiple jurisdictions, it is important for a consistent approach and understanding of license termination criteria nationwide. Further, a consistent approach is essential to the overall regulatory framework for domestic uranium milling and, therefore, important to the development and growth of domestic uranium milling and to national security, consistent with the policies in the above E.O.s. Accordingly, the NRC is proposing changing Criterion 5 and 6 to Category B as the activity necessitates identical requirements to ensure an orderly regulatory pattern for the use and regulation of material between all Agreement States and NRC jurisdictions.

Importantly, the NRC is not proposing that Criteria 5 and 6 are matters relating to common defense and security such that they would be exclusively regulated by the NRC. Rather, the national security considerations and Administration's priorities expressed in the above E.O.s. underpin the NRC's proposal that designate license termination for uranium milling activities as Category B as a practice or licensed activity that necessitates identical requirements to ensure an orderly regulatory pattern for the use and regulation of agreement state material between all Agreement States and NRC jurisdictions.

The remainder of the proposed rule for ISR is classified as Compatibility Category "C" for those States with authority to regulate uranium milling activities and Compatibility Category "D" for those States without such authority. Those States with authority to regulate uranium milling activities should adopt the essential objectives to avoid conflicts, duplications, or gaps. For those States that do not have authority over uranium milling activities, compatibility is not required for Category D regulations.

In this proposed rule, the NRC is proposing to clarify that the essential objective of §§ 30.36(d), 40.42(d), and 70.38(d) is for licensees to provide timely notification of the

circumstances that trigger decommissioning and to promptly begin decommissioning or submit a decommissioning plan, as required. The state has flexibility in the administration and requirements for decommissioning timeliness and would not need to revise their current program to remain compatible with the proposed revision to §§ 30.36(d), 40.42(d), and 70.38(d). In addition, NRC is proposing to change the compatibility designation of 40.42(f) and 70.38(f) from Category H&S to Compatibility Category D. These requirements provide an administrative pathway for granting a delay or postponement of initiating decommissioning, which states are not required to offer, therefore, they more appropriately align with the Compatibility Category D designation. This proposed change also aligns with the Compatibility Category of 30.36(f), which contains identical language to 40.42(f) and 70.38(f), and is currently classified as Compatibility Category D.

The NRC invites comment on the compatibility category designations in the proposed rule and suggests that commenters refer to Management Directive 5.9, “Adequacy and Compatibility of Program Elements for Agreement State Programs,” and its Handbook for more information. The NRC notes that, like the rule text, the compatibility category designations can change between the proposed rule and final rule, based on comments received and Commission decisions regarding the final rule. The NRC encourages anyone interested in commenting on the compatibility category designations in any manner to do so during the comment period.

XIX. Availability of Guidance

The NRC is issuing draft guidance for implementation of the proposed requirements in this rulemaking. The draft guidance is available in ADAMS as described in the Availability

of Documents section. When finalized, the documents will provide stakeholders with guidance for implementing the final requirements contemplated by this proposed rule. You may submit comments on the draft regulatory guidance by the methods outlined in the ADDRESSES section of this document. Guidance documents being issued with this rulemaking include:

Current guidance on ISR is provided in NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications." The supplemental guidance is intended for use by applicants, licensees, Agreement States, and the NRC staff and incorporates the proposed changes into an approach and method acceptable for implementing the requirements of the regulations. It includes guidance concerning an application for, and the licensing, operation, and decommissioning of, a new ISR facility, a new wellfield within a licensed ISR facility, or a new production unit within an operating wellfield of a licensed ISR facility, the application for which is submitted after the effective date of the final rule.

The draft supplemental guidance is in a markup format to the NRC's existing guidance and reflects the provisions in this proposed rule. Comments on the draft supplemental guidance may be submitted by the methods provided in Section I, "Obtaining Information and Submitting Comments," of this document. The draft supplemental guidance is available as indicated under Section XVIII, "Availability of Documents," of this document. The NRC plans to incorporate the final supplemental guidance into the next comprehensive revision of NUREG-1569.

The draft Interim Staff Guidance (ISG) for nuclear materials facilities, DUWP-ISG-04, is intended for use by licensees, Agreement States, and the NRC staff. It provides guidance and references for the updated process to request an extension to the initiation of decommissioning requirements. Specifically, the guidance includes examples of legitimate

business needs that could be used to justify an extension. This guidance is not meant to be exhaustive and should be used to supplement existing guidance on the notification requirements for the initiation of decommissioning, including but not limited to NUREG-1757 Vol. 3, Rev. 1.

The draft ISG for nuclear reactor facilities, DUWP-ISG-05, is intended for use by licensees and the NRC staff. It provides guidance and references for the updated exemption process governed by 10 CFR 50.12 or § 53.080, as appropriate. The draft ISG includes site-specific factors that NRC considers acceptable for an alternate decommissioning schedule request, as well as a discussion of reasonable mitigation for each factor. Lastly, the guidance provides considerations for licensees to ensure site safety for the duration of the extension period in accordance with the proposed regulations.

XX. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated.

DOCUMENT	ADAMS ACCESSION NO. / WEB LINK / FEDERAL REGISTER CITATION
Proposed Rule Documents	
Regulatory Analysis for the Proposed Rule – In Situ Recovery & Decommissioning Timeliness	ML26243A343
Proposed Rule - In Situ Recovery Monitoring and Decommissioning Timeliness - Unofficial Redline Rule Language	ML26243A378
DUWP-ISG-04, “Requirements for the Initiation of Decommissioning for Nuclear Materials Facilities”	ML26243A379

DUWP-ISG-05, "Approval of an Alternate Schedule for Decommissioning of Nuclear Reactor Facilities Beyond 60 Years from Permanent Cessation of Operations"	ML26243A380
NUREG 1569, Guidance for the Proposed Rule Groundwater Protection at Uranium In Situ Recovery Facilities	ML26243A344
Information Collection Documents	
OMB Supporting Statement – ISR & Decommissioning Timelines Proposed Rule	ML25337A102
OMB Burden Tables – ISR & Decommissioning Timelines Proposed Rule	ML26013A037
Executive Orders	
Executive Order 12866, "Regulatory Planning and Review," October 4, 1993	58 FR 51735
Executive Order 14154, "Unleashing American Energy," January 29, 2025	90 FR 8353
Executive Order 14192, "Unleashing Prosperity Through Deregulation," February 6, 2025	90 FR 9065
Executive Order 14215, "Ensuring Accountability for All Agencies," February 24, 2025	90 FR 10447
Executive Order 14267, "Reducing Anti-Competitive Regulatory Barriers," April 15, 2025	90 FR 15629
Executive Order 14270, "Zero-Based Regulatory Budgeting to Unleash American Energy," April 15, 2025	90 FR 15643
Executive Order 14300, "Ordering the Reform of the Nuclear Regulatory Commission," May 29, 2025	90 FR 22587
Presidential Memorandum, "Plain Language in Government Writing," June 10, 1998	63 FR 31885
Other References	
SECY-21-0067, Enclosure 1 - Proposed Rule, Groundwater Protection at Uranium In Situ Recovery Facilities, 2021	ML21067A127
NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications," June 2003	ML032250177
NUREG/CR-6733, "A Baseline Risk-Informed, Performance-Based Approach for In Situ Leach Uranium Extraction Licensees," September 2001	ML14236A064
Uranium Mill Tailings Radiation Control Act (UMTRCA); 1978	Public Law 95-604, 92 Stat. 3021
Final Rule: "Uranium Mill Tailings Licensing," August 24, 1979	44 FR 50012

Final Rule: "Uranium Mill Licensing Requirements," October 3, 1980	45 FR 65521
Final Rule: "Environmental Standards for Uranium and Thorium Mill Tailings at Licensed Commercial Processing Sites," October 7, 1983	48 FR 45926
Final Rule: "Health and Environmental Standards for Uranium and Thorium Mill Tailings," November 15, 1993	58 FR 60340
Final Rule: "Uranium Mill Tailings Regulations; Conforming NRC Requirement to EPA Standards," October 16, 1985	50 FR 41852
Final Rule: "Uranium Mill Tailings Regulations; Ground-Water Protection and Other Issues," November 13, 1987	52 FR 43553
NUREG/CR-3967, "An Analysis of Excursions at Selected In Situ Uranium Mines in Wyoming and Texas," July 1986	ML14237A635
SECY-19-0123, "Regulatory Options for Uranium In-Situ Recovery Facilities," December 16, 2019	ML19221B519
SRM-SECY-19-0123, "Staff Requirements – Regulatory Options for Uranium In-Situ Recovery Facilities," October 22, 2020	ML20296A469
"Memorandum of Understanding Between the U.S. Nuclear Regulatory Commission and the U.S. Environmental Protection Agency Concerning the Regulation of Uranium <i>in situ</i> Recovery Activities," July 23, 2020	ML20218A248
October 16, 2025 letter from Wyoming Mining Association on proposed uranium in situ recovery rulemaking	ML25322A241
October 23, 2025 letter from Cameco Resources on proposed uranium in situ recovery rulemaking	ML25322A232
October 29, 2025 letter from National Mining Association on upcoming rulemaking on groundwater protection at uranium in situ recovery facilities	ML25304A001
Final Rule: "Timeliness in Decommissioning of Materials Facilities," July 15, 1994	59 FR 36026
Final Rule: "General Requirements for Decommissioning Nuclear Facilities," June 27, 1988	53 FR 24018
Proposed Rule: "Decommissioning Criteria for Nuclear Facilities," February 11, 1985	50 FR 5600
SECY-24-0073, "Site-Specific Considerations for Review of Requests to Complete Power Reactor Decommissioning Beyond 60 Years from Permanent Cessation of Operations," September 3, 2024	ML24100A760

Regulatory Guide (RG) 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," June 2013	ML13140A038
Final Rule: "Part 50—Licensing of Production and Utilization Facilities," January 19, 1956	21 FR 355
Final Rule: "Amendments Specifying Licensee Responsibility for Nuclear Materials and Procedures for Termination of Specific Licenses," July 15, 1983	48 FR 32324
NUREG-1757 Vol. 1, Revision 2, "Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees," September 2006	ML063000243
NUREG-1757 Vol. 3, Revision 1, "Financial Assurance, Recordkeeping, and Timeliness," February 2012	ML12048A683

The NRC may post materials related to this document, including public comments, on the Federal rulemaking website at <https://www.regulations.gov> under Docket ID NRC-2025-1204. In addition, the Federal rulemaking website allows members of the public to receive alerts when changes or additions occur in a docket folder. To subscribe: 1) navigate to the docket folder NRC-2025-1204; 2) click the "Subscribe" button; and 3) enter an email address and click on the "Subscribe" button.

List of Subjects

10 CFR Part 30

Byproduct material, Criminal penalties, Government contracts, Intergovernmental relations, Isotopes, Nuclear energy, Nuclear materials, Penalties, Radiation protection, Reporting and recordkeeping requirements, Whistleblowing.

10 CFR Part 40

Criminal penalties, Exports, Government contracts, Hazardous materials transportation, Hazardous waste, Nuclear energy, Nuclear materials, Penalties, Reporting and recordkeeping requirements, Source material, Uranium, Whistleblowing.

10 CFR Part 50

Administrative practice and procedure, Antitrust, Backfitting, Classified information, Criminal penalties, Education, Emergency planning, Fire prevention, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Penalties, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements, Whistleblowing.

10 CFR Part 52

Administrative practice and procedure, Antitrust, Combined license, Early site permit, Emergency planning, Fees, Inspection, Issue finality, Limited work authorization, Manufacturing license, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Penalties, Reporting and recordkeeping requirements, Standard design, Standard design certification.

10 CFR Part 53

Administrative practice and procedure, Antitrust, Backfitting, Construction permit, Combined license, Classified information, Criminal penalties, Early site permit, Emergency planning, Fees, Fire prevention, Fire protection, Inspection, Intergovernmental relations, Limited work authorization, Manufacturing license, Nuclear power plants and reactors, Operating license, Penalties, Prototype, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements, Standard design, Standard design certification, Training programs.

10 CFR Part 70

Classified information, Criminal penalties, Emergency medical services, Hazardous materials transportation, Material control and accounting, Nuclear energy, Nuclear materials, Packaging and containers, Penalties, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material, Whistleblowing.

10 CFR Part 72

Administrative practice and procedure, Hazardous waste, Indians, Intergovernmental relations, Nuclear energy, Penalties, Radiation protection, Reporting and recordkeeping requirements, Security measures, Spent fuel, Whistleblowing.

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 proposing to amend 10 CFR part 30, 40, 50, 52, 53, 70 and 72:

PART 30—RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

1. The authority citation for part 30 continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 11, 81, 161, 181, 182, 183, 184, 186, 187, 223, 234, 274 (42 U.S.C. 2014, 2111, 2201, 2231, 2232, 2233, 2234, 2236, 2237, 2273, 2282, 2021); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); 44 U.S.C. 3504 note.

2. In § 30.36:

- a. Revise paragraph (d);
- b. In the first sentence of paragraph (e) introductory text, remove the phrase “paragraph (d)” and add in its place the phrase “paragraph (d)(1)”;
- c. Revise paragraph (f); and
- d. Remove and reserve paragraph (g)(2).

The revisions read as follows:

§ 30.36 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(d)(1) Consistent with § 30.6, each licensee must provide notification to the NRC in writing within 60 days of the occurrence of any of the following and indicate which approach under paragraph (d)(2) of this section the licensee intends to pursue:

- (i) The license has expired pursuant to paragraph (a) or (b) of this section; or
- (ii) The licensee has decided to permanently cease principal activities, as defined in this part, at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements; or

(iii) No principal activities under the license have been conducted for a period of 36 months; or

(iv) No principal activities have been conducted for a period of 36 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.

(2) When notification is made pursuant to paragraph (d)(1) of this section, the licensee must—

(i) Within 45 days, submit a request to delay initiation of decommissioning activities consistent with paragraph (f) of this section, or

(ii) Immediately begin decommissioning its site, or any separate building or outdoor area that contains residual radioactivity so that the building or outdoor area is suitable for release in accordance with NRC requirements, or

(iii) Within 12 months, submit a decommissioning plan, if required by paragraph (g)(1) of this section, and begin decommissioning upon approval of that plan.

* * * * *

(f) The Commission may grant a request to extend the time periods established in paragraph (d). The schedule for decommissioning set forth in paragraph (d) of this section may not commence until the Commission has made a determination on the request. The request must include the following, as applicable:

(1) Discussion of the business need for continued possession or authorization of licensed material or how the request is otherwise in the public interest.

(2) Discussion of the health and safety plan that will be in effect during the extension period.

(3) Discussion of the current decommissioning cost estimate and the potential for increased decommissioning costs if an extension of the time period is or is not approved.

(4) A timeframe for which principal activities will resume, which must not exceed 36 months from the date of notification as provided for in (d)(1)(iii) and (d)(1)(iv) of this section.

(5) A commitment that, should principal activities not resume within the timeframe specified in paragraph (f)(4), the licensee must provide notification to the NRC consistent with paragraph (d) of this section.

(g) * * *

(2) [Reserved]

* * * * *

PART 40—DOMESTIC LICENSING OF SOURCE MATERIAL

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

Authority: Atomic Energy Act of 1954, secs. 62, 63, 64, 65, 69, 81, 83, 84, 122, 161, 181, 182, 183, 184, 186, 187, 193, 223, 234, 274, 275 (42 U.S.C. 2092, 2093, 2094, 2095, 2099, 2111, 2113, 2114, 2152, 2201, 2231, 2232, 2233, 2234, 2236, 2237, 2243, 2273, 2282, 2021, 2022); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Uranium Mill Tailings Radiation Control Act of 1978, sec. 104 (42 U.S.C. 7914); 44 U.S.C. 3504 note.

§ 40.4 [Amended]

4. In § 40.4, in the first sentence of the definition for *Byproduct material*, remove the phrase “discrete surface wastes” and add in its place the phrase “discrete surface wastes and liquid wastes”.

5. In § 40.42:

a. Revise paragraph (d);

b. In the first sentence of paragraph (e) introductory text, remove the phrase “paragraph (d)” and add in its place the phrase “paragraph (d)(1)”;

c. Revise paragraph (f);and

d. Remove and reserve paragraph (g)(2).

The revisions read as follows:

§ 40.42 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(d)(1) Consistent with § 40.5, each licensee must provide notification to the NRC in writing within 60 days of the occurrence of any of the following and indicate which approach under paragraph (d)(2) of this section the licensee intends to pursue:

(i) The license has expired pursuant to paragraph (a) or (b) of this section; or

(ii) The licensee has decided to permanently cease principal activities, as defined in this part, at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements; or

(iii) No principal activities under the license have been conducted for a period of 48 months; or

(iv) No principal activities have been conducted for a period of 48 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.

(2) When notification is made pursuant to paragraph (d)(1) of this section, the licensee must—

(i) Within 45 days, submit a request to delay initiation of decommissioning activities consistent with paragraph (f) of this section, or

(ii) Immediately begin decommissioning its site, or any separate building or outdoor area that contains residual radioactivity so that the building or outdoor area is suitable for release in accordance with NRC requirements, or

(iii) Within 12 months, submit a decommissioning plan, if required by paragraph (g)(1) of this section, and begin decommissioning upon approval of that plan.

* * * * *

(f) The Commission may grant a request to extend the time periods established in paragraph (d). The schedule for decommissioning set forth in paragraph (d) of this section may not commence until the Commission has made a determination on the request. The request must include the following, as applicable:

(1) Discussion of the business need for continued possession or authorization of licensed material or how the request is otherwise in the public interest.

(2) Discussion of the health and safety plan that will be in effect during the extension period.

(3) Discussion of the current decommissioning cost estimate and the potential for increased decommissioning costs if an extension of the time period is or is not approved.

(4) A timeframe for which principal activities will resume, which must not exceed 36 months from the date of notification as provided for in (d)(1)(iii) and (d)(1)(iv) of this section.

(5) A commitment that, should principal activities not resume within the timeframe specified in paragraph (f)(4), the licensee must provide notification to the NRC consistent with paragraph (d) of this section.

(g) * * *

(2) [Reserved]

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6. In appendix A to part 40:

- a. Revise the introduction section;
- b. Add introductory paragraph to section I;
- c. Revise criterion 5; and
- d. Add section VI.

The revisions and addition are 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. * * *

* * *

The following definitions apply to the specified terms as used in this appendix:

Abandoned uranium mine waste remediation means any activity that removes uranium or thorium from waste rock located at or near an abandoned uranium mine, that was generated from uranium production at a site that is no longer in use for that purpose. For the purposes of this part, such activities are not considered uranium milling and any waste stream resulting from remediation is not byproduct material as defined in this part.

* * *

Aquitard means a confining bed and/or formation composed of rock or sediment that retards but does not prevent the flow of water to or from an adjacent aquifer. It does not readily yield water to wells or springs, but stores groundwater.

* * *

Corrective action means investigation and cleanup of releases into soil, groundwater, surface water, or air from human-created facilities or sources.

* * *

Excursion means the detection of indicator constituents that may signal the movement of fluids containing byproduct material from the production unit into surrounding groundwater, which includes site-specific aquifers adjacent to, above, or below the production unit that can reasonably be expected to be impacted and where groundwater protection standards must be met.

* * * *

In situ recovery (ISR) means the process for extracting uranium from an underground uranium ore body by injecting a leaching solution (lixiviant) into an ore body and pumping the solution to a surface facility for further processing. This definition does not include stope leaching solution mining of conventional uranium mines and similar processes.

Indicator constituent means a parameter, such as chloride, conductivity, total alkalinity, or other conservative solute, whose value is used to detect an excursion.

ISR facility means a facility licensed to conduct ISR operations and includes wellfields and other support and ancillary infrastructure.

* * * *

Point of compliance means a site-specific location in the uppermost aquifer where the groundwater protection standard must be met and at which monitoring must be conducted. For ISR operations, the point of compliance is located in the production unit and also includes site-specific aquifers adjacent to, above, or below the production unit that can reasonably be expected to be impacted by byproduct material and where the groundwater protection standard must be met.

Production unit means the part of an aquifer from which source material is extracted by ISR operations.

* * * * *

Wellfield means the area or areas of an ISR facility – whether spaced laterally or vertically – encompassing all or a portion of a production unit from which source material is to be extracted by ISR operations, and that contains injection, production, and monitoring wells, associated infrastructure and interconnected piping as determined by the applicant or licensee and approved by the NRC.

I. * * *

Applicability to ISR facility applicants and licensees. The preamble paragraph to Criterion 5, paragraphs 5B(1)(b) and 5B(2)-(6), and Criteria 5C-5D, 7, 7A, 9, 13, and 14 apply to an application for, and the licensing, operation, and decommissioning of, a new ISR facility, a new wellfield within a licensed ISR facility, or a new production unit within an operating wellfield of a licensed ISR facility, the application for which is submitted after [DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*].

* * * * *

Criterion 5—For conventional mills, Criterion 5A, paragraphs 5B(1)(a) and 5B(2) - (6), and Criteria 5C-5D, 7, 7A, and 13 incorporate the basic groundwater protection standards established by the U.S. Environmental Protection Agency in 40 CFR part 192, subparts D and E, which apply during operations and prior to closure. For a new ISR facility, a new wellfield within a licensed ISR facility, or a new production unit within an operating wellfield of a licensed ISR facility, the application for which is submitted after [DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*], paragraphs 5B(1)(b) and 5B(2)-(6) of Criterion 5, and Criteria 5C, 5D, 7, 7A, 13, and 14 incorporate the basic groundwater protection standards established by the U.S. Environmental Protection Agency in 40 CFR part 192, subpart D, which apply during operations and prior to closure.

* * * * *

5B(1)—This criterion provides groundwater protection standards for conventional mills and ISR facilities.

(a) For conventional mills, uranium and thorium byproduct materials must be managed to conform to the following secondary groundwater protection standard: hazardous constituents entering the groundwater from a licensed site must not exceed the specified concentration limits in the uppermost aquifer beyond the point of compliance during the compliance period. Specified concentration limits are those limits established by the Commission as indicated in paragraph 5B(5) of this criterion. The Commission will also establish the point of compliance and compliance period on a site-specific basis through license conditions and orders. The objective in selecting the point of compliance is to provide the earliest practicable warning that the impoundment is releasing hazardous constituents to the groundwater. The point of compliance must be selected to provide prompt indication of groundwater contamination on the hydraulically downgradient edge of the disposal area. The Commission will identify hazardous constituents, establish concentration limits, set the compliance period, and may adjust the point of compliance if needed to accord with developed data and site information as to the flow of groundwater or contaminants, when the detection monitoring program established under Criterion 7A indicates leakage of hazardous constituents from the disposal area.

(b) For ISR facilities, uranium and thorium byproduct materials must be managed to conform to the following groundwater protection standard: hazardous constituents entering the groundwater from a production unit in a wellfield, at the point of compliance, must not exceed the specified concentration limits established by the Commission as indicated in paragraph 5B(5) of this criterion. The Commission will also establish the point of compliance

and compliance period on a site-specific basis pursuant to Criterion 14. The Commission will identify hazardous constituents, establish concentration limits, and may adjust the point of compliance if needed to accord with developed data and site information as to the flow of groundwater or licensee introduced contaminants, for the detection monitoring program established under criterion 7A and the additional ISR-specific monitoring requirements established under Criterion 14 to detect migration of hazardous constituents from a production unit in a wellfield.

5B(2)—For ISR facilities, a constituent becomes a hazardous constituent subject to paragraph 5B(5) of this criterion only when the constituent meets all three of the tests in criterion 14(b)(2) of this appendix. For conventional mills, a constituent becomes a hazardous constituent subject to paragraph 5B(5) of this criterion only when the constituent meets all three of the following tests:

- (a) *
- * *
- * *
- * *
- 5B(5) *
- * *

(b) The maximum contaminant level for that constituent as set forth in Criterion 5C, provided that the background level is below the value listed; or

- * *
- * *

5C—The maximum contaminant levels for hazardous constituents are provided in the tables in 40 CFR 141.61(a) and (c) and 40 CFR 141.62(b), or in 40 CFR 141.66(b), (c), and (e) or, if the constituent is not listed in the table of the aforementioned regulations, the respective value given in Table 1 in 40 CFR 264.94.

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- * *

VI. Additional Technical Criteria for ISR Operations

Criterion 14—The following are the groundwater protection standards for ISR facilities:

(a) *Site characterization and suitability demonstration.* In accordance with 10 CFR 40.31(h) and 40.32, the NRC will approve an application for a license to operate a new ISR facility, or in accordance with 10 CFR 40.45, the NRC will approve an amendment to allow operations in an area that was not previously licensed, if the applicant or licensee adequately demonstrates the ability of the geologic and hydrologic units to hydraulically isolate byproduct material from any aquifers immediately overlying, underlying, and adjacent to the production unit. Any drilling, well installation, testing, and related site activities required for the purpose of site characterization and suitability demonstration under this rule are not considered construction activities, as defined in 10 CFR 40.4. The site characterization and suitability evaluation must include the following:

(1) Publicly available subsurface information and site-specific drilling and testing data, including, but not limited to, cuttings and core logging, downhole geophysical logging, aquifer pumping tests, and one year of quarterly groundwater quality sampling for radiological and nonradiological analytes. The data, which can incorporate existing information, must adequately identify and provide the location of all targeted ore bodies, as well as characterize regional and site-specific hydrostratigraphy and hydraulic parameters for the production unit and all appropriate aquifers and aquitards. A geological and hydrological conceptual model of the site must be presented. Additionally, the characterization must include all pertinent geologic structures, such as folds, faults, and the strike/dip of bedding, as well as nearby wells, mines, quarries, and related/similar infrastructure which have the potential to influence site hydrogeology; and

(2) Documentation of the characterization and suitability evaluation in appropriately scaled maps, hydrogeologic cross sections, graphs, charts, tables, and other types of data presentation using professional and industry standard reporting.

(b) *Wellfield pre-operational requirements.* After the issuance of the license, the licensee must submit the information required in paragraphs 14(b)(1) through 14(b)(5) of this criterion to the NRC. The NRC must approve the background hazardous constituent concentration levels and the selected indicator constituents and associated upper control limits submitted in accordance with paragraphs 14(b)(3) and 14(b)(4) of this criterion and the wellfield restoration plan submitted in accordance with paragraph 14(b)(5) of this criterion before the licensee may inject lixiviant into any injection well in the wellfield.

(1) Wellfield pre-operational characterization package. The licensee must provide the NRC with a submittal summarizing the characterization of an individual wellfield package prior to the injection of lixiviant (after issuance of a license). The submittal must demonstrate adequate hydraulic connection between injection and production wells within the production unit, as well as between the injection and production wells and the point of compliance wells in the aquifer immediately adjacent to the production unit. The hydraulic isolation of the immediately overlying and underlying aquifers from the production unit must also be demonstrated. If isolation cannot be achieved, the licensee must identify the engineered and operational controls that will be used to prevent migration of material into the overlying and underlying aquifers. The submittal must provide pertinent subsurface field and laboratory data gathered during well drilling, construction, and sampling to include—

(i) Appropriately scaled maps showing the as-built locations and construction details of all wells installed to support this package submittal, including but not limited to: point of compliance baseline sampling and all aquifer pumping test(s) related wells;

(ii) Comprehensive geologic and hydrologic cross sections across the wellfield package area including pertinent hydrostratigraphic, groundwater elevation, and related geologic and hydrologic data are required in the licensee's submittal;

(iii) Descriptions of all aquifer pumping tests used to determine hydraulic parameters for the wellfield package area;

(iv) The licensee's evaluation of the proposed operational and restoration performance of the wellfield package area; and

(v) Appropriately scaled maps including the final as-built locations for all injection, production, point of compliance, and all previously installed wells, in addition to all well logging and construction data, must be included in the first semi-annual report to NRC following completion of the wellfield construction.

(2) Identification of hazardous constituents. Pursuant to paragraph 5B(1)(b) of this appendix, the licensee must identify those radiological and nonradiological constituents that are hazardous and are reasonably expected to be present within the production unit or that may be expected to increase in concentration as a result of ISR operations. A radiological or nonradiological constituent becomes a hazardous constituent when the constituent meets all three of the following tests:

(i) The constituent is reasonably expected to be in or derived from the byproduct material produced from ISR operations;

(ii) The constituent has been detected in the groundwater in an aquifer in the production unit; and

(iii) The constituent is listed in Criterion 13 of this appendix.

(3) Background hazardous constituent concentration levels. For each hazardous radiological and nonradiological constituent identified, the licensee must provide and submit an analysis of groundwater samples sufficient to establish the background hazardous constituent concentration levels to the NRC for approval pursuant to paragraph 5B(5)(a) of this appendix. Radiological and nonradiological constituent groundwater samples are required to be collected and analyzed to determine the background hazardous constituent concentration levels for each new wellfield, as follows:

(i) The licensee must identify the point of compliance wells in the production unit and the aquifers immediately overlying, underlying and adjacent to the production unit, as appropriate. The number, location, and screen interval of the point of compliance wells in the production unit and the aquifers immediately overlying, underlying and adjacent to the production unit must be shown to be sufficient to provide a representative sample of the background hazardous constituent concentration levels. The licensee must provide the number, location, and the screen interval of the point of compliance wells and the technical justification for their selection to the NRC for approval.

(ii) The licensee must obtain groundwater samples from all point of compliance wells in the production unit and in the aquifers immediately overlying, underlying and adjacent to the production unit. The licensee must take, at a minimum of two weeks apart or at an interval approved by the NRC, at least four independent sets of groundwater samples from each point of compliance well.

(iii) For each wellfield, the licensee must use the groundwater sampling data collected pursuant to paragraph 14(b)(3)(ii) of this criterion to determine the background hazardous constituent concentration levels in the point of compliance wells in the production unit and in the aquifers immediately overlying, underlying and adjacent to the production unit using

generally accepted statistical techniques. The groundwater sampling data and the proposed background concentration levels for each hazardous constituent at the point of compliance wells in the production unit and in the aquifers immediately overlying, underlying and adjacent to the production unit, and the technical justification for their selection, must be submitted for NRC approval.

(4) Indicator constituents. In order to detect the potential migration of byproduct material into groundwater surrounding the production unit in each wellfield, the licensee must select a minimum of three indicator constituents at all point of compliance wells in the aquifers immediately overlying, underlying and adjacent to the production unit and determine the numerical upper control limit for each indicator constituent. Licensees can utilize a different number of indicator constituents based on site specific factors with NRC approval. The licensee must obtain groundwater samples and analyze the indicator constituents from each point of compliance well. The licensee must take, at a minimum of two weeks apart or at an interval approved by the NRC, at least four independent sets of groundwater samples from each point of compliance well before wellfield operations begin. The licensee must use generally accepted statistical techniques to determine the upper control limits. The proposed indicator constituents and the upper control limits for each indicator constituent must be submitted for NRC approval. Licensees can propose a different number of samples for determining upper control limits based on site specific conditions for NRC approval, provided that generally accepted statistical techniques are used and remain valid.

(5) Wellfield restoration plan. A wellfield restoration plan must be submitted for NRC approval. The wellfield restoration plan will be evaluated on whether it provides reasonable assurance that the NRC-approved hazardous constituent concentration limits in paragraph 5B(5)(a) or (b) of this appendix will be met after restoration in the production unit is completed. Each wellfield restoration plan must identify hazardous constituents introduced by

the licensee requiring remediation in the production units, as well as a discussion of the methods used to determine the estimated pore volumes required for restoration, the proposed remediation strategy, and the restoration schedule. The restoration and post-restoration groundwater monitoring plans, including monitoring parameters, well locations, and numerical limits, must also be provided in the submittal to the NRC.

(c) *Well design and construction requirements.* For new injection and production wells, design and construction specifications are required to provide reasonable assurance that byproduct material does not leak into surrounding groundwater. Schematic or other appropriate drawings of the surface and subsurface construction details of such wells are required. In cases where the information would be repetitive and the wells are of similar age, type, and construction, the applicant or licensee, upon approval by the NRC, may submit data for a representative number of wells. In addition, the licensee must meet the following requirements:

(1) Injection and production wells must be cased and cemented to prevent the migration of byproduct material into or between aquifers, although the licensee may propose alternative methods to cementing for NRC approval. The casing and cement used in the construction of each newly drilled well must be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors must be considered:

- (i) Depth to the production unit;
- (ii) Injection wellhead pressure;
- (iii) Hole size;
- (iv) Size and grade of all casing strings, including wall thickness, diameter, nominal weight, length, joint specification, and construction material;

(v) Corrosiveness of lixiviant and byproduct material;

(vi) Lithology of injection and confining units; and

(vii) Type and grade of cement.

(2) Appropriate well logs and other tests must be conducted during the drilling and construction of new injection and production wells. The well logs and tests appropriate to each well must be determined based on the intended well's function, depth, construction, proximity to other logged wells, and other unique characteristics, if present.

(3) For each wellfield, point of compliance wells must be located in the immediately overlying, underlying, and adjacent aquifers to the production unit, as appropriate, in accordance with paragraph 14(b)(3)(i) of this criterion and constructed using standard monitoring well installation, completion, and development methods for the purpose of detecting excursions. If the wellfield operation may be affected by subsidence or catastrophic collapse, the point of compliance wells must be located so that they will not be physically affected.

(d) *Operating, monitoring, and reporting requirements.* During ISR operations and wellfield restoration, the licensee must manage byproduct materials so that any hazardous constituents from a production unit that migrate into groundwater in aquifers immediately overlying, underlying, and adjacent to the production unit do not exceed the hazardous constituent concentration limits approved pursuant to paragraph 5B(1)(b) of this appendix. Operating and monitoring reports are required on a regular basis to ensure that groundwater protection is adequate.

(1) Operating requirements.

(i) Injection and production wells must be operated to withdraw fluid in excess of that injected into the wellfield sufficient to ensure inward flow of groundwater into the wellfield so as to prevent migration of byproduct material outside the production unit. An inward hydraulic gradient must be maintained into the production unit at all times until post-restoration monitoring pursuant to paragraph 14(f)(1) of this criterion is initiated.

(ii) Injection between the outermost casing protecting adjacent aquifers and the well bore is prohibited.

(iii) Injection pressure at the wellhead must be calculated to ensure that the pressure in the production unit during injection does not initiate new fractures or propagate existing fractures. In no case will wellhead injection pressure initiate fractures in confining geologic units or cause migration of byproduct material into aquifers immediately overlying, underlying and adjacent to the production unit.

(iv) Before a wellfield begins operation, the applicant or licensee must submit an operating plan for the wellfield containing the following elements:

(A) An operations program that ensures fluid pressures within the production unit remain safely below the minimum fracture pressure for the confining strata and the production unit;

(B) A well development program;

(C) An injection and production well operating plan that demonstrates an inward hydraulic gradient will be established and maintained in the production unit during operations and restoration until post-restoration monitoring commences;

(D) Contingency plans to address shut-ins or well failures so as to prevent the migration of byproduct material into aquifers immediately overlying, underlying and adjacent to the production unit;

(E) The projected average and maximum daily rate and volume of lixiviant injected and production well fluid withdrawn;

(F) The projected average and maximum wellhead injection pressure;

(G) A qualitative analysis and ranges in concentrations of all lixiviant ingredients. The applicant or licensee may request that this information be characterized as proprietary information;

(H) Specifications for pipelines, wellfield header houses, and other related wellfield infrastructure to prevent byproduct material leakage to the uppermost aquifer; and

(I) Procedures to test and inspect pipelines, wellfield header houses, and other related wellfield infrastructure to detect leaks or other conditions that could lead to byproduct material leakage to the uppermost aquifer.

(2) Wellfield operation and restoration monitoring requirements. The licensee must comply with the following operational and restoration monitoring requirements in a wellfield:

(i) Continuous monitoring of injection pressure, or daily recording of injection pressure to demonstrate the injection pressure is below the maximum value for the production unit;

(ii) Continuous monitoring of injection and production well flow rates or daily recording of injection and production well flow rates or volumes to demonstrate that an inward hydraulic gradient is maintained in the production unit; and

(iii) At least twice per month, with a minimum of 10 days between sampling events, a sample must be taken for the approved indicator constituents in the point of compliance wells

in aquifers immediately overlying, underlying and adjacent to the production unit for excursion detection.

(A) An excursion is detected if, in any point of compliance well, two or more indicator constituents exceed their upper control limits.

(B) If an excursion is detected, a second sample must be taken within 48 hours after results of the first analyses were received. If the second sample does not indicate that upper control limits were exceeded, a third sample must be taken within 48 hours after the second set of sampling data was acquired.

(C) If the second and third samples do not indicate that upper control limits are exceeded, the excursion is not confirmed. If either the second or third sample shows that the indicator constituent(s) exceed their upper control limits, an excursion is confirmed. After an excursion is confirmed, the point of compliance well must be placed in excursion status and reported pursuant to paragraph 14(d)(5)(ii) of this criterion.

(iv) If an excursion is confirmed and following the 7-day report required by paragraph 14(d)(5)(ii) of this criterion:

(A) The licensee must evaluate the cause of the excursion and take action to eliminate the excursion. An excursion in aquifers immediately overlying, underlying, and adjacent to the production unit can be deemed eliminated when all excursion indicator constituents are below their respective upper control limits for three consecutive samples for the indicator constituents until the excursion is eliminated. Licensees can propose different approaches for considering an excursion eliminated based on site specific conditions. Different approaches would require NRC approval.

(B) The licensee must submit a written report describing the excursion event, efforts taken to eliminate the excursion, and the results within 60 days of the excursion confirmation.

(C) If the excursion is not eliminated in 60 days, corrective action must be initiated in accordance with paragraph 14(h)(1) of this criterion.

(3) Monitoring of pressure and flow rate on all injection wells on an individual well basis by wellfield manifold monitoring. Manifold pressure and flow rate monitoring may be used for wellfield operations having more than one injection well if these wells use a common manifold. Separate monitoring systems for each injection well are not required provided the applicant or licensee demonstrates that manifold monitoring is comparable to individual well monitoring.

(4) Uppermost aquifer monitoring requirements. For all surface and near surface ISR operations having the potential to contaminate the uppermost aquifer, the applicant must describe and the licensee must establish a program, to be approved by the NRC, to detect leaks or spills of byproduct material into the uppermost aquifer. Such a program must include commitments that any leak or spill of byproduct material will be adequately evaluated to ensure that the uppermost aquifer is not impacted. If byproduct material is confirmed to have leaked into the uppermost aquifer, the licensee must take corrective action in accordance with paragraph 14(h)(3) of this criterion.

(5) Reporting requirements. Licensees must meet the following reporting requirements:

(i) Semi-annual reports of results of the effluent monitoring required by 10 CFR 40.65 must be submitted to the NRC;

(ii) When an excursion is confirmed under paragraph 14(d)(2)(ii) of this criterion, a report must be made to the NRC within one business day, followed by submission of a written report to the NRC within seven calendar days from when the excursion is confirmed; and

(iii) If surface or near surface leakage or spills of byproduct material are detected in the uppermost aquifer, a report must be made to the NRC within one business day, followed by submission of a written report to the NRC within seven calendar days from when the leakage is detected in the uppermost aquifer.

(e) *Mechanical integrity.* Demonstration of mechanical integrity of injection and production wells is required before initial use and before reuse of wells that have been serviced with equipment or procedures that could damage the well casing, and at least once every 5 years thereafter.

(1) A well is deemed to have mechanical integrity if:

(i) There is no significant leak in the casing; and

(ii) There is no significant fluid movement into an aquifer through vertical channels adjacent to the injection well bore.

(2) One of the following methods must be used to verify the absence of significant leaks under paragraph 14(e)(1)(i) of this criterion:

(i) Following an initial pressure test, monitoring of the casing annulus pressure with sufficient frequency to be representative as approved by the NRC, while maintaining an annulus pressure different from atmospheric pressure measured at the surface; or

(ii) A pressure test with liquid or gas.

(3) Testing methods and alternative documentation requirements, such as those listed in 40 CFR 146.8(c), may be used to demonstrate compliance with paragraph 14(e)(1)(ii) mechanical integrity requirements of this criterion with the approval of the NRC.

(f) *Wellfield restoration.* Following completion of uranium recovery operations in a production unit in a wellfield, the licensee must restore the hazardous constituents identified

under paragraph 14(b)(2) of this criterion to the approved concentration limits listed in paragraphs 5B(5)(a) or (b) of this appendix pursuant to the wellfield restoration plan described in paragraph 14(b)(5) of this criterion. If the licensee cannot practically achieve the approved concentration limit for a hazardous constituent, the licensee may propose an alternate concentration limit pursuant to paragraph 5B(5)(c) of this appendix.

In its evaluation of a proposed alternate concentration limit pursuant to paragraph 5B(5)(c) of this appendix, the NRC will consider the factors specified in paragraphs 5B(4) and 5B(6) of this appendix. An application for an alternate concentration limit shall be submitted as an amendment of a license in accordance with 10 CFR 40.44.

(1) Post-restoration monitoring.

(i) Following completion of restoration in a production unit, an NRC-approved post-restoration monitoring program must be implemented at the approved point of compliance wells in the wellfield restoration plan. The post-restoration monitoring program must include quarterly sampling at each approved point of compliance well for one year to analyze whether hazardous constituents exceed their approved concentration limits pursuant to paragraph 5B(5) of this appendix. The analysis must be performed on a well-by-well basis.

(ii) Post-restoration monitoring for each production unit is deemed complete when groundwater samples, collected quarterly from point of compliance wells, show that hazardous constituent concentration levels have remained below their approved concentration limits with no statistically significant exceedance for one year.

(iii) The licensee must notify the NRC in writing within 7 days if, during the post-restoration monitoring period, the collected samples show that concentrations of any of the monitored hazardous constituents at a point of compliance well has shown a statistically

significant exceedance of its approved limit. The licensee must take corrective action in accordance with paragraph 14(h)(2) of this criterion.

(2) *Wellfield restoration report.* Following completion of the post-restoration monitoring program for each production unit in the wellfield, the licensee must submit a restoration report for NRC approval describing the wellfield restoration activities and results, including compliance with the NRC-approved hazardous constituent concentration limits in paragraph 5B(5) of this appendix and the post-restoration monitoring data demonstrating no statistically significant exceedance of the approved concentration limits for one year.

(g) *Plugging and abandonment.* The methods for abandoning wells must be determined and specified to ensure that vertical movement of fluids, including byproduct material, along the borehole is prevented.

(1) Before any injection, production, or point of compliance well is plugged and abandoned, a wellfield plugging and abandonment plan must be submitted for NRC approval.

(2) Before abandoning injection, production, or point of compliance wells, or any other well associated with any corrective action taken pursuant to paragraph 14(h) of this criterion, the wells must be plugged in accordance with applicable state and underground injection control regulations.

(3) The plugging and abandonment plan must demonstrate adequate protection of aquifers.

(h) *Corrective action.* If one of the events listed in paragraphs 14(h)(1)-(3) of this criterion occurs, the licensee must take the corresponding corrective actions listed for that event as set forth in either paragraph 14(h)(1), (2), or (3) of this criterion. In addition, the NRC may impose additional requirements for construction, operation, monitoring, or reporting as necessary to address any of these events.

(1) If an excursion is not eliminated within 60 days of confirmation, or an alternate time period approved by the NRC:

(i) The licensee must terminate injection of lixiviant into portions of the wellfield potentially contributing to the continuing excursion.

(ii) The licensee must conduct sampling to determine whether any hazardous constituent has exceeded their approved concentration limits at the point of compliance well with the confirmed excursion. If any hazardous constituent has exceeded its approved concentration limits, the licensee must characterize the extent of the contamination and take corrective action to the extent necessary to achieve compliance with the approved concentration limits.

(iii) The licensee must provide an increase to the financial surety for corrective action in accordance with paragraph 9(f)(4) of this appendix.

(iv) The corrective action must continue until the hazardous constituent concentration levels meet their approved concentration limits. The licensee must then provide a report for NRC approval describing the corrective action taken, the corrective action results and monitoring data that demonstrates that the hazardous constituents meet their approved concentration limits. If NRC confirms that the corrective action is completed, the additional surety requirements resulting from the excursion may be removed.

(2) If any hazardous constituent concentration level at a point of compliance well in the restored production unit shows a statistically significant exceedance of any approved hazardous constituent concentration limits during post-restoration monitoring and following the 7-day report required by paragraph 14(f)(1)(iii) of this criterion:

(i) The licensee must take corrective action to the extent necessary to achieve compliance with the approved concentration limits for all hazardous constituents.

(ii) Once corrective action is completed such that the hazardous constituent concentration levels meet their approved concentration limits, the licensee must provide a written report for NRC approval describing the corrective action taken, the corrective action results, and monitoring data that demonstrates that the hazardous constituents meet their approved concentration limits at the point of compliance wells in the production unit.

(iii) If the NRC determines that the licensee has not provided reasonable assurance that the corrective action for the exceedance was successful, the NRC may impose additional requirements for corrective action, operation, monitoring, or reporting as necessary. In addition, the NRC may require the licensee to restart the post- restoration monitoring at the affected point of compliance wells in the restored production unit by collecting quarterly samples which demonstrate no statistically significant exceedance of the approved concentration limits for any hazardous constituent for one year.

(3) If surface or near surface leakage or spills of source, lixiviant or byproduct material are detected in the uppermost aquifer and following the 7-day report required by paragraph 14(d)(5)(iii) of this criterion:

(i) The licensee must take corrective action to the extent necessary to achieve compliance with the approved concentration limits for all hazardous constituents.

(ii) The licensee must provide a written report describing the event, corrective action taken, and the corrective action results within 60 days, or an alternate time period approved by the NRC, of detection.

(iii) Once corrective action is completed and the hazardous constituent concentration levels meet their approved concentration limits, the licensee must provide a written report for the NRC approval describing the corrective actions taken and monitoring data that demonstrates that the hazardous constituents meet their approved concentration limits.

* * * * *

PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

7. The authority citation for part 50 continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 11, 101, 102, 103, 104, 105, 108, 122, 147, 149, 161, 181, 182, 183, 184, 185, 186, 187, 189, 223, 234 (42 U.S.C. 2014, 2131, 2132, 2133, 2134, 2135, 2138, 2152, 2167, 2169, 2201, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2239, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Nuclear Waste Policy Act of 1982, sec. 306 (42 U.S.C. 10226); National Environmental Policy Act of 1969 (42 U.S.C. 4332); 44 U.S.C. 3504 note.

8. In § 50.12:

a. Redesignate paragraph (a)(2)(vi) to (a)(2)(vii); and

b. Add new paragraph (a)(2)(vi).

The addition reads as follows:

§ 50.12 Specific exemptions.

(a)* * *

(2)* * *

(vi) The exemption would provide only temporary relief from the timely decommissioning requirement in § 50.82(a)(3), § 50.82(b)(4)(i), or § 52.110(c) for cases in which site-specific factor(s) affect the licensee's capability to complete decommissioning within that timeframe and the extension will not adversely affect site safety for the duration of the extension period; or

* * * * *

9. In § 50.82, revise paragraphs (a)(3) and (b)(4)(i) to read as follows:

§ 50.82 Termination of license.

* * * * *

(a)* * *

(3) Decommissioning must be completed within 60 years of permanent cessation of operations.

* * * * *

(b)* * *

(4)* * *

(i) The choice of the alternative for decommissioning with a description of activities involved. An alternative is acceptable if it provides for completion of decommissioning without significant delay.

* * * * *

PART 52—LICENSES, CERTIFICATIONS, AND APPROVALS FOR NUCLEAR POWER PLANTS

10. The authority citation continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 103, 104, 147, 149, 161, 181, 182, 183, 185, 186, 189, 223, 234 (42 U.S.C. 2133, 2134, 2167, 2169, 2201, 2231, 2232, 2233, 2235, 2236, 2239, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); 44 U.S.C. 3504 note.

11. In § 52.110, revise paragraph (c) to read as follows:

§ 52.110 Termination of license.

* * * * *

(c) Decommissioning must be completed within 60 years of permanent cessation of operations.

* * * * *

Part 53—Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

12. The authority citation continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 11, 101, 103, 108, 122, 147, 161, 181, 182, 183, 184, 185, 186, 187, 189, 223, 234 (42 U.S.C. 2014, 2131, 2132, 2133, 2134, 2135, 2138, 2152, 2167, 2169, 2201, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2239, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Nuclear Waste Policy Act of 1982, sec. 306 (42 U.S.C. 10226); National Environmental Policy Act of 1969 (42 U.S.C. 4332); 44 U.S.C. 3504 note; Pub. L. 115-439, 132 Stat. 5571.

13. In § 53.080,

a. In paragraph (b)(5), remove the phrase “regulation; or” and add in its place the phrase “regulation;”;

b. Reassign paragraph (b)(6) to new paragraph (b)(7); and

c. Add new paragraph (b)(6).

The addition reads as follows:

§ 53.080 Specific exemptions.

* * * * *

(b)* * *

(6) The exemption would provide only temporary relief from the timely decommissioning requirement in § 53.1070(c) for cases in which site-specific factor(s) affect

the licensee’s capability to complete decommissioning within that timeframe and the extension will not adversely affect public health and safety for the duration of the extension period; or

* * * * *

14. In § 53.1070, revise paragraph (c) to read as follows:

§ 53.1070 Termination of license.

* * * * *

(c) Decommissioning must be completed within 60 years of permanent cessation of operations.

* * * * *

PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

15. The authority citation continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 51, 53, 57(d), 108, 122, 161, 182, 183, 184, 186, 187, 193, 223, 234, 274, 1701 (42 U.S.C. 2071, 2073, 2077(d), 2138, 2152, 2201, 2232, 2233, 2234, 2236, 2237, 2243, 2273, 2282, 2021, 2297f); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Nuclear Waste Policy Act of 1982, secs. 135, 141 (42 U.S.C. 10155, 10161); 44 U.S.C. 3504 note.

Sections 70.1(c) and 70.20a(b) also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161).

Section 70.21(g) also issued under Atomic Energy Act sec. 122 (42 U.S.C. 2152).

Section 70.31 also issued under Atomic Energy Act sec. 57(d) (42 U.S.C. 2077(d)).

Sections 70.36 and 70.44 also issued under Atomic Energy Act sec. 184 (42 U.S.C. 2234).

Section 70.81 also issued under Atomic Energy Act secs. 186, 187 (42 U.S.C. 2236, 2237).

Section 70.82 also issued under Atomic Energy Act sec. 108 (42 U.S.C. 2138).

16. In § 70.38:

a. Revise paragraph (d);

b. In the first sentence of paragraph (e) introductory text, remove the phrase “paragraph (d)” and add in its place the phrase “paragraph (d)(1)”;

c. Revise paragraph (f); and

d. Remove and reserve paragraph (g)(2).

The revisions read as follows:

§ 70.38 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(d)

(1) Consistent with § 70.5, each licensee must provide notification to the NRC in writing within 60 days of the occurrence of any of the following and indicate which approach under paragraph (d)(2) of this section the licensee intends to pursue:

(i) The license has expired pursuant to paragraph (a) or (b) of this section; or

(ii) The licensee has decided to permanently cease principal activities, as defined in this part, at the entire site or in any separate building or outdoor area that contains residual

radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements; or

(iii) No principal activities under the license have been conducted for a period of 48 months; or

(iv) No principal activities have been conducted for a period of 48 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.

(2) When notification is made pursuant to paragraph (d)(1) of this section, the licensee must—

(i) Within 45 days, submit a request to delay initiation of decommissioning activities consistent with paragraph (f) of this section, or

(ii) Immediately begin decommissioning its site, or any separate building or outdoor area that contains residual radioactivity so that the building or outdoor area is suitable for release in accordance with NRC requirements, or

(iii) Within 12 months, submit a decommissioning plan, if required by paragraph (g)(1) of this section, and begin decommissioning upon approval of that plan.

* * * * *

(f) The Commission may grant a request to extend the time periods established in paragraph (d). The schedule for decommissioning set forth in paragraph (d) of this section may not commence until the Commission has made a determination on the request. The request must include the following, as applicable:

(1) Discussion of the business need for continued possession or authorization of licensed material or how the request is otherwise in the public interest.

(2) Discussion of the health and safety plan that will be in effect during the extension period.

(3) Discussion of the current decommissioning cost estimate and the potential for increased decommissioning costs if an extension of the time period is or is not approved.

(4) A timeframe for which principal activities will resume, which must not exceed 36 months from the date of notification as provided for in (d)(1)(iii) and (d)(1)(iv) of this section.

(5) A commitment that, should principal activities not resume within the timeframe specified in paragraph (f)(4), the licensee must provide notification to the NRC consistent with paragraph (d) of this section.

(g)* * *

(2) [Reserved]

* * * * *

PART 72—LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL, HIGH-LEVEL RADIOACTIVE WASTE, AND REACTOR-RELATED GREATER THAN CLASS C WASTE

17. The authority citation continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 223, 234, 274 (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2210e, 2232, 2233, 2234, 2236, 2237, 2238, 2273, 2282, 2021); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); National Environmental Policy Act of 1969 (42 U.S.C. 4332); Nuclear Waste Policy Act of 1982, secs. 117(a), 132, 133, 134, 135, 137, 141, 145(g), 148, 218(a) (42 U.S.C. 10137(a), 10152, 10153, 10154, 10155, 10157, 10161, 10165(g), 10168, 10198(a)); 44 U.S.C. 3504 note.

18. In § 72.54:

- a. Revise paragraph (d);
- b. In the first sentence of paragraph (e) introductory text, remove the phrase “paragraph (d)” and add in its place the phrase “paragraph (d)(1)”; and
- c. Revise paragraph (f).

The revisions read as follows:

§ 72.54 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

* * * * *

(d)

(1) Consistent with § 72.4, each licensee must provide notification to the NRC in writing as required by § 72.42(b) or within 60 days of the occurrence of any of the following, and indicate which approach under paragraph (d)(2) of this section the licensee intends to pursue:

(i) The licensee has decided to permanently cease principal activities, as defined in this part, at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements; or

(ii) No principal activities under the license have been conducted for a period of 48 months; or

(iii) No principal activities have been conducted for a period of 48 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements.

(2) When notification is made pursuant to paragraph (d)(1) of this section, the licensee must—

(i) Within 45 days, submit a request to delay initiation of decommissioning activities consistent with paragraph (f) of this section, or

(ii) Within 12 months, submit a final decommissioning plan and begin decommissioning upon approval of the plan.

* * * * *

(f) The Commission may grant a request to extend the time periods established in paragraph (d). The schedule for decommissioning set forth in paragraph (d) of this section may not commence until the Commission has made a determination on the request. The request must include the following, as applicable:

(1) Discussion of the business need for continued possession or authorization of licensed material or how the request is otherwise in the public interest.

(2) Discussion of the health and safety plan that will be in effect during the extension period.

(3) Discussion of the current decommissioning cost estimate and the potential for increased decommissioning costs if an extension of the time period is or is not approved.

(4) A timeframe for which principal activities will resume, which must not exceed 36 months from the date of notification as provided for in (d)(1)(iii) and (d)(1)(iv) of this section.

(5) A commitment that, should principal activities not resume within the timeframe specified in paragraph (f)(4), the licensee must provide notification to the NRC consistent with paragraph (d) of this section.

* * * * *

Dated: <Month XX, 20XX>.

For the Nuclear Regulatory Commission.

Jody Martin,
Secretary of the Commission.