[7590-01-P]

**NUCLEAR REGULATORY COMMISSION**

**10 CFR Parts 20, 26, 50, 51, 52, 72, 73, 140**

**[NRC-2015-0070]**

**RIN 3150-AJ59**

# Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule and guidance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations that relate to the decommissioning of production and utilization facilities. The NRC's goals in amending these regulations are to maintain a safe, effective, and efficient decommissioning process; reduce the need for license amendment requests and exemptions from existing regulations; address other decommissioning issues deemed relevant by the NRC; and support the NRC's Principles of Good Regulation, including openness, clarity, and reliability. The NRC is also issuing implementation guidance for this final rule.

**DATES:** This final rule is effective on **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].**

**ADDRESSES:** Please refer to Docket ID NRC-2015-0070 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-2015-0070. Address questions about NRC dockets to Dawn

Forder; telephone: 301-415-3407; email: Dawn.Forder@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **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 Web-based ADAMS 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 of this document.

- **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.

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**SUPPLEMENTARY INFORMATION:**

**EXECUTIVE SUMMARY:**

A. Need for the Regulatory Action

The NRC is amending its regulations related to the decommissioning of production and utilization facilities. The Commission directed the NRC staff to proceed with an integrated rulemaking on nuclear power reactor decommissioning to address the following: a graded approach to emergency preparedness (EP), lessons learned from

the licensees that have already gone through (or are currently going through) the decommissioning process, the advisability of requiring a licensee's post-shutdown decommissioning activities report (PSDAR) to be approved by the NRC, the appropriateness of maintaining the three existing options for decommissioning and the timeframes associated with those options, the appropriate role of State and local governments and nongovernmental stakeholders in the decommissioning process, and any other issues deemed relevant by the NRC staff.

Compared to an operating nuclear power reactor, the risk of an offsite radiological release is significantly lower, and the types of possible accidents are significantly fewer, at a nuclear power reactor that has permanently ceased operations and removed fuel from the reactor vessel. As a direct result, there is no need for the NRC to impose new requirements in the areas identified in this rulemaking to address safety or security concerns. Instead, the requirements in decommissioning should be aligned with the reduction in risk that occurs over time, while maintaining reasonable assurance of adequate protection of the public health and safety and common defense and security. The decommissioning process can be improved and made more efficient, open, and predictable by reducing the reliance on licensing actions (i.e., license amendment and exemption requests) to reflect this reduction in risk. The changes to the decommissioning requirements promulgated by this final rule establish a more sustainable regulatory framework that codifies many of the changes that were previously sought through a licensing action during decommissioning.

In several areas, the current regulations do not distinguish between provisions that apply to a nuclear power reactor that has permanently ceased operations and provisions that apply to an operating nuclear power reactor. To address this, the NRC is amending its regulations to provide a regulatory framework for the transition from operating to decommissioning. This final rule establishes a graded approach that is

commensurate with the reduction in radiological risk through four levels of decommissioning: (1) permanent cessation of operations and permanent removal of all fuel from the reactor vessel, (2) sufficient decay of fuel in the spent fuel pool (SFP) such that it would not reach ignition temperature within 10 hours under adiabatic heat up conditions (i.e., a complete loss of SFP water inventory with no heat loss), (3) transfer of all fuel to dry storage, and (4) removal of all fuel from the site. The graded approach to decommissioning is a fundamental concept for this final rule.

The NRC also determined that changes to the regulations are appropriate with respect to drug and alcohol testing; cybersecurity; and foreign ownership, control, or domination (FOCD) of a production or utilization facility undergoing decommissioning.

Because the current regulatory framework for decommissioning is adequate to protect public health and safety, promote the common defense and security, and protect the environment, many of the new requirements in this final rule are alternatives to current requirements.

B. Major Provisions

Major provisions of this final rule include changes in the following areas:

- *Emergency preparedness*. This final rule offers an alternative, graded approach to the current requirements for onsite and offsite radiological EP at a nuclear power reactor undergoing decommissioning and eliminates the need for licensees to request license amendments and exemptions from regulations to make changes to their emergency plans during the transition from operation to decommissioning. This approach provides four distinct levels of emergency planning requirements that allow for a transition from an operating reactor emergency plan to when an emergency plan is no longer required because all spent fuel has been removed from the site. The graded approach to EP is intended to gradually reduce the requirements for an emergency plan as the radiological risk at the site decreases. These requirements include SFP

monitoring, hostile action-based preparedness activities, emergency action levels, and offsite emergency planning requirements. In addition, this final rule amends the emergency plan change management process in paragraph (q) of section 50.54, "Conditions of licenses," of title 10 of the *Code of Federal Regulations* (10 CFR), to provide an opportunity for licensees to implement changes to their emergency plans when these changes are based upon changes made to site systems, structures, or components evaluated in accordance with § 50.59 (i.e., the plan changes would not result in a reduction in the effectiveness of the emergency plan).

- *Physical security*. This final rule amends the NRC's regulations to eliminate the need for licensees to request approval through exemptions and amendments to make certain adjustments to their physical security programs during decommissioning. Specifically, these changes: (1) permit a certified fuel handler (CFH), an individual specifically designated by the facility licensee, or an available organizationally senior individual, to approve the temporary suspension of security measures during certain emergency conditions or during severe weather, (2) remove the requirement that a licensee's physical protection program be designed to prevent significant core damage, (3) remove the requirement that a licensee must designate the reactor control room as a "vital area," and (4) replace the requirement for maintaining continuous communications between the alarm stations and the control room with a requirement for maintaining communications between alarm stations and the CFH, the senior on-shift licensee representative, or both. This last change clarifies the management role of the CFH in a manner that is consistent with § 50.54(y). The NRC is also revising paragraph § 50.54(p) to add definitions for "change" and "decrease in safeguards effectiveness," as those terms apply to the process for making changes to the security plans of licensees under 10 CFR part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," for

operating, decommissioning, or decommissioned reactor units. In addition, this final rule provides a licensee with an option for the physical protection of a general license independent spent fuel storage installation (ISFSI). Once all spent fuel has been moved to dry storage, general license ISFSIs that protect spent fuel using the physical security requirements in § 73.55, “Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage,” for a nuclear power reactor may use § 73.51, “Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste,” of 10 CFR part 73, “Physical Protection of Plants and Materials.”

- *Cybersecurity.* This final rule provides that the cybersecurity requirements in § 73.54, “Protection of digital computer and communication systems and networks,” continue to apply to a nuclear power reactor licensee after permanent cessation of operations, until all the fuel has been removed from the reactor vessel and there has been sufficient decay of the fuel in the SFP such that it would not reach ignition temperature within 10 hours under adiabatic heat up conditions. Once these conditions are met, a licensee’s digital computer and communications systems would no longer be subject to the cybersecurity requirements of § 73.54. However, holders of operating licenses under 10 CFR part 50 have a cybersecurity license condition requiring the licensee to maintain its cybersecurity plan until the license is terminated or the license condition is removed by license amendment. This final rule provides for the removal of the cybersecurity license condition after the spent fuel decay period has elapsed. This change eliminates the need for 10 CFR part 50 licensees to request removal of that license condition through a license amendment request. For holders of combined licenses (COLs) under 10 CFR part 52, the final rule would extend into decommissioning the requirement to maintain a cybersecurity plan. These licensees do not have a cybersecurity license condition.

- *Drug and alcohol testing*. This final rule corrects an inconsistency in the applicability of the NRC's 10 CFR part 26 regulations for fitness-for-duty (FFD) programs with respect to 10 CFR part 50 and 10 CFR part 52 licensees. Specifically, this final rule clarifies that 10 CFR part 26 no longer applies to a 10 CFR part 52 licensee once the NRC has docketed the licensee's certifications of permanent cessation of operations and permanent removal of all fuel from the reactor vessel (which is already the case for 10 CFR part 50 licensees). This change eliminates the need for 10 CFR part 52 licensees to request an exemption from 10 CFR part 26 to remove FFD requirements when a plant is transitioning to decommissioning. This final rule also corrects an inconsistency in the criminal penalties in § 26.825(a). Specifically, this final rule includes § 26.3, "Scope," as a provision subject to criminal penalties if violated because it includes a substantive requirement for certain entities to comply with requirements in 10 CFR part 26 by a specific deadline. Finally, this final rule clarifies the FFD program elements that must be incorporated into a licensee's insider mitigation program (IMP) in § 73.55(b)(9)(ii)(B).

- *Certified fuel handler definition and elimination of licensed operators and the shift technical advisor.* This final rule retains the existing definition for "certified fuel handler" and adds an alternative that eliminates the need for nuclear power reactor licensees to seek the Commission's approval of a fuel handler training program. The alternative requires the training program to address the safe conduct of decommissioning activities, safe handling and storage of spent fuel, and appropriate response to plant emergencies. The alternative specifies that a CFH must be qualified in accordance with a fuel handler training program that meets the same requirements as training programs for non-licensed operators required by § 50.120, "Training and qualification of nuclear power plant personnel." This final rule also clarifies that licensed operators (i.e., operators and senior operators) and a shift technical advisor (STA) are not required for decommissioning nuclear power reactors. Further, it clarifies that training

programs under § 50.120 for the categories of nuclear power plant personnel listed in § 50.120(b)(2) are also not necessary for a decommissioning plant.

- *Decommissioning funding assurance.* This final rule contains several changes regarding decommissioning funding for nuclear power reactors. It modifies the reporting frequency in § 50.75, “Reporting and recordkeeping for decommissioning planning,” to be consistent with the decommissioning funding assurance reporting frequency for ISFSIs in paragraph (c) of § 72.30, “Financial assurance and recordkeeping for decommissioning.” For ISFSI funding reports, this final rule allows licensees to combine the reports that are required by §§ 50.82(a)(8)(v), 50.82(a)(8)(vii), and 72.30 and removes the requirement for NRC approval of ISFSI reports filed under § 72.30(c). It also establishes that the financial assurance report and report on the status of funding for managing irradiated fuel, required by §§ 50.82(a)(8)(v) and 50.82(a)(8)(vii), respectively, may be submitted triennially after completion of reactor decommissioning activities and release of the site outside the ISFSI boundary. This final rule clarifies that although the regulations establish a continuing obligation to provide reasonable assurance of decommissioning funding, when a licensee identifies a shortfall in the report required by § 50.75(f)(1), the next report for licensees that are not “electric utilities” as defined in § 50.2, “Definitions,” or the report two reports later for licensees that are electric utilities, may not have a shortfall. In addition, this final rule makes administrative changes to ensure consistency with § 50.4, “Written communications,” regarding the submission of notifications and to eliminate §§ 50.75(f)(2) and 50.82(a)(8)(iii) because § 50.75(f)(1) fully encompasses paragraph (f)(2) and § 50.82(a)(4)(i) fully encompasses the requirement at § 50.82(a)(8)(iii).

- *Offsite and onsite financial protection requirements and indemnity agreements*. This final rule allows certain nuclear power reactor licensees in decommissioning to reduce the onsite and offsite insurance amounts that they are

required to maintain without obtaining exemptions from the NRC's regulations.

- *Environmental considerations.* This final rule states that the licensee's PSDAR must discuss whether the environmental impacts of site-specific decommissioning activities will be bounded by appropriate federally issued environmental review documents, provide the reasons for reaching that conclusion, and describe any decommissioning activities whose environmental impacts will not be so bounded and will be evaluated prior to the performance of the activities. This final rule clarifies that appropriate federally issued environmental review documents may be used instead of only environmental impact statements.

- *Record retention requirements*. This final rule removes certain record retention requirements for structures, systems, and components (SSCs) that no longer remain in service during decommissioning and removes requirements to keep multiple copies of certain spent fuel storage records.

- *Low-level radioactive waste transportation*. This final rule allows a 90-day window before a licensee would be required to notify the NRC that a shipment of low-level radioactive waste (LLW) had not yet reached the intended destination (i.e., disposal facility). This increase from the current 20-day window is based on operating experience that shows that 90 days is an appropriate amount of time to allow for completion of an LLW shipment.

- *Spent fuel management planning*. This final rule merges the provisions for an irradiated fuel management plan (IFMP) into the PSDAR provisions in amended paragraph (a)(4) of § 50.82, "Termination of license," and paragraph (d) of § 52.110, "Termination of license," and clarifies that the PSDAR must contain information on spent fuel management planning in accordance with the regulatory requirements that are being moved into the PSDAR provisions from current § 50.54(bb) and § 72.218, "Termination

of licenses." This final rule also eliminates § 50.54(bb) because revised §§ 50.82(a) and 52.110 fully encompass that requirement.

- *Backfit Rule.* This final rule clarifies how the NRC applies § 50.109, "Backfitting," to regulatory actions affecting nuclear power reactor licensees in decommissioning and makes conforming changes to § 72.62, "Backfitting."

- *Foreign ownership, control, or domination*. This final rule specifies the criteria for when a facility is no longer considered a production or utilization facility. These criteria are: (1) the 10 CFR part 50 or 10 CFR part 52 license no longer authorizes operation of the facility and (2) the facility has been modified to be incapable of producing or utilizing, as appropriate, special nuclear material without significant alterations. At this point, the FOCD prohibition found in § 50.38, "Ineligibility of certain applicants," would no longer apply to a person seeking a license for the facility. This change eliminates the need for requests for an exemption from § 50.38 to apply for and obtain licenses, including via license transfer, for facilities that no longer meet the definition of a production or utilization facility.

- *Clarification of scope of license termination plan requirement.* This final rule clarifies that the requirement for a license termination plan in §§ 50.82(a)(9) and 52.110(i) applies only to nuclear power reactor licensees that have loaded fuel into the reactor vessel.

- *Removal of license conditions and withdrawal of order made redundant by regulation*. This final rule deems removed conditions imposed upon individual licensees and withdraws an NRC order. The conditions and order have been identified as having been made redundant by subsequent regulation, resulting in their requirements being generically applicable. License conditions deemed removed will be removed by administrative license amendment after the effective date of this final rule.

- *Changes for consistent treatment of holders of combined licenses and operating licenses*. This final rule improves consistency in regulatory treatment for combined license (10 CFR part 52) and operating license (10 CFR part 50) holders by aligning regulatory applicabilities for combined license holders upon submittal of the § 52.110(a) certifications with regulatory applicabilities for operating license holders upon submittal of the § 50.82(a)(1) certifications.

C. Costs and Benefits

The NRC prepared a final regulatory analysis to determine the expected quantitative costs and benefits of this final rule, as well as qualitative factors to be considered in the NRC's rulemaking decision. The conclusion of the analysis is that this final rule will result in net savings to production and utilization facility licensees and the NRC. The analysis combines the costs and benefits from the decommissioning areas of EP, physical security, cybersecurity, drug and alcohol testing, CFH training, decommissioning funding assurance, offsite and onsite financial protection requirements and indemnity agreements, environmental considerations, records retention, LLW transportation, spent fuel management planning, application of backfitting provisions, FOCD, and clarification of the scope of a license termination plan. The analysis discusses the economic impact to the nuclear industry, government, and society from the rulemaking and associated guidance.

The final regulatory analysis discusses the cost benefit analysis for the various alternatives in each area of decommissioning proposed by the NRC and shows that the NRC's final rule and guidance development is overall cost beneficial to the nuclear industry, government, and society, with net averted costs of approximately $4.57 million using a 7-percent net present value and $17.1 million using a 3-percent net present value.

The final regulatory analysis also considers, in a qualitative fashion, regulatory

efficiency, public health and safety, and common defense and security. For the regulatory efficiency aspect, this final rule enables the NRC to better maintain and administer regulatory oversight of the decommissioning process and ensure that the requirements for decommissioning production and utilization facilities are clear and appropriate. This final rule also continues to provide reasonable assurance of adequate protection of the public health and safety, promote the common defense and security, and protect the environment at production and utilization facility sites that have started decommissioning.

For more information, please see the final regulatory analysis.

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## I. Background

*A. 1988 Decommissioning Rule*

On June 27, 1988, the NRC published a final rule titled, “General Requirements for Decommissioning Nuclear Facilities” (53 FR 24018) (referred to herein as the “1988 Final Rule”), which established decommissioning requirements for various types of licensees. In this rule, the NRC amended its regulations to provide specific requirements for the decommissioning of nuclear facilities. Specifically, the final rule established regulations on acceptable decommissioning alternatives, planning for decommissioning, decommissioning timeliness, assurance of the availability of funds for decommissioning, and environmental review requirements related to decommissioning. The 1988 Final Rule amended the regulations that applied to applicants and licensees under 10 CFR part 30, “Rules of General Applicability to Domestic Licensing of Byproduct Material”; 10 CFR part 40, “Domestic Licensing of Source Material”; 10 CFR part 50; 10 CFR part 70,

“Domestic Licensing of Special Nuclear Material”; and 10 CFR part 72, “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste.”

In the 1988 Final Rule, the NRC defined decommissioning as the “removal of nuclear facilities safely from service and reduction of residual radioactivity to a level that permits release of the property for unrestricted use and termination of the license.” The NRC also stated in the 1988 Final Rule that decommissioning activities do not include the removal and disposal of spent fuel, which is considered to be an operational activity, or the removal and disposal of nonradioactive structures and materials beyond that necessary to terminate the NRC license.

The purpose of the 1988 Final Rule, in part, was to ensure that reactor decommissioning would be carried out with minimal impact on public and occupational health and safety and the environment. The NRC’s objective was that decommissioned facility sites would ultimately be available for unrestricted use for any public or private purpose. The amended regulations provided a regulatory framework for efficient and consistent licensing actions related to decommissioning.

The NRC noted in the 1988 Final Rule that, although decommissioning was not an imminent health and safety problem, the number and complexity of facilities that would require decommissioning was expected to increase, and inadequate or untimely consideration of decommissioning, specifically in the areas of planning and financial assurance, could result in significant adverse health, safety, and environmental impacts. The 1988 Final Rule clearly states that the licensee is responsible for the funding and completion of decommissioning in a manner that protects public health and safety. The NRC stated, “With the increased number of decommissionings expected, case-by-case procedures would make licensing difficult and increase NRC and licensee staff resources needed for these activities” (53 FR 24019).

The 1988 Final Rule required that, within 2 years after a licensee permanently ceases operation of a licensed nuclear facility, the licensee must submit a detailed decommissioning plan (DP) to the NRC for approval along with a supplemental environmental report that addresses environmental issues that have not already been considered. Based on these submittals, the NRC reviewed the licensee's planned activities, prepared a safety evaluation report and an environmental assessment (EA), and either made a finding of no significant impact (the usual case) or prepared an environmental impact statement (EIS). Upon approval of the DP, the NRC issued an order under § 2.202, "Orders," permitting the licensee to decommission its facility in accordance with the approved plan. As part of the approval process for the DP, the public had the opportunity to request a hearing under 10 CFR part 2, "Agency Rules of Practice and Procedure." The NRC would terminate the license once the decommissioning process was completed and the NRC was satisfied that the facility had been radiologically decontaminated to an unrestricted release level in accordance with § 20.1402, "Radiological criteria for unrestricted use."[1]

If the licensee chose to place the reactor in storage and dismantle at a later date, the initial DP submittal was not required to be as detailed as a plan for prompt dismantlement. However, before the licensee could begin dismantlement, the regulations required that the licensee submit a detailed plan and environmental report to the NRC for approval. Before the DP was approved, the licensee could not perform any major decommissioning activities. If a licensee desired a reduction in requirements because of the permanent cessation of operations, it had to obtain a license amendment for possession-only status. This possession-only license amendment was usually

[1] License termination based upon a facility meeting the unrestricted use criteria under § 20.1402 is the most common license termination scenario. The NRC may also terminate a facility license under restricted conditions (§ 20.1403, "Criteria for license termination under restricted conditions") and under alternative criteria (§ 20.1404, "Alternative criteria for license termination").

granted after the licensee indicated that the reactor had permanently ceased operations and that fuel had been permanently removed from the reactor vessel. Three examples of licensees that were granted possession-only status are Yankee Atomic Electric Company for the Yankee Nuclear Power Station (Yankee Rowe) (August 5, 1992), Portland General Electric Company for the Trojan Nuclear Power Plant (May 5, 1993), and Sacramento Municipal Utility District for the Rancho Seco Nuclear Generating Station (March 17, 1992).

The 1988 Final Rule required licensees to provide assurance that, at any time during the life of the facility through termination of the license, adequate funds will be available to complete decommissioning. For operating reactors, the 1988 Final Rule prescribed the required amount of decommissioning funding in § 50.75. The 1988 Final Rule also imposed the requirement that, 5 years before license expiration or cessation of operations, licensees must submit a preliminary DP containing a site-specific decommissioning cost estimate and appropriately adjust the financial assurance mechanism as needed. In addition, the 1988 Final Rule required licensees to submit a DP, including a site-specific cost estimate for decommissioning and a correspondingly adjusted financial assurance mechanism, within 2 years after permanent cessation of operations. For delayed dismantlement of a nuclear facility, the 1988 Final Rule required licensees to submit an updated DP with the estimated cost of covering the delay to decommission and to appropriately adjust the financial assurance mechanism. Before approval of the DP, the 1988 Final Rule specified that licensee use of the decommissioning funds would be determined on a case-specific basis for premature closure, when the accrual of required decommissioning funds may be incomplete.

*B. 1996 Decommissioning Rule*

On July 29, 1996, the NRC amended its regulations for reactor decommissioning to clarify ambiguities, codify procedures that reduced regulatory burden, provide greater

flexibility, and allow for greater public participation in the decommissioning process in a final rule titled, “Decommissioning of Nuclear Power Reactors” (61 FR 39278) (referred to herein as the “1996 Final Rule”). The 1996 Final Rule made fundamental changes to nuclear power reactor decommissioning by streamlining the process and reducing both licensee and NRC resource expenditures while maintaining safety, protecting the environment, and encouraging public involvement.

In the 1996 Final Rule, the NRC explained that the degree of regulatory oversight required for a nuclear power reactor in decommissioning is considerably less than that required for a facility during its operating stage. During the operating stage of the reactor, fuel in the reactor core undergoes a controlled nuclear fission reaction that generates a high neutron flux and large amounts of heat. Safe control of the nuclear reaction involves the use and operation of many complex systems. First, the nuclear reaction must be carefully controlled through neutron-absorbing mechanisms. Second, the heat generated must be removed so that the fuel and its supporting structure do not overheat. Third, the confining structure and ancillary systems must be maintained, and degradation caused by radiation and mechanical and thermal stress ameliorated. Fourth, the radioactivity resulting from the nuclear reaction in the form of direct radiation (especially near the high neutron flux areas around the reactor vessel) and any radiologically contaminated materials and radiological effluents (gaseous and liquid) must be minimized and controlled. Moreover, proper operating procedures must be established and maintained, with appropriately trained staff to ensure that the reactor system is properly operated and maintained, and that operating personnel minimize their exposure to radiation when performing their duties. Finally, emergency response procedures must be established and maintained to protect the public in the event of an accident.

Decommissioning of a nuclear power reactor begins when the nuclear fission

reaction is stopped and the fuel (in the form of spent fuel assemblies) is permanently removed from the reactor vessel and placed in the SFP until transferred to interim storage in an onsite ISFSI or transported offsite for storage or disposal. While the spent fuel is still highly radioactive and generates heat caused by radioactive decay, the fuel slowly cools as its energetic decay products diminish. The SFP, which contains circulating water, removes the decay heat and filters out any small radioactive contaminant particles escaping the spent fuel assemblies. The SFP system is relatively simple to operate and maintain compared to an operating nuclear power reactor. The remainder of the facility may contain radioactive contamination in areas that were directly impacted by reactor operation and will be more highly contaminated in the area of the reactor vessel. However, no new radioactivity can be generated because the spent fuel is stored in a configuration that precludes the nuclear fission reaction. Once the nuclear fission process has permanently ceased and the fuel assemblies have been removed from the reactor vessel, safety concerns for an SFP are greatly reduced because there is no longer generation of large amounts of heat, high neutron flux or related materials degradation, and other related stresses that result from the functioning of an operating reactor system.

Contaminated areas of the facility must still be controlled to minimize radiation exposure to personnel and control the spread of radioactive material. This situation is now similar to a contaminated materials facility and does not require the oversight that an operating reactor would require.

The amendments issued in the 1996 Final Rule provided licensees with simplicity and flexibility in implementing the decommissioning process, especially with regard to premature closure. The amendments clarified ambiguities in the regulations existing at the time, codified procedures and terminology that had been used in a number of specific cases, and increased opportunities for the public to become informed about the

licensee's decommissioning activities. The amendments established a level of NRC oversight commensurate with the level of safety concerns expected during decommissioning activities. Specifically, the 1996 Final Rule established or modified requirements with regard to initial decommissioning activities, major decommissioning activities, and license termination procedures.

With regard to initial decommissioning activities, the 1996 Final Rule mandated that, once a licensee permanently ceases operation of the nuclear power reactor and removes the fuel assemblies from the reactor vessel, it could not undertake any major decommissioning activities until it provided the public and the NRC with additional information about the proposed decommissioning approach. The NRC required that the licensee submit this information in the form of a PSDAR, which consists of the licensee's proposed decommissioning activities and schedule through license termination, a discussion of the reasons for concluding that the environmental impacts associated with the proposed site-specific decommissioning activities will be bounded by appropriate previously issued EISs, and a decommissioning cost estimate for the proposed activities. The NRC makes the PSDAR available to the public for comment and holds a public meeting concerning the PSDAR in the vicinity of the plant. The NRC, however, does not approve the PSDAR and the submission of the PSDAR and its review by the NRC does not require the licensee to request a license amendment or any other approval.

The 1996 Final Rule also established that the licensee may not begin performing major decommissioning activities until 90 days after the NRC receives the PSDAR submittal and until the licensee submits the certifications under § 50.82(a)(1) that operations have permanently ceased and that fuel has been permanently removed from the reactor vessel. The 1996 Final Rule also amended certain 10 CFR part 50 technical requirements to cover the transition of the facility from operating to permanently shutdown status. Specifically, the 1996 Final Rule removed the requirement for a

licensee that has permanently ceased operations and removed fuel from the reactor vessel to obtain a license amendment before proceeding with certain decommissioning activities within established regulatory constraints (i.e., in accordance with § 50.59, “Changes, tests, and experiments”). These changes to the decommissioning requirements increased the flexibility in the type of actions that licensees could undertake without prior NRC approval.

With regard to major decommissioning activities, the 1996 Final Rule implemented a major change from the 1988 Final Rule in that nuclear power reactor licensees would no longer be required to have an approved DP before being permitted to perform major decommissioning activities. The 1996 Final Rule allowed licensees to perform activities that meet the criteria in § 50.59, which the NRC amended to include additional criteria to ensure that licensees consider concerns specific to decommissioning. Based on NRC experience with licensee decommissioning activities at the time, the NRC recognized that the § 50.59 process used by the licensee during reactor operations encompassed routine activities that were similar to those undertaken during the decommissioning process, such as major component removal and decontamination of radioactive SSCs. The NRC concluded that the licensee could use the § 50.59 process to perform major decommissioning activities if licensing conditions and the level of NRC oversight required during reactor operations continued during decommissioning, commensurate with the risk profile of the facility being decommissioned. The 1996 Final Rule also required the licensee to provide written notification to the NRC before performing any decommissioning activity that is inconsistent with, or makes significant schedule changes from, the actions and schedules described in the PSDAR.

With regard to license termination, the 1996 Final Rule required that a licensee wishing to terminate its license submit a license termination plan for NRC approval. The

license termination plan contains a similar level of information as to what was included in a DP under the 1988 Final Rule, including (1) a site characterization, (2) identification of remaining dismantlement activities, (3) plans for site remediation, (4) detailed plans for the final radiation survey, (5) a description of the end use of the site, if restricted, (6) an updated site-specific estimate of remaining decommissioning costs, and (7) identification of parts, if any, of the facility or site that were released for use before approval of the license termination plan. The licensee must also submit a supplemental environmental report that considers new and significant environmental changes associated with license termination activities. The approval process for the termination plan provides for a hearing opportunity under 10 CFR part 2. In addition, the 1996 Final Rule imposed an additional requirement for the purpose of keeping the public informed. A public meeting, similar to the one held after the PSDAR submittal, must take place after the licensee submits its license termination plan to the NRC.

The 1996 Final Rule continued the same degree of decommissioning financial assurance that was previously required but provided more flexibility by allowing licensees to have limited, early use of decommissioning funds. The NRC presented this provision in a February 3, 1994, draft policy statement titled, “Use of Decommissioning Trust Funds Before Decommissioning Plan Approval” (59 FR 5216), which was published for comment and eventually incorporated into the 1996 Final Rule. Before issuance of the 1996 Final Rule, licensee use of these funds was determined on a case-specific basis for prematurely shutdown plants. However, the 1996 Final Rule eliminated the requirement for a DP and instead required a PSDAR submittal, which requires a decommissioning cost estimate. The 1996 Final Rule permitted 3 percent of the decommissioning funds generically required by § 50.75 to be available to the licensee for decommissioning planning purposes. Moreover, to allow the licensee to accomplish major decommissioning activities promptly, an additional 20 percent of the generic

funding amount would be made available 90 days after the NRC had received the PSDAR if the licensee had also submitted the certifications required by § 50.82(a)(1). The use of any funds above those amounts required the licensee to submit a site-specific decommissioning cost estimate to the NRC prior to the use of those funds.

*C. Post-1996 Final Rule Decommissioning Activity*

In a series of Commission papers issued between 1997 and 2001, the NRC staff provided options and recommendations to the Commission to address regulatory improvements related to nuclear power reactor decommissioning. To consolidate these recommendations, in the Staff Requirements Memorandum (SRM) for SECY-99-168, "Staff Requirements—SECY-99-168—Improving Decommissioning Regulations for Nuclear Power Plants," dated December 21, 1999, the Commission directed the NRC staff to proceed with a single, integrated, and risk-informed decommissioning rule addressing the areas of EP, insurance, safeguards, staffing and training, and backfitting for decommissioning nuclear power reactors. The objective of the rulemaking was to clarify and remove certain regulations for decommissioning nuclear power reactors based in large part on the reduction in radiological risk compared to operating reactors.

On June 28, 2000, the NRC staff submitted SECY-00-0145, "Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning," to the Commission. In this paper, the NRC staff proposed an integrated decommissioning rulemaking plan and requested Commission approval to proceed with developing an integrated rulemaking for nuclear power plant decommissioning in accordance with the recommendations detailed in the rulemaking plan. The paper addressed the regulatory areas of EP, insurance, safeguards, staffing and training, and backfitting for decommissioning nuclear power reactors. The rulemaking plan was contingent on the completion of an SFP zirconium fire risk study. The Commission responded to SECY-00-0145 in an SRM dated September 27, 2000. The Commission returned the SECY to the staff without a vote on

the rulemaking plan pending further developments in the area of zirconium fire risk and requested that the staff submit a revised paper to the Commission.

*D. Spent Fuel Pool Studies*

In the late 1990s and early 2000s, the NRC was assessing the risk of an SFP accident at a nuclear power reactor site in decommissioning. Following the permanent removal of spent fuel from the reactor, the principal radiological risks are associated with the storage of spent fuel on site. Generally, a few months after the reactor has been permanently shut down and defueled, there are no possible design-basis accidents (DBAs) that could result in a radiological release exceeding the U.S. Environmental Protection Agency (EPA) early-phase Protective Action Guides (PAGs) at the exclusion area boundary (EPA-400-R-92-001, “Manual of Protective Action Guides And Protective Actions For Nuclear Incidents,” issued May 1992, and final revision EPA400/R-17/001, “PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents,” issued January 2017). The only SFP accident scenario that might lead to a release with offsite consequences exceeding the PAGs at a decommissioning reactor is a zirconium fire. The zirconium fire scenario is a postulated, but highly unlikely, beyond-design-basis accident scenario that involves a major loss of water inventory from the SFP, resulting in a significant heat up of the spent fuel, and culminating in substantial zirconium cladding oxidation, fire, and fuel damage. The potential significance of spent fuel heat-up scenarios that might result in a zirconium fire depends on the decay heat of the irradiated fuel stored in the SFP. Therefore, the probability of a zirconium fire scenario continues to decrease as a function of the time that the decommissioning reactor has been permanently shut down and defueled.

In the 1980s, the NRC examined the risk of an SFP accident as Generic Safety Issue 82, “Beyond Design Basis Accidents in Spent Fuel Pools,” because of the increased use of high-density storage racks and laboratory studies that indicated the

possibility of a zirconium fire spreading between assemblies in an air-cooled environment (see Section 3 of NUREG-0933, “Resolution of Generic Safety Issues,” issued December 2011). The risk assessment and cost benefit analyses developed through this effort (Section 6.2 of NUREG-1353, “Regulatory Analysis for the Resolution of Generic Issue 82, ‘Beyond Design Basis Accidents in Spent Fuel Pools,’” issued April 1989) concluded that the risk of a severe accident in the SFP was low and appeared to meet the public health objectives of the Commission’s Safety Goal Policy Statement (51 FR 30028; August 21, 1986), and that no new regulatory requirements were warranted.

To support the rulemaking effort for decommissioning nuclear power plants in the late 1990s, the NRC reevaluated the risk of an SFP accident. The NRC’s assessment in NUREG-1738, “Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants,” issued February 2001, conservatively assumed that if the water level in the SFP dropped below the top of the spent fuel, an SFP zirconium fire involving all of the spent fuel would occur, and thereby bounded those conditions associated with air cooling of the fuel (including partial draindown scenarios) and fire propagation. Even with this conservative assumption, the study found the risk of an SFP fire to be low and well within the Commission’s safety goals.

Although NUREG-1738 did not completely rule out the possibility of a zirconium fire, it did demonstrate that storage of spent fuel in a high-density configuration in SFPs is safe and that the risk of accidental release of a significant amount of radioactive material to the environment is low. The study used simplified and sometimes bounding assumptions and models to characterize the likelihood and consequences of beyond-design-basis SFP accidents. Subsequent NRC regulatory activities and studies (described in more detail in this section) have reaffirmed the safety and security of spent fuel stored in pools and have demonstrated that SFPs are effectively designed to prevent accidents and minimize damage from malevolent attacks.

In the wake of the terrorist attacks of September 11, 2001, the NRC took several actions to further reduce the possibility of an SFP fire. The NRC issued immediately effective nonpublic orders (Order EA-02-026, “Order for Interim Safeguards and Security Compensatory Measures,” dated February 25, 2002) that required licensees to implement additional security measures, including increased patrols, augmented security forces and capabilities, and more restrictive site-access controls to reduce the likelihood of an SFP accident resulting from a terrorist-initiated event. A memorandum to the Commission titled, “Documentation of Evolution of Security Requirements at Commercial Nuclear Power Plants with Respect to Mitigation Measures for Large Fires and Explosions,” dated February 4, 2010, provides a comprehensive discussion of these actions, some of which specifically address SFP safety and security.

New requirements to mitigate a postulated loss of SFP water inventory were also implemented following the events of September 11, 2001; these requirements resulted in enhanced spent fuel coolability and the potential to recover SFP water level and cooling prior to a postulated SFP zirconium fire. Based on the implementation of these additional strategies, the probability and, accordingly, the risk to the public health and safety of an SFP zirconium fire scenario has decreased and is expected to be less than previously analyzed in NUREG-1738 and previous studies.

After the events of September 11, 2001, the NRC also addressed by order the issue of potential aircraft impacts to the SFP by requiring licensees to have in place mitigating strategies for large fires or explosions at nuclear power plants. The Nuclear Energy Institute (NEI) provided detailed guidance in NEI 06-12, Revision 2, “B.5.b Phase 2 & 3 Submittal Guideline,” dated December 2006. The NRC found this guidance acceptable for use as documented in NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: [Light-Water Reactor] LWR Edition,” Section 19.4, “Strategies and Guidance to Address Loss of Large Areas of the

Plant Due to Explosions and Fires," Revision 0, dated June 2015. The NRC's issuance of the final rule titled, "Power Reactor Security Requirements," on March 27, 2009 (74 FR 13926), made the requirements of the order generically applicable. In that final rule, the NRC added § 50.54(hh)(2) to require licensees to develop and implement guidance and strategies to, among other things, maintain or restore SFP cooling capability in the event of loss of large areas of the plant resulting from fires or explosions, which further decreases the probability of an SFP fire.

Under § 50.54(hh)(2), nuclear power reactor licensees are required to implement strategies such as those provided in NEI 06-12. The NEI guidance specifies that portable, power independent pumping capabilities must be able to provide at least 500 gallons per minute of bulk water makeup to the SFP and at least 200 gallons per minute of water spray to the SFP. Recognizing that the SFP is more susceptible to a release when the spent fuel is in a nondispersed configuration (i.e., fuel assemblies with more decay heat are not dispersed among fuel assemblies with less decay heat), the guidance also specifies that the portable equipment should be capable of being deployed within 2 hours for a nondispersed configuration.

Further, other organizations, such as Sandia National Laboratories (SNL), have confirmed the effectiveness of the additional mitigation strategies to maintain spent fuel cooling if the pool is damaged and its initial water inventory is reduced or lost entirely. The analyses conducted by SNL (collectively referred to as the "Sandia studies") are sensitive security-related information and are not available to the public. The Sandia studies considered spent fuel loading patterns and other aspects of a pressurized-water reactor (PWR) SFP and a boiling-water reactor (BWR) SFP, including the role that the circulation of air plays in the cooling of spent fuel when there is a partial or complete loss of water. The Sandia studies indicated that there is a significant amount of time between the initiating event (i.e., the event that causes the SFP water level to drop) and the point

at which the spent fuel assemblies become partially or completely uncovered. In addition, the Sandia studies indicated that for those hypothetical conditions in which air cooling may not be effective in preventing a zirconium fire, there is a significant amount of time between the spent fuel becoming uncovered and the possible onset of such a zirconium fire, thereby providing a substantial opportunity for event mitigation. The Sandia studies, which account for relevant heat transfer and fluid flow mechanisms, also indicated that air cooling spent fuel could be sufficient to prevent SFP zirconium fires at a point much earlier following fuel offload from the reactor than previously considered in NUREG-1738.

In NUREG-2161, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor," issued in September 2014, the NRC evaluated the potential benefits of strategies required in § 50.54(hh)(2). The report explains that successful implementation of mitigation strategies significantly reduces the likelihood of a release from the SFP in the event of a loss of cooling water. Additionally, the NRC found that the placement of spent fuel in a dispersed configuration in the SFP would have a positive effect in promoting natural circulation, which enhances air coolability and thereby reduces the likelihood of a release from a completely drained SFP. The NRC issued Information Notice 2014-14, "Potential Safety Enhancements to Spent Fuel Pool Storage," dated November 14, 2014, to all nuclear power reactor and ISFSI licensees to inform them of the insights from NUREG-2161. This information notice describes the benefits of storing spent fuel in more favorable configurations, placing spent fuel in dispersed patterns immediately after core offload, and taking action to improve mitigation strategies.

In 2013, as part of the agency efforts related to the Fukushima Dai-ichi accident, the NRC documented a regulatory analysis in COMSECY-13-0030, "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of

Spent Fuel," dated November 12, 2013, which considered a broad history of the NRC's oversight of spent fuel storage and SFP operating experience (domestic and international) and relied on information compiled in NUREG-2161. In COMSECY-13-0030, the NRC staff concluded that SFPs are robust structures with large safety margins and recommended to the Commission that further regulatory actions to require the expedited transfer of spent fuel from SFPs to dry cask storage were not warranted. The Commission subsequently approved the staff's recommendation in SRM-COMSECY-13-0030, dated May 23, 2014.

In addition, in response to the Fukushima Dai-ichi accident, the NRC implemented other regulatory actions to further enhance reactor and SFP safety. On March 12, 2012, the NRC issued two orders: Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," and Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events." Order EA-12-051 required licensees to install reliable means of remotely monitoring wide-range SFP levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event. Although the primary purpose of the order was to ensure that operators were not distracted by uncertainties related to SFP conditions during the accident response, the improved monitoring capabilities would help in the diagnosis and response to potential losses of SFP integrity. Order EA-12-049 required licensees to, among other actions, develop, implement, and maintain guidance and strategies to maintain or restore SFP cooling capabilities independent of normal alternating current power systems following a beyond-design-basis external event. Further, the NRC issued the Mitigation of Beyond-Design-Basis Events final rule on August 9, 2019 (84 FR 39684), which made these two orders generically applicable and moved the

requirements of § 50.54(hh)(2) to paragraph (b)(2) of the new § 50.155, “Mitigation of beyond-design-basis events.” These requirements ensure that a more reliable and robust mitigation capability is in place to address degrading conditions in SFPs resulting from certain significant, but highly unlikely, events.

The additional mitigation strategies implemented after the terrorist attacks of September 11, 2001, such as the issuance of § 50.54(hh)(2) (now § 50.155(b)(2)) and the NRC’s review and approval of NEI 06-12, and the issuance of Orders EA-12-049 and EA-12-051, made generically applicable as §§ 50.155(b)(1) and 50.155(e), following the Fukushima Dai-ichi accident, enhanced spent fuel coolability and the potential to recover SFP water level and cooling before the initiation of a potential SFP zirconium fire. The Sandia studies also confirmed the effectiveness of additional mitigation strategies to maintain spent fuel cooling if the pool is drained. Based on this information and the implementation of additional strategies, the probability of an SFP zirconium fire initiation in a draindown event is expected to be less than that reported in NUREG-1738 and previous studies and therefore well within the Commission’s safety goals, as described previously.

*E. Changes in Nuclear Power Reactor Decommissioning at the NRC and Within the Nuclear Power Industry*

On June 4, 2001, the NRC staff submitted SECY-01-0100, “Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools,” to the Commission. Before the Commission responded to SECY-01-0100, the terrorist attacks of September 11, 2001, occurred. Given the security implications of those events and the results of the NUREG-1738 zirconium fire risk study that showed the risk of an SFP fire to be low and well within the Commission’s safety goals, the NRC redirected its

rulemaking priorities and resources to focus on programmatic regulatory changes related to safeguards and security. In a memorandum to the Commission titled, “Status of Regulatory Exemptions for Decommissioning Plants,” dated August 16, 2002, the NRC staff justified this redirection in part by observing that no additional permanent nuclear power reactor shutdowns were anticipated in the foreseeable future and that no immediate need existed to proceed with the decommissioning regulatory improvement work that was planned. The NRC staff concluded that, if any additional nuclear power reactors permanently shut down after the rulemaking effort was suspended, establishment of the decommissioning regulatory framework would continue to be addressed for each facility through the license amendment and exemption processes.

Between 1998 and 2013, no nuclear power reactors permanently ceased operation. Between 2013 and 2021, however, 12 nuclear power reactors permanently shut down, defueled, and entered decommissioning. Notably, in 2013, four nuclear power reactor units permanently shut down without significant advance notice or preplanning: Crystal River Unit 3 Nuclear Generating Plant (Crystal River) (Duke Energy Florida); Kewaunee Power Station (Kewaunee) (Dominion Energy); and San Onofre Nuclear Generating Station (SONGS), Units 2 and 3 (Southern California Edison). Since 2013, 9 additional nuclear power reactor units have entered decommissioning, with an additional 16 units potentially ceasing operation by 2035 as their original or renewed operating licenses expire.

Decommissioning reactor licensees and the NRC have expended substantial resources processing licensing actions for nuclear power reactors during their transition from operating to decommissioning status. Consistent with the nuclear power reactors that permanently shut down in the 1990s, the licensees that more recently have been transitioning to decommissioning are requesting NRC review and approval of numerous licensing actions, informed by the low risk of an offsite radiological release posed by a

decommissioning reactor. Specifically, the licensees are seeking NRC approvals of exemptions from requirements and license amendments to reflect the reduced operations and radiological risks posed by a permanently shutdown and defueled nuclear power reactor.

*F. Decommissioning Lessons Learned Report*

In October 2016, the NRC published the "Power Reactor Transition from Operations to Decommissioning: Lessons Learned Report." The report documents the lessons learned by the NRC and stakeholders associated with permanent nuclear power reactor shutdowns during the period from 2013 to 2016. In particular, the report focuses on the transition from reactor operations to decommissioning for Kewaunee, Crystal River, SONGS, Units 2 and 3, and the Vermont Yankee Nuclear Power Station (Vermont Yankee). The report also provides a number of best practices identified from recent experience with reactor shutdowns and the transition to decommissioning.

The report highlights some of the challenges experienced by the NRC during the decommissioning transition licensing reviews from 2013 to 2016 and the NRC's actions to address those challenges. The report also discusses external stakeholders' interest in the NRC's review of the decommissioning transition licensing activities, especially those associated with SONGS, Units 2 and 3 and Vermont Yankee, as represented by requests for hearings, public meetings, and questions posed to the NRC staff from various sources.

In addition to the lessons learned and best practices, the report provides detailed project management guidance, recommendations, and documentation of precedent related to the reviews and evaluations specific to the types of licensing actions that the NRC expects to be processed during the decommissioning transition period, including oversight activities and communications. The NRC considered many of the lessons learned and recommendations described in this report during the development of this

final rule.

*G. Rulemaking Activity*

The Commission directed the NRC staff to proceed with an integrated rulemaking on nuclear power reactor decommissioning in an SRM dated December 30, 2014, associated with SECY-14-0118, "Request by Duke Energy Florida, Inc., for Exemptions from Certain Emergency Planning Requirements," dated October 29, 2014. The Commission further stated that this rulemaking should address:

- Issues discussed in SECY-00-0145, such as the graded approach to EP;
- Lessons learned from the plants that have already gone through (or are currently going through) the decommissioning process;
- The advisability of requiring a licensee's PSDAR to be approved by the NRC;
- The appropriateness of maintaining the three existing options for decommissioning (DECON, SAFSTOR, and ENTOMB)[2] and the timeframes associated with those options;
- The appropriate role of State and local governments and nongovernmental stakeholders in the decommissioning process; and
- Any other issues deemed relevant by the NRC staff.

In SECY-15-0014, "Anticipated Schedule and Estimated Resources for a Power Reactor Decommissioning Rulemaking," dated January 30, 2015 (redacted), the NRC staff committed to proceed with a rulemaking on nuclear power reactor decommissioning and provided an anticipated schedule and estimate of the resources required for the completion of a decommissioning rulemaking.

To begin the nuclear power reactor decommissioning rulemaking process, the NRC published an advance notice of proposed rulemaking (ANPR) in the *Federal*

2. Additional information about the existing options for decommissioning is available in NUREG/BR-0521, Revision 1, "Decommissioning Nuclear Power Plants," dated June 2017.

*Register* on November 19, 2015 (80 FR 72358). In the ANPR, the NRC sought public comment on specific questions and issues with respect to possible revisions of the NRC's decommissioning requirements. The NRC staff considered the comments received on the ANPR in its formulation of a draft regulatory basis for further regulatory action, which was completed in March 2017. Section 5 of the draft regulatory basis summarizes the public comments received on the ANPR.

The NRC published the draft regulatory basis in the *Federal Register* on March 15, 2017 (82 FR 13778). In the draft regulatory basis, the NRC staff presented draft recommendations for amendments to the NRC's regulations, as well as suggested guidance updates and additional guidance development to provide regulatory improvements for nuclear power reactors transitioning to decommissioning. The NRC requested public comment on these recommendations and asked specific questions regarding other possible revisions of the NRC's requirements to address the transition from operations to decommissioning. In addition, the NRC published a preliminary draft regulatory analysis on May 9, 2017 (82 FR 21481), to examine the potential costs and benefits of the draft recommendations. The NRC held a public meeting from May 8–10, 2017, to discuss the draft regulatory basis and the associated preliminary draft regulatory analysis and issued a summary of the meeting on November 15, 2017.

The NRC received 40 public comment submissions on the draft regulatory basis and preliminary draft regulatory analysis. The NRC considered those comments and discussions from the public meeting as it finalized the regulatory basis. The NRC reviewed all comments submitted on the draft regulatory basis, grouped the comments into categories by comment topic, and developed a resolution for each topic. The NRC staff's assessment and response to stakeholder feedback is presented in Section 5 of the regulatory basis and each of the appendixes. The NRC published a *Federal Register* notice announcing the public availability of the regulatory basis on November 27, 2017

(82 FR 55954).[3]

On March 3, 2022, the NRC published the proposed rule, "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning," for a 75-day public comment period (87 FR 12254). The NRC held several public meetings throughout the country in order to provide information to help stakeholders prepare comments on the proposed rule and draft regulatory guidance. This included meetings on March 31, 2022, in Rockville, Maryland; April 12, 2022, in Chicago, Illinois; April 19, 2022, in Atlanta, Georgia; May 4, 2022, in San Luis Obispo, California; and May 9, 2022, in Plymouth, Massachusetts. A summary of each public meeting is available in ADAMS, as provided in the "Availability of Documents" section of this document. The NRC received several requests to extend the comment period in order to provide the public additional time to review the proposed rule. On May 17, 2022, the NRC extended the comment period by 105 days with a closing date of August 30, 2022 (87 FR 29840).

The NRC received comment submissions from 2,354 individuals and organizations, including comment submissions associated with two form letter campaigns that included 246 and 1,990 form letter copies collectively. The staff's analysis identified 118 unique comments on the proposed rule and associated guidance, the regulatory analysis, and the EA. The commenters included State and local governments, Tribal governments and Tribal organizations, Federal agencies, members of the nuclear power industry, nongovernmental organizations, and private citizens. A summary of the comments and the NRC's responses to the comments are available as indicated in the "Availability of Documents" section of this document. The NRC used

[3] At the time of publication of the regulatory basis, the rulemaking title was "Regulatory Improvements for Power Reactors Transitioning to Decommissioning." During the development of the proposed rule, the scope of the rulemaking expanded to include all production and utilization facilities licensed under 10 CFR parts 50 and 52. In order to reflect this change, the NRC changed the title of the rulemaking to "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning."

these comments to develop this final rule.

## II. Discussion

### *A. Current Regulatory Process*

The NRC's current decommissioning requirements for production and utilization facilities are codified in §§ 50.82 and 52.110. Existing associated decommissioning funding requirements are codified in §§ 50.75, 50.82, and 52.110. Under the existing requirements, a nuclear power reactor licensee formally begins the decommissioning process when it certifies its permanent cessation of operations and permanent removal of fuel from the reactor vessel under § 50.82(a)(1) or § 52.110(a). Once the NRC dockets these certifications, under § 50.82(a)(2) or § 52.110(b), the 10 CFR part 50 or 10 CFR part 52 license no longer authorizes operation of the reactor or emplacement or retention of fuel in the reactor vessel. Despite this withdrawal of authority to operate the reactor, a decommissioning nuclear power plant continues to retain a license under 10 CFR part 50 or 10 CFR part 52. For this reason, the decommissioning plant continues to be subject to many of the requirements that apply to plants authorized to operate under 10 CFR part 50 or 10 CFR part 52.

Regulations that are designed to protect the public against reactor operation related design-basis events that include conditions of normal operation, anticipated operational occurrences, and DBAs are no longer applicable at a permanently shutdown and defueled reactor. For example, certain accident sequences for a nuclear power reactor that is operating, such as loss of coolant accidents and anticipated transients without scram, are no longer relevant to a permanently shutdown and defueled reactor. In addition, some regulations may not be relevant to certain SSCs because the SSCs are no longer required to be maintained, to operate, or to mitigate certain accidents, events, or transients, regardless of whether they are safety-related or security-related SSCs. Other regulations, although based on power operation of the plant, may continue

to be applicable to the permanently defueled facility for a limited time, such as the standards for offsite EP plans under 10 CFR part 50 or 10 CFR part 52. Typically, the scope of NRC requirements can be reduced to those regulations and requirements that primarily pertain to the safe storage of the spent fuel in the SFP, as described in the site's final safety analysis report (FSAR).

Upon permanent cessation of reactor operations and removal of fuel from the reactor vessel, the licensee is likely to submit a significant number of licensing actions (license amendment and exemption requests) to the NRC for review and approval based primarily on the reduced radiological risk to public health and safety. As discussed previously in this document, the types of potential accidents at decommissioning reactors are fewer, and the risks of radiological releases are reduced, when compared to those at an operating reactor. Therefore, to reflect this reduction in risk, licensees of decommissioning reactors typically request certain amendments to their licenses and certain exemptions from the NRC's regulations. These licensing actions, which are processed by the NRC during licensees' transition from operating to decommissioning status, establish the regulatory framework for reactors that have permanently shut down and defueled.

For non-power reactor facilities, § 50.82(b) requires that the licensee apply for license termination within two years following permanent cessation of operation. Each application for termination of a license must be accompanied, or preceded, by a proposed DP. In addition to the DP required by § 50.82, § 50.75(f)(4) requires each licensee to submit a preliminary DP. The preliminary DP must be submitted at or about 2 years before the projected end of operation. In addition to the DP, paragraph (d) of § 51.53, "Postconstruction environmental reports," of 10 CFR part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," requires each applicant for a license amendment approving a DP to submit a

supplement to its environmental report (ER).

The decommissioning process for non-power reactor licensees begins with the removal of fuel as soon as possible after reactor operations permanently cease and the shipment of the fuel offsite in accordance with the U.S. Department of Energy (DOE), NRC, and U.S. Department of Transportation regulations. Under some circumstances, the licensee can apply for a possession-only license amendment under § 50.90, "Application for amendment of license, construction permit, or early site permit," after operations have ended and before decommissioning starts. The possession-only license amendment limits the licensee's authority to possessing specific nuclear material but does not authorize its use or the operation of a nuclear facility. If granted, a possession-only license amendment provides regulatory relief from the license and technical specification (TS) requirements for a non-power reactor in decommissioning. Further, the possession-only amendment permits the licensee to retain the facility, related radioactive byproduct material, and, in some cases, special nuclear material, pending approval of the DP.

In addition to requesting license amendments and exemptions, nuclear power reactor licensees can make certain changes without prior NRC approval if the changes are permitted by an NRC regulation or approved regulatory process. Licensees primarily use an evaluation process applying the criteria in § 50.59 to make changes to a facility (or procedures) as described in the FSAR (as updated), including changes to the PSDAR, without prior NRC approval. The licensee's updated FSAR should reflect changes to the decommissioning design-basis analyses, SSCs, and the licensee's organizations, processes, and procedures. Licensees can also make changes without prior NRC approval as described in § 50.54(p) and (q). In the case of non-power reactor facilities, the DP, which is put into effect with an order, provides for accommodation of any necessary changes in the DP and procedures through a process similar to the one

in § 50.59.

The timing and implementation for some decommissioning licensing actions rely on an approach that recognizes the reduction in radiological risk after permanent cessation of power operation and removal of fuel from the reactor vessel. These risk reductions can be tied to several factors, including, but not limited to: (1) reduction of the radiological source term after cessation of reactor operations and removal of fuel from the reactor vessel, (2) elapsed time after permanent shutdown, and (3) type of long-term onsite fuel storage. The two areas where these additional risk reductions are considered in the early decommissioning process are EP and facility insurance and indemnity. The NRC will not approve exemptions from EP and insurance coverage requirements until analyses confirm that there are no DBAs that would require protective actions for the public resulting from a release of radioactive material with a dose exceeding the EPA PAGs at the exclusion area boundary. The analyses also must assess a postulated beyond-design-basis zirconium fire scenario.

*B. Objectives of this Final Rule*

This final rule amends the current requirements for production and utilization facility licensees during decommissioning. Experience has demonstrated that licensees for decommissioning nuclear power reactors seek numerous exemptions and license amendments per site to establish a long-term licensing basis for decommissioning. Non-power production or utilization facility licensees typically seek license amendments in decommissioning to change their 10 CFR part 50 operating licenses to possession-only licenses. By issuing this rule, the NRC is establishing regulations that maintain safety and security at sites transitioning to decommissioning without the need to grant specific exemptions or license amendments in certain regulatory areas. Specifically, this rule: (1) establishes a regulatory regime that continues to provide reasonable assurance of adequate protection of public health and safety and the common defense and security at

decommissioning sites; (2) ensures that the requirements for decommissioning are clear and appropriate; (3) adopts regulations to address generic issues applicable to all decommissioning nuclear power reactors that have historically been addressed through similarly worded exemptions or license amendments; and (4) identifies, defines, and resolves additional areas of concern related to the regulation of decommissioning licensees under 10 CFR part 50 and 10 CFR part 52.

Given that the current regulatory framework regarding decommissioning provides reasonable assurance of adequate protection of the public health and safety, promote the common defense and security, and protect the environment, many of the new requirements in this rule are alternatives to the current requirements.

*C. Applicability*

This final rule applies to the following categories of license holders:

- Nuclear power reactors currently licensed under 10 CFR part 50.
- Future nuclear power reactors licensed under 10 CFR part 50.
- Nuclear power reactors currently licensed under 10 CFR part 52.
- Future nuclear power reactors licensed under 10 CFR part 52.
- Non-power production or utilization facilities and fuel reprocessing plants currently licensed under 10 CFR part 50.
- Future non-power production or utilization facilities and fuel reprocessing plants licensed under 10 CFR part 50.

*D. Applicability to NRC Licensees During Operations*

This final rule includes changes in three areas that apply to NRC licensees during operations: (1) the process to change a licensee's security plan, (2) the timing of decommissioning funding assurance reporting requirements, and (3) identification of §

26.3 as a regulation with substantive requirements that could result in criminal penalties if violated.

The NRC's regulations in § 50.54(p) establish processes that allow licensees to make changes to their security plans. The NRC is requiring that all nuclear power reactor licensees making a change under the new § 50.54(p)(3) submit in their report of the change a summary of any analysis that was completed to make the determination that the change does not decrease the safeguards effectiveness of the security plan. Additionally, the NRC is revising § 50.54(p) to include definitions of the terms "change" and "decrease in safeguards effectiveness." The application of these definitions is limited to use with the revised § 50.54(p) and applies to all holders of 10 CFR part 50 operating licenses and 10 CFR part 52 combined licenses.

This final rule changes the timing of the decommissioning funding assurance reporting requirements in § 50.75(f)(1) to coordinate them with the ISFSI decommissioning reporting requirements in § 72.30. This change converts the biennial decommissioning funding status report required for 10 CFR part 50 and 10 CFR part 52 nuclear power reactor licensees to a triennial decommissioning funding status report as currently required for ISFSI licenses granted under the provisions of 10 CFR part 72.

Current § 26.3 includes a substantive requirement, and violations of this regulation should be subject to criminal penalties. Therefore, this final rule removes § 26.3 from the list of provisions that are not subject to criminal penalties if violated in paragraph (b) of § 26.825, "Criminal penalties."

*E. Applicability to ISFSI-Only and Standalone ISFSI/Decommissioned Reactor Sites*

During the public comment period for the draft regulatory basis, the NRC received many comments on the applicability of the decommissioning rulemaking to

"standalone ISFSI"[4] sites where the associated reactor has already been decommissioned in comparison with "ISFSI-only" sites. As part of this rulemaking effort, the NRC is standardizing the terms "ISFSI-only" and "standalone ISFSI/Decommissioned Reactor" as follows:

- "ISFSI-only" sites contain nuclear power reactor facilities that are still involved in decommissioning activities, but the spent fuel has been completely transferred from the SFPs to dry storage in an onsite ISFSI. For these facilities, the remaining decommissioning activities are primarily related to remediation of any remaining residual radioactivity at the site to meet the license termination and decommissioning criteria in subpart E, "Radiological Criteria for License Termination," of 10 CFR part 20, "Standards for Protection Against Radiation." The "ISFSI-only" term refers to the location of the spent fuel; the term reflects that no spent fuel is stored in the SFP, and all of the spent fuel is in dry storage in an onsite ISFSI.

- "Standalone ISFSI/Decommissioned Reactor" sites are those former nuclear power reactor facilities where the license termination and decommissioning criteria in 10 CFR part 20, subpart E, have already been met, with the exception of the ISFSI area. The licensee's 10 CFR part 50 license for the site has been reduced to an area that only encompasses the ISFSI facility (unless the ISFSI facility is licensed under a 10 CFR part 72 specific license, in which case the 10 CFR part 50 license is wholly terminated). The remaining activities at these facilities that are regulated by the NRC are spent fuel storage and the eventual decommissioning of the ISFSI itself, once the spent fuel has

[4] Given that the public comments referred to "standalone ISFSIs," this discussion uses that same terminology. However, in accordance with Inspection Manual Chapter 2690, "Inspection Program for Storage of Spent Reactor Fuel and Reactor-Related Greater-than-Class C Waste at Independent Spent Fuel Storage Installations and for 10 CFR Part 71 Transportation Packagings," dated December 15, 2020, the NRC uses the term "away-from-reactor (AFR) ISFSI" to refer to "any generally licensed ISFSI where decommissioning and final survey activities related to reactor operations are completed and the only remaining operation conducted under the 10 CFR Part 50 license is the operation of the general licensed ISFSI."

been permanently removed from the site. A 10 CFR part 72 specific license ISFSI is decommissioned in accordance with § 72.54, “Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.”

Accordingly, the requirements of this rule do not apply to standalone ISFSI/Decommissioned Reactor sites because those licensees have already decommissioned their 10 CFR part 50 facilities and met the decommissioning and license termination criteria in 10 CFR part 20, subpart E, with the exception of the area encompassed by the remaining ISFSI. The final rule requirements are consistent with the licensing actions that the NRC has already approved for these licensees. In addition, the requirements of this rulemaking provide an alternative to the existing decommissioning regulations and do not impose new requirements on ISFSI-only or Standalone ISFSI/Decommissioned Reactor licensees.

*F. Graded Approach*

During the NRC’s review of the exemption and license amendment requests related to recent nuclear power reactor decommissionings, the agency noted the potential for numerous permanent shutdowns to occur at the same time in the future and realized that the existing regulatory framework could and should be revised to provide for a more efficient decommissioning process. As early as the late 1990s, the NRC contemplated an integrated rulemaking to provide an appropriate graded approach to the decommissioning process. A graded approach is a process by which the safety requirements and criteria adjust during the decommissioning process commensurate with several factors. These factors include the magnitude of any credible hazard involved, the particular characteristics of a facility, and the balance between radiological hazards and nonradiological hazards (e.g., fire, flood, chemical spill) as applicable to specific points in time within the decommissioning process. This approach would be a risk-informed process.

In the existing requirements, no explicit regulatory provisions distinguish requirements in several technical areas for a nuclear power reactor that has permanently ceased operations from those for an operating nuclear power reactor. To address this, the NRC is amending its regulations to provide an efficient regulatory framework for the transition to decommissioning. Under this final rule, the NRC is adopting an optional graded approach for several technical areas that provides a set of requirements commensurate with the reductions in radiological risk at each of the following four levels of decommissioning: (1) permanent cessation of operations and permanent removal of all fuel from the reactor vessel, (2) sufficient decay of fuel in the SFP such that it would not reach ignition temperature for the zirconium alloy cladding of the fuel within 10 hours under adiabatic heat up conditions (i.e., a complete loss of SFP water inventory with no heat loss), (3) transfer of all fuel to dry storage, and (4) removal of all fuel from the site. Four technical areas of this final rule (EP, Physical Security, Cybersecurity, and Offsite and Onsite Insurance) use all or some of this graded approach.

*G. Technical Basis for Graded Approach*

The NRC has approved exemptions from the emergency planning regulations in § 50.47, “Emergency plans,” and appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities,” to 10 CFR part 50 at several permanently shutdown and defueled nuclear power reactor sites. Licensees that have been granted EP exemptions must maintain an onsite emergency plan addressing the classification of an emergency, notification of emergencies to licensee personnel and offsite authorities, and coordination with designated offsite government officials following an event declaration so that, if needed, offsite authorities may initiate appropriate response actions. At the appropriate points in decommissioning, the EP exemptions may also relieve the licensee from certain requirements of § 50.47 and appendix E to 10 CFR part 50 as they pertain to offsite radiological EP, including the requirement to maintain the

10-mile plume exposure pathway and the 50-mile ingestion pathway emergency planning zones (EPZs). The NRC granted these exemptions based, in part, on its determination that there are no applicable DBAs at a decommissioning licensee's facility that could result in an offsite radiological release exceeding the EPA's early-phase PAGs at the exclusion area boundary.

The NRC also relied on analyses from NUREG-1738 that showed that emergency planning would be of marginal benefit in reducing the risk of a beyond-design-basis zirconium fire in the SFP if the accident evolved slowly enough to allow mitigative measures and, if necessary, to allow offsite protective actions to be implemented without preplanning. This conclusion was based, in part, on the assumption that it would take at least 10 hours for spent fuel to heat up to the temperature at which the onset of fission product release is expected during an SFP rapid draindown event. This 10-hour period would provide a substantial amount of time for the licensee to take onsite mitigation measures and, if necessary, for offsite authorities to take appropriate response actions to protect the public. To support the approval of exemptions from portions of the EP regulations, licensees had to demonstrate through site-specific analyses that in a draindown event at their SFP the fuel would not reach the zirconium fuel cladding ignition temperature for at least 10 hours under adiabatic heat up conditions.

A 10-hour timeframe has been justified in the past for similar purposes. In the Low Power Rule (47 FR 30232; July 13, 1982), the NRC amended its regulations to clarify that no NRC or Federal Emergency Management Agency (FEMA) review, findings, and determinations concerning the state or adequacy of offsite EP were necessary for issuance of operating licenses authorizing fuel loading and low power operation (i.e., up to 5 percent of rated power). The NRC determined that several factors contributed to a substantial reduction in risk and potential accident consequences for low

power testing as compared to the higher risks in continuous full power operation. These factors included consideration of the reduced source term, the capability of mitigation systems, and the time scale for taking actions to identify and mitigate an accident. Even for a postulated low likelihood DBA during low power operations, which would eventually result in a release of fission products into the containment, at least 10 hours would be available to allow adequate precautionary actions to be taken to protect the public near the site.

To support a graded approach during decommissioning, the NRC further examined the certainty and margin provided by a 10-hour timeframe for the fuel to heat up in relation to the time for taking mitigating actions and appropriate EP response actions. The NRC conducted an applied research study ("Transmittal of Reports to Inform Decommissioning Plant Rulemaking for User Need Request NSIR-2015-001," dated May 31, 2016) with three tasks: (1) to perform a task analysis that includes a timeline of responder actions at representative SFP configurations to mitigate a draindown event and determine its likelihood of success, (2) to analyze representative spent fuel to determine the decay time necessary for the fuel to remain below zirconium clad ignition temperature for at least 10 hours assuming adiabatic heat up conditions, and (3) to analyze the offsite dose rate from the radionuclides released during a hypothetical spent fuel zirconium clad ignition accident. As demonstrated in these analyses, for many initiating events at decommissioning reactors, mitigative actions would have a high likelihood of preventing uncontrolled spent fuel heat up. In cases where an uncontrolled heat up is not prevented, the heat up would be relatively slow, providing significant time before a radiological release. In the case of a radiological release, dose rates would be low enough such that significant additional time is available to take offsite actions to protect the public.

The NRC's analysis of spent fuel decay times provided information on the time

required for fuel to heat up to 900 degrees Celsius (C) (i.e., the temperature at which the onset of fission product release is expected for a zirconium fuel cladding fire) as a function of decay time for both PWR and BWR fuel assemblies. The analysis also included sensitivities for the mass of the racks and the fuel configuration in the SFP. The NRC notes that the decay periods provided for PWRs and BWRs are based on studies that consider current operating parameters in the nuclear power industry (e.g., fuel types, enrichment, and fuel burnup levels). Based on this analysis, the NRC concluded that after a decay period of 10 months for BWRs or 16 months for PWRs, beginning when the reactor permanently shuts down, the spent fuel cannot reasonably heat up to clad ignition temperature within 10 hours after a draindown event. These decay periods are based on an adiabatic heat up to 900 degrees C assuming the decay heat value for the hottest assembly (as opposed to an average assembly), a burnup of 60 gigawatt days per metric ton of heavy metal (GWd/MTHM), and accounting for the mass of the racks. The analysis assumption of 60 GWd/MTHM conservatively bounds current industry burnups and enrichments for zirconium clad fuel and provides margin for potentially higher burnup rates, up to 72 GWd/MTHM. This analysis does not account for the additional time margin that would be provided if additional cooling mechanisms were available or would be provided by a more favorable SFP configuration such that the heat load is more uniformly distributed.

The NRC's analysis of dose rates shows that even in the event of a beyond-design-basis accident leading to a rapid draindown of the SFP and subsequent zirconium fire, there would be additional time margin on the order of several hours beyond the 10-hour heat up time during which protective actions could be taken to protect the public before the dose levels associated with EPA PAGs would be exceeded offsite.

In addition to the analyses performed by the NRC to support this rulemaking, as

discussed in the “Background” section of this document, the conclusions of NUREG-2161 and NUREG-1738 support the technical basis for a graded approach during decommissioning as they provide insight into the risk of an offsite release and the effectiveness of mitigation measures.

- In NUREG-2161, the NRC considered various spent fuel cooling mechanisms and additional heat from oxidation. Because previous studies found that earthquakes present the dominant risk for SFPs, this analysis considered a severe earthquake with ground motion stronger than the maximum earthquake reasonably expected to occur for the reference plant, which would challenge the SFP integrity. The study considered two spent fuel configurations: high-density and low-density loading. The study also analyzed two cases for each scenario: one that credited the mitigation measures of § 50.54(hh)(2) (i.e., the strategies to maintain or restore SFP cooling in the event of a loss of large areas of the plant as a result of fire or explosion), and one in which those measures were not used or were unsuccessful. The study results showed that successful mitigation reduces the likelihood of a release, and that the likelihood of a release was equally low for both high- and low-density loading in the SFP. The study found that a release is not expected to occur at the nuclear power reactor site studied for at least 72 hours following a beyond-design-basis seismic event that occurs more than 60 days after shutdown.
- In NUREG-1738, the NRC presented the results of its evaluation of the potential accident risk for an SFP at a decommissioning nuclear power reactor in the United States. NUREG-1738 identified a zirconium cladding fire resulting from a substantial loss of water from the SFP as the only postulated

scenario at a decommissioning nuclear power reactor that could result in a significant radiological release. While highly unlikely, the consequences of such an accident could lead to an offsite dose over the EPA PAGs. Based on spent fuel storage design characteristics and operating practices considered in the analysis, the scenarios that lead to this condition have very low probabilities of occurrence. Accordingly, these scenarios are considered to be beyond the facility's design-basis. Furthermore, as the spent fuel ages, the generation of decay heat decreases. After a certain amount of time, the overall risk of a zirconium fire becomes extremely low because of: (1) the large amount of time available for preventive and mitigating actions and (2) the increased probability that the decay heat will be low enough that the fuel will be air-coolable in the post-event configuration.

*H. Levels of Decommissioning*

Using the aforementioned analyses as its technical basis, the NRC is amending its regulations to provide an efficient regulatory framework during decommissioning using a graded approach in several technical areas. This graded approach is commensurate with the reductions in radiological risk at four levels of decommissioning: (Level 1) permanent cessation of operations and permanent removal of all fuel from the reactor vessel, (Level 2) sufficient decay of fuel in the SFP such that it would not reach ignition temperature within 10 hours under adiabatic heat up conditions, (Level 3) transfer of all spent fuel to dry storage, and (Level 4) removal of all fuel from the site. These levels are discussed further as follows:

*1. Level 1*

Licensees in Level 1 include nuclear power reactor licensees that have docketed certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel pursuant to § 50.82 or § 52.110. In this level, a decommissioning

nuclear power reactor is defueled and permanently shut down, but the spent fuel in the SFP is still susceptible to a zirconium fuel cladding fire within 10 hours under adiabatic heat up conditions.

*2. Level 2*

In Level 2, the reactor is defueled and permanently shut down, and spent fuel in the SFP has decayed and cooled sufficiently such that it cannot heat up to the zirconium cladding ignition temperature within 10 hours under adiabatic conditions. The NRC has determined that this condition is reached after spent fuel has decayed for a minimum of either 10 months for a BWR or 16 months for a PWR, or an alternative site-specific timeframe to be approved by the NRC. The decay period could begin when the fuel is still in the reactor vessel but the reactor has permanently ceased operations. In order to verify that a licensee has met the condition, the NRC will rely upon the date of permanent cessation of operations provided by a licensee under § 50.4(b)(8) or § 52.3(b)(8), updated as necessary under § 50.9 or § 52.6, both entitled "Completeness and accuracy of information." Because the identified date of permanent cessation of operations would determine the transition from Level 1 to Level 2, the NRC will consider a change in the planned date initially certified to the NRC for permanent cessation of operations to the actual date as information "having a significant implication for public health and safety or common defense and security" under § 50.9 or § 52.6. At this point, the site may also possess a radioactive inventory of liquid radiological waste, radioactive reactor components, and contaminated structural materials. The radioactive inventory may change, depending on the licensee's proposed shutdown activities and schedule.

*3. Level 3*

In Level 3, all spent nuclear fuel (SNF) is in dry cask storage pursuant to the terms and conditions of a license granted under 10 CFR part 72, including the general license issued in § 72.210, "General license issued." However, the licensee may still

hold a 10 CFR part 50 or 10 CFR part 52 license, and the site may contain a radioactive inventory of liquid radiological waste, radioactive reactor components, and contaminated structural materials.

*4. Level 4*

At this point in the facility's life cycle, all SNF has been removed from the site. The site may possess a radioactive inventory of liquid radiological waste, radioactive reactor components, and contaminated structural materials. The radioactive inventory during this configuration may change, depending on the licensee's proposed decommissioning activities and schedule.

As a facility transitions from being operational to having all fuel removed from the site, this final rule's regulatory requirements are graded to provide for reasonable assurance of the health and safety of the public commensurate with the risk profile of the facility. Table 2 summarizes the changes to decommissioning requirements in the technical areas that use aspects of this graded approach.

**Table 2—Summary of Graded Approach**

| | **LEVEL 1** (Permanent cessation of operations and permanent removal of all fuel from the reactor vessel) | **LEVEL 2** (Sufficient decay of fuel in the SFP such that it would not reach ignition temperature for the zirconium alloy cladding of the fuel within 10 hours under adiabatic heat up conditions) | **LEVEL 3** (Transfer of all fuel to dry storage) | **LEVEL 4** (Removal of all fuel from the site) |
|---|---|---|---|---|
| **Emergency Preparedness** | Post-Shutdown Emergency Plan (PSEP) | Permanently Defueled Emergency Plan (PDEP) | ISFSI-Only Emergency Plan (IOEP) | Licensee may terminate EP program |
| **Physical Security** | Allow certain physical | | Allow transition from 10 CFR | |

| | | | | |
|---|---|---|---|---|
| | security plan changes without prior NRC approval | | 73.55 to 10 CFR 73.51 requirements | |
| **Cybersecurity** | | Removal of cybersecurity requirements | | |
| **Onsite/Offsite Insurance** | | Reduction of onsite insurance to $50 million<br><br>Reduction of offsite insurance to $100 million | | |

## III. Scope of the Final Rule

This rulemaking revises requirements in the 16 technical areas discussed in the following sections (A. – P.) of this document.

*A. Emergency Preparedness*

*1. Introduction*

In 1978, an NRC and EPA task force established the planning basis for EP for nuclear power reactor accidents in NUREG-0396, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants.” This guidance provides a basis for offsite radiological EP efforts for large light-water nuclear power reactor facilities. In NUREG-0396, the task force determined that no single accident sequence should be identified as a planning basis and chose to provide recommendations in terms of the consequences and characteristics of accidents that would be important in determining the extent of the planning effort. The task force concluded that the EP planning basis requires consideration of a spectrum of accidents, informed by probability considerations. The scope of the planning effort was based on three key planning elements: (1) the distance

to which planning for the initiation of predetermined protective actions is warranted, (2) the time-dependent characteristics of potential releases and exposures, and (3) the kinds of radioactive materials that can potentially be released to the environment. The risk-informed planning basis for EP, established in NUREG-0396, was endorsed for use in the NRC's policy statement, "Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents," dated October 23, 1979 (44 FR 61123). This planning basis results in emergency plans that are effective, regardless of the accident probability.

The rationale in NUREG-0396 and the planning basis elements can also be applied to light-water nuclear power reactor facilities in decommissioning to scope the planning effort. The NRC applied the NUREG-0396 methodology (i.e., consideration of a spectrum of accident consequences and the three key planning elements) to establish a graded approach to EP for decommissioning nuclear power reactors that maintains reasonable assurance of adequate protection of the public health and safety. As discussed in NUREG-0396, no single specific accident sequence should be isolated as the one for which to plan because each accident could have different consequences, both in nature and degree. Further, the range of possible selections for a planning basis is very large, starting with a zero point of requiring no planning at all, because significant offsite radiological accident consequences are unlikely to occur, to planning for the worst possible accident regardless of its extremely low likelihood. Fundamentally, the spectrum of possible accidents is significantly smaller, and the risk of an offsite radiological release is significantly lower at a nuclear power reactor that has permanently shut down and removed fuel from the reactor vessel than at an operating nuclear power reactor. All such accidents would be associated with hazards based on the storage of spent fuel, either in the SFP or in dry cask storage, until its permanent removal from the site. In NUREG-1738, the NRC found that the event sequences important to risk at decommissioning sites are limited to large earthquakes and cask drop events. For EP

assessments, this is an important difference relative to operating nuclear power reactors, where typically a large number of different sequences make significant contributions to risk.

Although the NRC considered the full spectrum of accidents applicable to a decommissioning nuclear power reactor, the number of events that can have significant offsite consequences is greatly reduced, and the events are dominated by the zirconium fire scenario—a postulated, but highly unlikely, beyond-design-basis accident that involves a major loss of water inventory from the SFP, resulting in a significant heat up of the spent fuel and culminating in substantial zirconium cladding oxidation, fire, and fuel damage. The guidance in NUREG-0396 states that while it is not appropriate to develop specific plans for the most severe and most improbable events, the characteristics of these events should be considered “in judging whether emergency plans based primarily on smaller accidents can be expanded to cope with larger events.” This approach provides reasonable assurance that capabilities exist to minimize the impacts of even the most severe events. Consistent with this guidance, the NRC considered the potential impacts of a zirconium fire, even with the assurance that mitigating strategies are in place to prevent an offsite release from occurring for this highly unlikely beyond-design-basis event.

In addition to the three analyses performed by the NRC to support this rulemaking, the NRC has previously conducted SFP studies, including NUREG-2161 and NUREG-1738, the conclusions of which support the technical basis for a graded approach to EP. Overall, these analyses: (1) demonstrate that a period of 10 hours provides sufficient time to implement mitigation measures for design-basis events at decommissioning sites, (2) provide a conservative basis for a spent fuel decay time beyond which the fuel in the SFP can reasonably be expected to take longer than 10 hours to heat up to ignition temperature, and (3) provide additional understanding of the

amount of time available for taking action in response to beyond-design-basis events, including the margin of time that offsite agencies have to decide upon and initiate actions to protect public health and safety. The NRC applied these analyses and the considerations from previous studies of SFP risk to the planning basis elements from NUREG-0396 to develop the regulations in this final rule for EP at various levels during decommissioning.

*2. Graded Approach for Emergency Preparedness*

A graded approach to EP has a longstanding regulatory history. The 16 planning standards for operating reactors, outlined in § 50.47(b), and the associated evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," issued November 1980, or Revision 2 issued December 2019, are one part of a continuum of planning standards for radiological EP. The regulations in § 50.47(c)(2) for case-by-case EPZ size determinations; the EP regulations for research and test reactors and other non-power production or utilization facilities, fuel cycle facilities, and ISFSIs; and the EP considerations for small modular reactors and other new technologies (see the Final Rule for "Emergency Preparedness for Small Modular Reactors and Other New Technologies" (88 FR 80050; November 16, 2023) (EP for SMRs and ONTs Final Rule)), are also part of a graded approach to EP that is commensurate with the relative radiological risk, source term, and potential hazards, among other considerations.

Consistent with the concept of a graded approach, the NRC is finalizing four levels of emergency planning standards that coincide with the same milestones as the graded approach:

- Post-Shutdown Emergency Plan (PSEP) (Level 1)
- Permanently Defueled Emergency Plan (PDEP) (Level 2)

- ISFSI-Only Emergency Plan (IOEP) (Level 3)
- No emergency planning (Level 4)

In developing this final rule, the NRC considered the appropriateness of the EP requirements in 10 CFR part 50 and 10 CFR part 72 for decommissioning sites, including those requirements that have historically been addressed in approved exemptions and those that have not. The planning standards within the levels are based on the current set of operating reactor EP standards, informed by the analyses and considerations supporting a graded approach to EP as previously described, as well as public comments on the ANPR, draft regulatory basis, and proposed rule. The NRC received several comments on the proposed rule related to the graded approach for EP. A few commenters suggested that the NRC consider adding an additional level to the graded approach for “Stand-Alone ISFSI/Decommissioned Reactors,” in order to differentiate between sites where the decommissioning of the reactor may be ongoing and sites that have completed reactor decommissioning. For these two sets of licensees, the EP requirements will be the same, so an additional level in the graded approach is unnecessary.

The NRC also considered the criteria of safety, implementation costs, efficiency, transparency, flexibility, and responsiveness. The following discussion describes the finalized graded approach to EP.

*Post-Shutdown Emergency Plan (Level 1)*

For a decommissioning site, once all the fuel is in the SFP, the spectrum of accidents that can have significant offsite consequences is greatly reduced and is dominated by the highly unlikely occurrence of a zirconium fire. The primary consideration for the planning basis for a PSEP is the potential consequences and timing of this narrow spectrum of accidents in relation to the time needed to initiate protective actions.

From a regulatory perspective, the purpose of a PSEP is to provide a transition period to ensure that an appropriate level of EP is maintained onsite and offsite to respond to applicable DBAs, and to ensure a prompt response to a highly unlikely rapid draindown of the SFP and subsequent zirconium fire and release of radioactivity occurring in less than 10 hours. A nuclear power reactor licensee will be permitted to transition to a PSEP after the NRC's docketing of the licensee's certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel pursuant to § 50.82 or § 52.110. The NRC anticipates that licensees will maintain a PSEP from the date that the NRC dockets the licensee's certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, until the spent fuel has decayed for a period of at least 10 months (for BWRs) or 16 months (for PWRs) from the date of permanent cessation of operations, unless a different period is approved by the NRC. During this time, the licensee will be relieved of requirements that are not needed to support an appropriate level of EP as preparations are made to implement a PDEP. The PSEP is a transition period for both onsite and offsite emergency planning in which the regulatory requirements for periodic updates, reviews, and audits that were necessary to support operating reactor EP programs should not interfere with efforts to establish an appropriate level of EP for a PDEP. The NRC does not intend for many significant changes to occur to the emergency plan while the PSEP is used.

*Permanently Defueled Emergency Plan (Level 2)*

For plants that have permanently shut down and defueled, the EP approach is based primarily on the conditions that: (1) a postulated radiological release would not exceed the EPA early-phase PAGs at the exclusion area boundary for DBAs applicable to a permanently shutdown and defueled reactor, and (2) sufficient time would exist to implement mitigative actions in response to a postulated zirconium fire beyond-design-

basis accident scenario in the SFP and, if warranted, for offsite officials to initiate appropriate response actions using all-hazards planning to protect public health and safety. Because of the additional time available to take mitigative actions and, if necessary, to initiate protective actions, many requirements applicable under an operating reactor emergency plan or a PSEP are not required to protect public health and safety and, therefore, are not applicable to licensees with sufficiently decayed spent fuel under a PDEP.

The NRC received comments on the proposed rule that addressed the NRC's use of the EPA PAGs, with some commenters asserting that the NRC characterizes the EPA PAGs as containing "limits" to justify why there is no need for formalized offsite radiological emergency planning and preparedness for PDEPs. The NRC uses the EPA PAGs as guidelines to help determine the appropriate level of preparedness and response in the context of incident-specific factors. Further, the EPA PAGs are not the sole condition on which the PDEP requirements are based. Importantly, time will be available, between the initiating event and before the onset of a postulated zirconium fire, to begin mitigative actions consistent with plant conditions or, if necessary, for offsite authorities to employ their comprehensive, all-hazards emergency management plan to take protective actions.

The NRC is establishing two regulatory alternatives to specify when the transition to a PDEP may occur: (1) after spent fuel has decayed for a period of at least 10 months (for BWRs) or 16 months (for PWRs) that starts from the date of permanent cessation of operations, or (2) after an alternative timeframe based on a site-specific analysis that shows that the fuel in the SFP cannot heat up to zirconium fuel cladding ignition temperature (900 degrees C) within 10 hours under adiabatic conditions. The site-specific analysis would be subject to NRC review and approval before a transition to a PDEP. In either case, a licensee will be permitted to transition to a PDEP only after the

NRC's docketing of the licensee's certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel pursuant to § 50.82 or § 52.110.

*Independent Spent Fuel Storage Installation-Only Emergency Plan (Level 3)*

The third level of decommissioning under this final rule occurs when all spent fuel is removed from the SFP and placed in dry cask storage. At this point, the licensee will have an ISFSI-only emergency plan, or IOEP. A licensee with all its spent fuel in dry cask storage that terminates its 10 CFR part 50 or 10 CFR part 52 license must first obtain a specific 10 CFR part 72 license. Accordingly, the licensee will then transition to the EP requirements for dry cask storage in § 72.32, "Emergency Plan." A licensee maintaining its 10 CFR part 50 or 10 CFR part 52 license may opt to change its EP program to align it with the requirements of § 72.32 once all spent fuel is transferred to dry cask storage. These two categories of licensees (i.e., 10 CFR part 72 specific licensees and 10 CFR part 50 or 10 CFR part 52 licensees with ISFSIs licensed under the 10 CFR part 72 general license) are permitted to adopt an IOEP, consistent with the EP requirements that currently exist under § 72.32(a).

*All Spent Fuel Removed from Site (Level 4)*

This final rule allows a licensee to terminate its EP program once all the spent fuel has been permanently removed from the site, because the site no longer poses any risk of a significant radiological release.

*3. Licensee Supporting Analyses*

Decommissioning nuclear power reactor licensees submitting requests for exemptions from EP regulations under § 50.12, "Specific exemptions," have performed a series of supporting analyses for NRC review, as described in NSIR/DPR-ISG-02, "Interim Staff Guidance: Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants," dated May 11, 2015. To support the exemption requests, these analyses must demonstrate that: (1) any radiological release for applicable DBAs (e.g.,

fuel handling accident in the spent fuel storage facility, waste gas system release, and cask handling accident if the cask handling system is not licensed as single-failure-proof) would not exceed the EPA PAGs at the exclusion area boundary, and (2) mitigation strategies and guidelines exist to provide an integrated response capability for beyond-design-basis events. In addition, licensees are required to demonstrate that, in the event of a complete loss of SFP water inventory with no heat loss (adiabatic heat up), a period of at least 10 hours would be available from the time all cooling is lost until any zirconium fuel cladding temperature reaches 900 degrees C.

Under this final rule, the NRC does not require licensees to submit these analyses to the NRC for review and approval (separately from existing NRC oversight processes described later in this document), or to certify that these analyses have been completed, to support a change between EP levels. The NRC anticipates that a licensee will analyze applicable DBAs using the process under § 50.59 and reflect the analysis in the licensee's updated FSAR. The NRC requires that licensees develop and maintain mitigation strategies for beyond-design-basis events in accordance with NRC Order EA-12-049 and § 50.155(b). For the heat up analysis, the NRC has already performed analyses of representative PWR and BWR spent fuel to determine the decay time necessary for the fuel to remain below clad ignition temperature for at least 10 hours assuming adiabatic heat up conditions. These analyses contain numerous conservatisms, such that the decay times specified in the rule will bound the decay time required for plants with fuel assemblies from the final offload to the SFP with burnup less than 72 GWd/MTHM and zirconium cladding to attain the 10-hour criterion. This particular analysis supports a transition to PDEP requirements, as previously described. The NRC is also allowing licensees to develop their own site-specific analysis for this transition time; however, licensees will need to submit such analyses to the NRC for review and approval. This final rule details that process.

The following sections describe the EP planning standards and requirements for each graded level of EP (i.e., PSEP, PDEP, and IOEP) under §§ 50.54(q) and 50.200, "Power reactor decommissioning emergency plans." These standards and requirements establish a risk-informed, consequence-oriented, and graded approach to EP for decommissioning sites that maintains the defense-in-depth philosophy and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

The NRC is issuing Regulatory Guide (RG) 1.235, "Emergency Planning for Decommissioning Nuclear Power Reactors," which includes guidance on one method acceptable to the NRC for complying with these requirements. This regulatory guide supersedes NSIR/DPR-ISG-02 upon publication of this rule.

*4. Post-Shutdown Emergency Plans*

The NRC is requiring in § 50.54(q)(8) that a licensee can transition to a PSEP after the NRC's docketing of the licensee's certifications of permanent cessation of operations and permanent removal of all fuel from the reactor vessel pursuant to § 50.82(a)(1) or § 52.110(a). A PSEP provides a transition period from the EP requirements for an operating reactor to the PDEP requirements under § 50.200(b) and (c). New § 50.200(a) clarifies how the planning standards in § 50.47(b) and requirements in appendix E to 10 CFR part 50 apply to a nuclear power reactor licensee's PSEP.

*PSEP Staffing and Emergency Response Organization*

Currently, the following regulations govern the staffing of the emergency response organization (ERO):

- Section 50.47(b)(1), which states, in part, "Primary responsibilities for emergency response by the nuclear facility...have been assigned...and each principal response organization has staff to respond and to augment its initial response on a continuous basis."

- Section 50.47(b)(2), which states, in part, “[A]dequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available....”
- Appendix E to 10 CFR part 50, paragraph IV.A, which states, in part, “The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee’s emergency organization....”

This final rule allows a licensee transitioning to a PSEP to revisit staffing levels and the staffing analysis for the ERO performed under paragraph IV.A.9 of appendix E to 10 CFR part 50 to align staffing with the reduced spectrum of credible accidents for a permanently shutdown and defueled nuclear power reactor facility. The requirement in § 50.200(a) acknowledges that the spectrum of credible accidents requiring a response from the ERO at a facility that is permanently shutdown and defueled is reduced as compared to that for an operating plant. The principal public safety concern involves the potential radiological risks associated with the storage of spent fuel on site in the SFP. For example, the reactor, reactor coolant system, and reactor support systems are no longer in operation and have no function related to the storage of spent fuel. Therefore, postulated accidents involving a failure or malfunction of these systems are no longer applicable. As such, certain ERO positions and emergency functions as detailed in NUREG-0654/FEMA-REP-1, Table B-1, “Emergency Response Organization (ERO) Staffing and Augmentation Plan,” may not be applicable or necessary under a PSEP. Commensurate with the reduced spectrum of credible accidents, § 50.200(a) allows licensees to change ERO staffing levels required by the existing § 50.47(b)(2) within their PSEPs. Reductions in facility staffing may be made as long as the facility operates with no loss of necessary EP functions and the reductions have no impact on the formal offsite radiological emergency response plans that are in effect. In RG 1.235, the NRC

provides guidance on ERO capabilities to be maintained at facilities with PSEPs when reducing staffing levels.

*PSEP Emergency Action Levels*

Currently, appendix E to 10 CFR part 50, paragraph IV.C requires licensees to develop a set of emergency action levels (EALs) based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, such as the pressure in containment and the response of the emergency core cooling system. This final rule allows licensees transitioning to a PSEP and licensees not implementing the requirements of § 50.200(a) to revise EALs consistent with the profile of a permanently shutdown and defueled nuclear power reactor. In the proposed rule, § 50.54(q)(8)(iii) (§ 50.54(q)(9)(iii) in this final rule) stated that changes to EALs resulting from changes in plant conditions due to the transition to decommissioning would not be reductions in effectiveness provided that the evaluation under § 50.54(q)(3) demonstrates that the changes do not reduce the capability of the licensee to take timely and appropriate protective actions. Given the defueled nature of facilities in decommissioning, EALs associated with nuclear power reactor operations (e.g., reactor vessel water level, core temperature, and containment radiation levels) and EALs for mitigation systems not associated with the SFP would no longer contain applicable initiating conditions. Containment parameters do not indicate the conditions relevant to EP at a defueled facility, and emergency core cooling systems would no longer be required. Other indications such as SFP level or temperature can be used at sites that have spent fuel in the SFPs. Consistent with existing requirements, licensees transitioning to Level 1 will still be required to maintain a set of EALs based on onsite radiation monitoring information and in-plant conditions and instrumentation applicable to EP for a defueled reactor.

Guidance document NEI 99-01, Revision 6, “Development of Emergency Action

Levels for Non-Passive Reactors," provides EALs for non-passive operating nuclear power reactors, permanently defueled reactors, and ISFSIs. The NRC found NEI 99-01, Revision 6, acceptable for use in a letter dated March 28, 2013. To accompany this final rule, the NRC drafted guidance in Attachment 1 of Appendix A to RG 1.235 for how a permanently shutdown and defueled nuclear power reactor facility could make a partial EAL scheme change. Notwithstanding the changes to § 50.54(q), a licensee desiring to change its entire EAL scheme must receive prior NRC approval in accordance with appendix E to 10 CFR part 50, paragraph IV.B.2.

In this final rule, the NRC is merging proposed § 50.54(q)(8)(ii) and (iii) to create a new § 50.54(q)(9)(ii) that includes in one provision the criteria a decommissioning licensee needs to meet to change its emergency plan or individual EALs without prior approval of the NRC. This change is discussed in more detail in section IV.A.8., "Changes to Emergency Plans," of this document.

*PSEP Evacuation Time Estimate Studies*

Appendix E to 10 CFR part 50, paragraph IV.3 requires licensees to use evacuation time estimates (ETEs) in the formulation of protective action recommendations (PARs) and to provide the ETEs to State and local governmental authorities for use in developing offsite protective action strategies. Licensees must update ETEs on a periodic basis in accordance with the requirements in § 50.47(b)(10) and appendix E to 10 CFR part 50, paragraphs IV.4, IV.5, and IV.6. The periodicity of these updates together with the time needed to develop and implement the resulting protective action strategies may exceed the expected transition period covered by PSEPs. Therefore, the NRC is adding a new paragraph IV.8 to appendix E to 10 CFR part 50 to clarify that the ETE requirements of paragraph IV.4, paragraph IV.5, and paragraph IV.6 would no longer be applicable to licensees after permanent cessation of operations and permanent removal of fuel from the reactor vessel, notwithstanding

whether they implement the requirements of § 50.200(a). Existing ETE analyses will remain effective within the emergency plan.

Under § 50.54(q)(8)(ii), a licensee transitioning to a PDEP (or Level 2) will need to maintain a PSEP (or maintain compliance with § 50.54(q)(8)(i)) from the date that the NRC dockets the licensee's certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, until the spent fuel has decayed for a period of at least 10 months (for BWRs) or 16 months (for PWRs) from the date of permanent cessation of operations for burnups less than or equal to 72 GWd/MTHM, unless an alternative spent fuel decay period is proposed by the licensee and approved by the NRC. For fuel with burnups greater than 72 GWd/MTHM or non-zirconium cladding, an alternative spent fuel decay period would be proposed by the licensee for approval by the NRC under § 50.54(q)(8)(ii). Updates to the ETE during this level of decommissioning would provide no significant benefit for the enhancement of protective action strategies or offsite evacuation planning. Even if the criteria for updating the ETE analysis were met within the timeframe of a PSEP, updating an ETE report may take several months of analysis. Moreover, after the ETE is updated, the regulations in appendix E to 10 CFR part 50, paragraph IV.6 require an additional 180 days before an updated ETE can be used to inform PARs and offsite protective action strategies. The additional time and effort needed to develop and implement a revised protective action strategy may exceed the time that a facility would spend with a PSEP (Level 1) before transitioning to a PDEP (Level 2). Based on the NRC's review of submitted ETEs, population changes within a period comparable to the post-shutdown timeframe are unlikely to impact ETEs enough to affect the formulation of protective action strategies. In addition, because licensees with PDEPs will not be required to have preplanned PARs to provide for a prompt response to a radiological emergency, updates to the ETE post-shutdown would provide no significant benefit.

*PSEP Annual Dissemination of Public Information*

Appendix E to 10 CFR part 50, paragraph IV.D.2 currently requires licensees to make an annual dissemination of basic emergency planning information to the public within the plume exposure pathway EPZ. Section II.G of NUREG-0654/FEMA-REP-1 contains criteria for the information that should be included in the annual dissemination of public information, including educational information on radiation, points of contact, protective measures, and information for special needs populations. The NRC is not including changes related to the requirement for an annual dissemination of public information for a PSEP in this final rule because the change in the plant's operating status and the ensuing changes to the EP program will be appropriate information to communicate to the public. However, consistent with the removal of regulatory standards for offsite radiological emergency plans for decommissioning sites (including the removal of EPZ requirements) as discussed later in this document, licensees with PDEPs are not required to provide annual disseminations of information to the public. Thus, the dissemination of information to the public during Level 1 likely will be the last annual dissemination of basic emergency planning information to the public within the plume exposure pathway EPZ. In RG 1.235, the NRC provides guidance on one method acceptable to the NRC for a final dissemination of information to the public for licensees with PSEPs.

*PSEP Hostile Action*

In the 2011 final rule, "Enhancements to Emergency Preparedness Regulations" (76 FR 72559; November 23, 2011) (2011 EP Final Rule), the NRC amended its regulations to include enhancements to EP in response to a hostile action event. Appendix E to 10 CFR part 50, paragraph IV.A.7 defines "hostile action" as an act directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an

end. Appendix E to 10 CFR part 50, paragraph IV.B.1 requires nuclear power reactor licensees to have EALs for hostile action, paragraph IV.E.8.d requires nuclear power reactor licensees to have alternative facilities that would be accessible even if the site is under threat of or experiencing hostile action for the staging of ERO personnel, paragraph IV.I requires nuclear power reactor licensees to develop protective actions to protect onsite personnel during hostile action, and paragraph IV.F.2.c.4 and paragraph IV.F.2.i require nuclear power reactor licensees to have hostile action scenarios in drills and exercises. These EP requirements related to hostile action are separate and distinct from the physical protection regulations in 10 CFR part 73.

The NRC is maintaining EP requirements related to hostile action for nuclear power reactor licensees transitioning to a PSEP. Spent fuel at a nuclear power reactor facility that has a PSEP has not yet undergone a significant period of decay, necessitating the maintenance of formal offsite radiological emergency planning. The potential consequences and timing of an accident are the primary considerations for the EP planning basis at nuclear power reactor facilities transitioning to a PSEP. Although NUREG-1738 did not evaluate the potential consequences of a sabotage event that could directly cause offsite fission product dispersion, the NRC did study the potential consequences of the zirconium fire event at different spent fuel decay times. Within the timeframe for nuclear power reactor facilities transitioning to a PSEP, the study in NUREG-1738 shows that decay time is significant when considering potential short-term radiological consequences. Additionally, maintaining EP requirements related to hostile action during this transitional (and time-limited) level of decommissioning will help both the licensee and offsite response organizations (OROs) avoid immediate significant changes to the onsite and offsite emergency plans.

*PSEP Drills and Exercises*

Current regulations in appendix E to 10 CFR part 50, paragraph IV.F, and §

50.47(b)(14) include requirements for periodic drills and exercises for nuclear power reactor licensees. New paragraph IV.F.2.k requires licensees to follow the biennial exercise requirements of appendix E, paragraph IV.F.2, once the NRC dockets the licensee's certifications required under § 50.82(a)(1) or § 52.110(a). After the NRC dockets these certifications, exercise scenarios could reflect a smaller suite of potential accident scenarios based on the permanent cessation of operations and permanent removal of fuel from the reactor vessel.

Current regulations in appendix E to 10 CFR part 50, paragraph IV.F.2.c, require that offsite radiological emergency plans for each site be exercised biennially with full participation by each offsite authority having a role under the radiological emergency plan. New paragraph IV.F.2.k provides that biennial exercises of offsite emergency plans will be required after the NRC dockets a licensee's certifications under § 50.82(a)(1) or § 52.110(a). Licensees implementing a PDEP under § 50.200(b) will not be required to continue performing biennial exercises of offsite emergency plans.

However, a licensee that conducts a full participation biennial exercise just prior to the NRC docketing the licensee's certifications required under § 50.82(a)(1) or § 52.110(a) may not be required to conduct another exercise before transitioning to a PDEP. If an exercise is conducted as part of the 8-year exercise cycle, as required under appendix E to 10 CFR part 50, paragraph IV.F.2.j, after the NRC dockets the licensee's certifications required under § 50.82(a)(1) or § 52.110(a), but prior to transitioning to a PDEP, the scenario can reflect actual plant conditions.

*PSEP Emergency Response Data Systems*

Appendix E to 10 CFR part 50, section VI, "Emergency Response Data System," outlines a set of system, testing, and implementation requirements for the emergency response data system (ERDS). This system transmits near-real-time electronic data directly between the licensee's onsite computer system and the NRC Operations Center.

Nuclear power facilities that are shutdown permanently or indefinitely, are currently not required to provide hardware to interface with the NRC receiving system under appendix E to 10 CFR part 50, paragraph VI.2, and the NRC is not making any regulatory changes to section VI in this final rule beyond minor corrections (see “Clean-up of Regulations” section in this document). Under § 50.72, “Immediate notification requirements for operating nuclear power reactors,” licensees with PSEPs will maintain a capability to provide meteorological, radiological, and SFP data (e.g., level, flow, and temperature data) to the NRC within a reasonable timeframe following an event.

*5. Permanently Defueled Emergency Plans*

The NRC is adding § 50.54(q)(8)(ii), which describes the timeframe after which a licensee would be permitted to transition to a PDEP. As discussed in the “Technical Basis for Graded Approach” section of this document, the NRC concludes that after a decay period of 10 months (for BWRs) or 16 months (for PWRs), the spent fuel cannot reasonably heat up to the zirconium fuel cladding ignition temperature within 10 hours. This 10-hour period would provide a substantial amount of time for the licensee to take onsite mitigation measures and, if necessary, for offsite authorities to take appropriate response actions to protect the public. Therefore, the NRC is allowing a licensee to transition to a PDEP after the NRC’s docketing of the licensee’s certifications of permanent cessation of operations and permanent removal of all fuel from the reactor vessel pursuant to § 50.82(a)(1) or § 52.110(a) and when at least 10 months (for BWR) or 16 months (for PWR) have elapsed since the date of permanent cessation of operations.

Section 50.54(q)(8)(ii) also allows licensees to submit an analysis for NRC approval demonstrating that an alternative spent fuel decay period would ensure that spent fuel would not heat up to 900 degrees C in less than 10 hours under adiabatic conditions. Licensees are required to submit this analysis as a license amendment

request under § 50.90 and the analysis would need to be approved by the NRC in order for a licensee to transition to a PDEP in less than 10 months (for a BWR) or 16 months (for a PWR). While the NRC's research conducted to inform this final rule supports a required decay period of 10 months (for BWRs) or 16 months (for PWRs), it is possible that a licensee may be able to demonstrate, based on site-specific conditions, that a shorter decay period would still ensure that spent fuel cannot reasonably heat up to the zirconium fuel cladding ignition temperature within 10 hours; therefore, the NRC is allowing for the flexibility to submit an alternative decay period under § 50.54(q)(8)(ii). Guidance in RG 1.235 provides one method acceptable to the NRC for conducting the spent fuel heat up analysis.

The following discussion addresses the planning standards under § 50.200(b) and requirements under § 50.200(c) that are necessary to adequately protect public health and safety at facilities with PDEPs.

*Offsite Radiological Emergency Response Plans*

Current § 50.47(b) contains 16 planning standards that apply to onsite and offsite radiological emergency response plans. In the proposed rule, the NRC stated that it would add a new paragraph (f) to § 50.47 to clarify when those planning standards in § 50.47(b) no longer apply to offsite radiological emergency plans.

However, in the EP for SMRs and ONTs Final Rule, the NRC added a new paragraph (f) to § 50.47 to clarify that the requirements of § 50.47(a)(2), (b), and (c)(2) do not apply to offsite radiological emergency response plans if the licensee's emergency plan is not required to meet § 50.47(b) or if the plume exposure pathway EPZ does not exceed the site area boundary. The EP for SMRs and ONTs Final Rule's version of § 50.47(f) was promulgated to clarify the applicability of § 50.47(a)(2), (b), and (c)(2) to small modular reactors and other new technologies. The graded approach to EP as applied to SMRs and ONTs is consistent with the graded approach to EP for

decommissioning facilities in this final rule. Thus, § 50.47(f) applies to offsite radiological emergency response plans for plants with PDEPs. This final rule does not make any changes to § 50.47(f).

Under § 50.54(q)(8)(ii), a licensee may elect to meet the planning standards of § 50.200(b) and the requirements in § 50.200(c) for a PDEP instead of the planning standards of § 50.47(b) and the requirements in appendix E to 10 CFR part 50, which include requirements for emergency plans to address offsite emergency response capabilities (e.g., public alert and notification systems, annual disseminations of information to the public, offsite PAR development, ETEs, and exercises of offsite emergency plans). Without § 50.47(f), § 50.47(b) could still be read to apply to a licensee that elects the PDEP alternative. Section 50.47(f) clarifies the applicability of § 50.47(b): a licensee with a PDEP is not required to meet § 50.47(b), so, under § 50.47(f), the requirements of § 50.47(b) do not apply to that licensee's offsite radiological emergency response plans. The requirements in appendix E to 10 CFR part 50 also do not apply to that licensee's offsite radiological emergency response plans.

Licensees with PDEPs will still maintain a variety of onsite capabilities that may be available to support OROs in EP and response, including radiological training; regular coordination with OROs; radiological assessment capabilities; memoranda of understanding for firefighting, law enforcement, and ambulance/medical services; and the ability to make PARs upon request. For licensees with PDEPs, no action will be expected or required from State or local government organizations in response to an event at a decommissioning site other than firefighting, law enforcement, and ambulance/medical services. Requirements for licensees to maintain agreements for these services also exist outside of radiological EP, including the requirement for licensees to maintain a fire protection plan in § 50.48, "Fire protection," and physical security requirements in 10 CFR part 73.

The NRC received many comments on the proposed rule regarding offsite radiological emergency response planning for licensees with PDEPs. Many commenters requested the NRC to consider maintaining formal offsite radiological EP until all spent fuel is in dry cask storage. In general, the commenters did not provide information in support of their positions that the NRC had not previously considered. As explained in the NRC's responses to these comments as described in section V, "Public Comment Analysis," of this document, these comments did not result in changes to the rule.

*PDEP Staffing and Emergency Response Organization*

Currently, § 50.47(b)(1) and (2) and paragraph IV.A of appendix E to 10 CFR part 50 require licensees to maintain adequate staffing for initial and augmented response in case of an emergency and to describe ERO responsibilities in their emergency plans. Further, appendix E to 10 CFR part 50, paragraph IV.A.9, requires licensees to conduct a detailed staffing analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.

The NRC is adding §§ 50.200(b)(1) and (2) and 50.200(c)(1)(i) to include similar staffing requirements for licensees with PDEPs, with the exception of changes made to reflect the small staffing levels required at a decommissioning facility and the removal of formal offsite radiological emergency response requirements for licensees with PDEPs. For example, licensees with PDEPs will not have to comply with a requirement similar to the one under appendix E to 10 CFR part 50, paragraph IV.A.3, to augment the ERO with staff from licensee headquarters. Because of the much lower risk and much slower progression of events as compared to operating plants, decommissioning sites typically have a level of emergency response that does not require response by headquarters personnel. Licensees will not have to identify State and/or local officials responsible for

protective actions, as currently required under appendix E to 10 CFR part 50, paragraph IV.A.8 and § 50.200(a), because offsite emergency measures are limited to onsite support provided by local police, fire departments, and ambulance and hospital services, as appropriate. New § 50.200(c)(1)(i) requires licensees with PDEPs to include in their emergency plans plant staff emergency assignments.

In addition, the staffing analysis required under appendix E to 10 CFR part 50, paragraph IV.A.9, and § 50.200(a) does not apply to licensees with PDEPs. In the 2011 EP Final Rule, the NRC concluded that the staffing analysis requirement was not necessary for non-power reactor licensees because of the small staffing levels required for those facilities. For this same reason, licensees with PDEPs are not required to perform this analysis under this final rule.

As licensees transition to a PDEP, staffing levels may be reduced but must remain commensurate with the need to safely store spent fuel at the facility in a manner that adequately protects public health and safety. In RG 1.235, the NRC provides guidance on ERO staffing levels for a PDEP.

Currently, a licensee is required to maintain staffing levels at its technical support center (TSC), operational support center (OSC), and emergency operations facility (EOF). In accordance with NUREG-0696, “Functional Criteria for Emergency Response Facilities,” a TSC is an onsite facility located close to the control room that provides plant management and technical support to the reactor operating personnel located in the control room during emergency conditions; an OSC is an onsite area separate from the control room and the TSC where licensee operations support personnel will assemble in an emergency; and an EOF is an offsite support facility for the management of overall licensee emergency response (including coordination with Federal, State, and local officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions. Because of the very low

probability of DBAs or other credible events that would be expected to exceed the EPA PAGs offsite and the available time to implement mitigation measures consistent with plant conditions and, if necessary, to initiate response actions, licensees with PDEPs will not need to maintain the TSC, OSC, and EOF designated staff or dedicated offsite dose assessment field teams.

*PDEP Emergency Classification Levels and Emergency Action Levels*

Section 50.47(b)(4) and appendix E to 10 CFR part 50, paragraphs IV.B and IV.C, specify the EAL and emergency classification level (ECL) requirements for operating reactors. Similar to § 50.47(b)(4), the new PDEP planning standard under § 50.200(b)(4) requires licensees with PDEPs to establish a standard ECL and EAL scheme, the bases of which would include facility system and effluent parameters. The NRC is adding EAL and ECL requirements for licensees with PDEPs that are analogous to appendix E to 10 CFR part 50, paragraphs IV.B and IV.C, with the exceptions of the requirements to base EALs on offsite monitoring information and the appendix E to 10 CFR part 50, paragraph IV.B.1, requirement to include hostile action-based EALs. Because licensees with PDEPs are not required to maintain formal offsite radiological emergency response plans and hostile action does not apply (see discussion in the "PDEP Hostile Action" and "Offsite Radiological Emergency Response Plans" sections in this document), these requirements are no longer relevant to these facilities. However, EALs for security-based events will still be required.

Under new § 50.200(c)(1)(ii)(A), licensees with PDEPs will continue to be required to describe in their emergency plans the EALs that are used as criteria for determining the need for notification and participation of governmental agencies and the EALs that are used for determining when and what protective measures should be considered within the site boundary to protect public health and safety. In addition, licensees with PDEPs will be required to review EALs with State and local governmental

authorities on an annual basis. Under § 50.200(c)(1)(iii)(A), licensees with PDEPs will continue to be required to describe in their emergency plans the spectrum of emergency conditions that involve the alerting or activating of the total emergency organization, the communication steps to be taken to alert or activate personnel, EALs for notification of offsite agencies, and the existence of a message authentication scheme. Under new § 50.200(c)(1)(ii)(B), a licensee desiring to change its entire EAL scheme as part of the PDEP must follow the same requirements as a licensee implementing the requirements of appendix E to 10 CFR part 50, which is to submit an application for an amendment to its license and receive NRC approval before implementing the change. Licensees must follow the change process in § 50.54(q) for all other emergency action level changes.

For facilities with PDEPs, § 50.200(c)(1)(iii)(A) specifies that only the ECLs of Notification of Unusual Events and Alert will apply (and not the ECLs of Site Area Emergency and General Emergency, which apply to operating reactors). For these facilities, the probability of a condition reaching the level above an emergency classification of Alert is very low. In the event of an accident at a facility with a PDEP, time will be available to implement mitigation measures consistent with plant conditions. As stated in NUREG-1738, small SFP leaks or loss of cooling scenarios would evolve very slowly and generally leave many days for recovery efforts. Offsite radiation monitoring would be performed as the need arises. Because of the very low probability of DBAs or other credible events that would reasonably be expected to exceed the EPA PAGs and the available time to implement mitigation measures consistent with plant conditions and, if necessary, to initiate appropriate response actions offsite, facilities with PDEPs will not require declarations of Site Area Emergency and General Emergency and the associated offsite radiation monitoring systems. The results from the previously discussed NRC analyses support this conclusion.

Consistent with the discussion on PSEPs, EALs for nuclear power reactor

operations (e.g., reactor vessel water level, core temperature, and containment radiation levels) and EALs related to mitigation systems not associated with the SFP will no longer be applicable for facilities with PDEPs. Guidance in RG 1.235 provides one method acceptable to the NRC for establishing EALs for facilities with PDEPs. As discussed previously, new § 50.54(q)(9)(ii), formerly proposed § 50.54(q)(8)(iii), describes requirements for decommissioning licensees to conduct reduction in effectiveness determinations for EAL changes.

*PDEP Emergency Assessment, Classification, and Declaration*

Appendix E to 10 CFR part 50, paragraph IV.C.2, requires licensees to maintain the capability to assess, classify, and declare an emergency condition within 15 minutes. A decommissioning nuclear power reactor has a very low likelihood of a design-basis accident or other credible event resulting in radiological releases requiring offsite protective measures, and the event progression would be much slower compared to that for operating reactors. For these reasons, under this final rule licensees with PDEPs will not be required to assess, classify, and declare an emergency condition within 15 minutes. Instead, the NRC is requiring under § 50.200(c)(1)(iii)(B) that licensees with PDEPs document and maintain the capability to assess, classify, and declare an emergency condition within 60 minutes after the availability of indications that an EAL has been exceeded, and promptly declare the emergency condition as soon as possible following identification of the appropriate ECL. Similar to the requirements in appendix E to 10 CFR part 50, paragraph IV.C, § 50.200(c)(1)(iii)(B) clarifies that PDEP licensees must not treat the timeframe as a grace period or delay the implementation of response actions. The 60-minute timeframe is commensurate with the slower progression of a credible event that could result in a radiological release requiring offsite protective measures (see discussion of the timeframe for potential releases and mitigation actions at decommissioning sites in the section “Technical Basis for Graded Approach” in this

document).

Proposed § 50.200(c)(1)(iii)(B) would have required licensees with PDEPs to establish and maintain the capability to assess, classify, and declare an emergency condition as soon as possible and within 60 minutes after the availability of indications to plant operators that an EAL has been exceeded. In response to a comment on the proposed rule, the NRC is removing the words “as soon as possible” from this phrase in the final rule. These words are not used in the corresponding sentence in appendix E to 10 CFR part 50, paragraph IV.C.2. Also, the phrase “as soon as possible” is not needed because the statement “Licensees must not construe these criteria as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an emergency action level that has been exceeded” later in § 50.200(c)(1)(iii)(B) captures the meaning of “as soon as possible.”

*PDEP Notification Requirement to State and Local Governmental Agencies*

Appendix E to 10 CFR part 50, paragraph IV.D.3, requires licensees to have the capability to notify OROs of an emergency declaration within 15 minutes. The NRC is adding § 50.200(c)(1)(iv)(B) to require licensees with PDEPs to promptly notify State and local governmental agencies and to make this notification as soon as possible and within 60 minutes after declaring an emergency. The NRC’s research and analysis shows that licensees with PDEPs will have sufficient time to implement mitigation measures consistent with plant conditions and, if necessary, for OROs to initiate protective actions offsite. Notifying OROs as soon as possible and within 60 minutes after declaring an emergency will not significantly impact the time available for OROs to initiate appropriate response actions.

*PDEP Public Alert and Notification Systems*

Appendix E to 10 CFR part 50, paragraph IV.D.3, requires licensees to demonstrate that appropriate governmental authorities have the capability to make a

decision on alerting and notifying the public promptly upon being informed of an emergency condition. Because of the very low probability of DBAs or other credible events that would be expected to exceed the EPA PAGs offsite and the available time for event mitigation at a site in Level 2, under this final rule, once a licensee implementing the requirements of § 50.200 transitions to a PDEP, the licensee does not need to meet the public alert and notification system requirements specified in appendix E to 10 CFR part 50, paragraph IV.D.3. Similarly, exercises of this system, as required under appendix E to 10 CFR part 50, paragraph IV.F.2, are no longer required for licensees with PDEPs. As previously discussed, licensees with PDEPs are still required to maintain the capability to notify responsible State and local governmental agencies as soon as possible and within 60 minutes after declaring an emergency, and, based on research and analysis showing that there would be at least 10 hours prior to a zirconium fuel cladding fire for licensees with PDEPs, sufficient time would be available for appropriate governmental authorities to inform the public and initiate protective actions, if necessary.

*PDEP Emergency Planning Zones*

Sections 50.47(b) and 50.47(c)(2) require licensees to conduct emergency planning for both the shorter-term plume exposure pathway EPZ (generally 10 miles) and the longer-term ingestion exposure pathway EPZ (generally 50 miles). Appendix E to 10 CFR part 50 contains additional emergency planning requirements for these two types of EPZs. However, the maintenance of the plume exposure pathway and ingestion exposure pathway EPZs for licensees with PDEPs is not warranted because of the very low probability of DBAs or other credible events that would be expected to exceed the EPA PAGs offsite and the available time to implement mitigation measures. Additionally, if necessary, sufficient time would be available for OROs to initiate appropriate response actions even for a highly unlikely severe accident. Therefore, consistent with the NRC's

determination to not require the establishment of formal offsite radiological emergency response plans for licensees with PDEPs, this final rule does not require that EPZs be maintained for licensees with PDEPs. In other words, the plume exposure pathway EPZ for licensees with PDEPs does not exceed the site area boundary. Consequently, the planning standards for PDEPs under § 50.200(b) and the requirements under § 50.200(c) do not include references to EPZs. Further, under § 50.47(f), the requirements of § 50.47(b) and (c)(2) do not apply to offsite radiological emergency response plans for a licensee with a PDEP because the plume exposure pathway EPZ does not exceed the site area boundary.

In the proposed rule, the NRC stated that it would add a new paragraph (f) to § 50.47 to clarify that the planning standards of § 50.47(b) do not apply to offsite radiological emergency response plans if the licensee's emergency plan is not required to meet these planning standards or if the plume exposure pathway EPZ does not exceed the site area boundary.

The NRC received several public comments on the proposed language of § 50.47(f), with commenters stating that the phrase "or if the plume exposure pathway EPZ does not extend beyond the site boundary" could be used by operating reactors to eliminate all offsite EP requirements. The NRC agrees that, under § 50.47(f), a currently operating reactor licensee with an analysis that demonstrates that the plume exposure pathway EPZ for its facility does not extend beyond the licensee's site boundary would not be required to meet the offsite radiological emergency response planning standards in § 50.47(b) and (c)(2). In this situation, the licensee would have to provide an analysis that demonstrates that its plume exposure pathway EPZ does not extend beyond the site boundary, and the NRC would have to approve this analysis. It is highly unlikely that a currently operating licensee could make this demonstration given the planning basis for the EP regulatory framework for large LWRs established in NUREG-0396. The NRC

did not revise § 50.47(f) in response to these comments.

*PDEP Offsite Radiological Protective Action Recommendations*

Section 50.47(b)(10) requires licensees to develop a range of protective actions for the plume exposure pathway EPZ for emergency workers and the public and to give consideration to evacuation, sheltering, and the use of potassium iodide. Licensees also must develop and put in place guidelines for the choice of protective actions during an emergency and develop protective actions for the ingestion exposure pathway EPZ. This final rule adds § 50.200(b)(10) to require licensees with PDEPs to continue to develop a range of protective actions for emergency workers and the public but, consistent with the removal of regulatory standards for offsite radiological EP for these licensees, does not reference specific offsite protective actions or pre-planned activities for the public in the EPZs. The requirement calls for protective actions directed at emergency workers who may have to respond to the decommissioning site for firefighting, law enforcement, and ambulance/medical services and members of the public who may be present within the owner-controlled area during a radiological emergency.

For licensees with PDEPs, pre-planned offsite protective actions to ensure a prompt response to an onsite radiological emergency are not necessary given the time available for OROs to initiate appropriate response actions. Although the likelihood is very low for events that would result in doses exceeding the EPA PAGs to the public beyond the owner-controlled area boundary, based on the permanently shutdown and defueled status of the reactor, this final rule requires licensees with PDEPs to determine the magnitude of and continually assess the impact of a potential radiological release under § 50.200(c)(1)(ii)(A), and, if a release is occurring, the licensee is required to communicate that information to offsite authorities as soon as possible for their consideration in taking appropriate response actions under § 50.200(c)(1)(iv)(B).

In 2001, the NRC revised its EP regulations through the “Consideration of

Potassium Iodide in Emergency Plans" (66 FR 5427; January 19, 2001) final rule to include the consideration of potassium iodide as a protective measure for the general public to supplement sheltering and evacuation in the unlikely event of a severe nuclear power plant accident with an offsite radioactive plume that would include radioactive iodine. If taken properly, potassium iodide may reduce how much radioactive iodine a person's thyroid gland is able to absorb, potentially reducing an increase in the risk of developing thyroid cancer. For licensees with PDEPs, in addition to not needing pre-planned protective action strategies, the iodine in the spent fuel has decayed sufficiently such that there is no need to consider a supplemental potassium iodide program to counteract the effects of radioactive iodine on the thyroid.

*PDEP Evacuation Time Estimate Studies*

Licensees are required to develop and update ETEs in accordance with the requirements in § 50.47(b) and appendix E to 10 CFR part 50, paragraph IV.3. Paragraph IV.3 requires licensees to use ETEs in the formulation of PARs and to provide ETEs to State and local governmental authorities for use in developing offsite protective action strategies. Because of the very low probability of DBAs or other credible events that would be expected to exceed the EPA PAGs offsite and the available time for event mitigation, as well as the minimal expected offsite response required, this final rule does not require licensees with PDEPs to maintain ETEs (see section "PSEP Evacuation Time Estimate Studies" in this document for additional discussion regarding the need for ETEs post-shutdown).

*PDEP Emergency Facilities and Equipment*

Appendix E to 10 CFR part 50, paragraph IV.E, requires licensees to maintain and describe adequate provisions for emergency facilities and equipment, including equipment at the site for personnel monitoring, equipment for radiological assessment, facilities and supplies for decontaminating onsite individuals, first aid facilities and

medical supplies, arrangements for qualified medical service providers and the transportation of contaminated injured individuals, and arrangements for the treatment of individuals injured in support of licensed activities. Decommissioning licensees have not received exemptions or license amendments related to these requirements to date, and the NRC has determined that licensees with PDEPs still need to maintain these capabilities under § 50.200(c)(1)(v).

Appendix E to 10 CFR part 50, paragraph VI.E.8, also includes emergency response facility requirements for a TSC, OSC, and EOF. However, licensees with PDEPs do not need separate, dedicated facilities. The functions of the control room, TSC, OSC, and EOF could be combined into one or more locations while still adequately protecting public health and safety. This final rule adds § 50.200(c)(1)(v)(H) to require licensees with PDEPs to establish a facility from which effective direction can be given and effective control can be exercised during an emergency. Because of the very low probability of DBAs or other credible events that would be expected to exceed the EPA PAGs offsite and the available time for event mitigation, the significantly reduced staff, and the minimal expected response required, offsite response will not be required at an EOF. Onsite actions may be directed from the control room or other location, without the requirements for a TSC or EOF. Unlike § 50.47(b)(3), new § 50.200(b)(3) does not reference the EOF as a location for response. Additionally, under this final rule, a separate OSC is no longer required to meet its original purpose of an assembly area for plant logistical support during an emergency. The OSC function could be incorporated into another facility. In RG 1.235, the NRC provides one method acceptable to the NRC for meeting the emergency response facility requirements for PDEPs.

Appendix E to 10 CFR part 50, paragraph IV.E.9, addresses requirements for emergency communications systems, plans, and arrangements, including communications with OROs and between the control room, TSC, and EOF. This final

rule adds § 50.200(c)(1)(v)(I) to require licensees with PDEPs to continue to maintain an onsite and an offsite communications system with backup power and communication plans with arrangements for emergencies. These arrangements need to include provisions for communications with contiguous State and local governments, Federal emergency response organizations, NRC Headquarters, and the appropriate NRC Regional Office Operations Center. Because licensees with PDEPs may combine emergency response facilities, the current requirements for communication between emergency response facilities will not apply to these licensees. This final rule requires licensees to maintain communications with State and local emergency operations centers to allow coordination of assistance onsite if required.

*PDEP Hostile Action*

Under this final rule, hostile action requirements do not apply to licensees with PDEPs. The definition of “hostile action” in appendix E to 10 CFR part 50, paragraph IV.A.7, applies to the capability of implementing EP during hostile action events. However, in the preamble for the 2011 EP Final Rule, the NRC excluded non-power reactors from the definition of “hostile action” because a non-power reactor as defined in § 50.2 is not a nuclear power plant, and a regulatory basis had not been developed to support the inclusion of non-power reactors in the definition of “hostile action.” A licensee with a PDEP would be similar to a non-power reactor in that both have a very low likelihood of a credible accident resulting in radiological releases requiring response actions offsite. Additionally, regardless of how a disruption to the SFP cooling occurs, the spent fuel would take longer than 10 hours to heat up to ignition temperature, providing adequate time to coordinate a response between the ERO and OROs. As such, licensees with PDEPs do not fall within the scope of “hostile action,” and enhancements to EP in response to hostile action, such as alternative facilities for the staging of ERO personnel, protection of onsite personnel, and challenging drills and

exercises involving hostile action, are not warranted.

Although this rationale justifies the exclusion of licensees with PDEPs from the definition of “hostile action” and its related requirements (including alternative facilities and hostile action exercises) as they apply to EP, elements for security-based events must still be maintained for these facilities, including EALs for security-based events. Under this final rule, licensees with PDEPs are required to identify ORO resources that will respond to a security event, and the assistance licensees expect from those resources will be maintained in PDEPs. For physical security, the objective for these facilities relates to protection of the spent fuel against sabotage. A level of security commensurate with the consequences of a sabotage event is required and is evaluated on a site-specific basis. The severity of the consequences declines as fuel ages and thereby removes over time the underlying concern that a sabotage attack, under the current definition, could cause offsite radiological consequences.

*PDEP Drills and Exercises*

Section 50.47(b)(14) and appendix E to 10 CFR part 50, paragraph IV.F, provide training and drill and exercise requirements for nuclear power reactor licensees. Consistent with the language of § 50.47(b)(14), this final rule is adding the PDEP planning standard under § 50.200(b)(14) to require licensees with PDEPs to conduct periodic exercises to evaluate major portions of emergency response capabilities, to conduct periodic drills to develop and maintain key skills, and to correct deficiencies identified as a result of exercises and drills. The NRC is including drill and exercise requirements for licensees with PDEPs under § 50.200(c)(1)(vi) that differ from the existing requirements under appendix E to 10 CFR part 50, paragraph IV.F, to account for changes in principal functional areas, offsite radiological emergency response requirements, offsite PAR requirements, and the spectrum of possible accidents.

Similar to the requirements in appendix E to 10 CFR part 50, paragraph IV.F.1, this final rule is adding § 50.200(c)(1)(vi)(A) to require licensees with PDEPs to describe in their emergency plan provisions for the training of employees, exercising the emergency plan by conducting periodic drills, and including other individuals in training and drills when those individuals may provide assistance in the event of a radiological emergency. Under this final rule, the PDEP is required to describe the training to be provided to several categories of emergency personnel, with the exception of licensees' headquarters support personnel. Headquarters support personnel are no longer required to augment the ERO for licensees with PDEPs. Licensees with PDEPs will need to continue to make available a radiological orientation training program for local services personnel expected to provide support onsite. Because of the time available to coordinate offsite agency notification to the public, licensees with PDEPs are not required to provide radiological orientation training to local news media persons.

Similar to the requirements in appendix E to 10 CFR part 50, paragraph IV.F.2, this final rule is adding § 50.200(c)(1)(vi)(B) to require licensees with PDEPs to continue to describe provisions for the conduct of EP exercises that test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, and ensure emergency organization personnel are familiar with their duties. Licensees with PDEPs are not required to test the public alert and notification system during their exercises because the system will no longer be required, as discussed previously in this document.

New § 50.200(c)(1)(vi)(B)(*1*) and (*2*) requires licensees with PDEPs to conduct an exercise of its onsite emergency plan within two years of the last exercise of the onsite emergency plan conducted under paragraph IV.F.2.b of appendix E to 10 CFR part 50 and to continue to conduct subsequent biennial exercises of onsite emergency plans. Licensees with PDEPs will need to continue to conduct drills during the intervals

between biennial exercises involving a combination of principal functional areas. The principal functional areas of emergency response for licensees with PDEPs include all the areas listed under appendix E to 10 CFR part 50, paragraph IV.F.2.b, with the exception of protective action development and protective action decision-making (see discussion on protective action recommendations in the section “PDEP Offsite Radiological Protective Action Recommendations” in this document).

Similar to the requirements in appendix E to 10 CFR part 50, paragraph IV.F.2.f, new § 50.200(c)(1)(vi)(B)(*4*) requires licensees with PDEPs to conduct remedial exercises if the emergency plan is not satisfactorily tested during the biennial exercise. Like appendix E to 10 CFR part 50, paragraph IV.F.2.g, new § 50.200(c)(1)(vi)(B)(*5*) requires licensees with PDEPs to provide for formal critiques of exercises, drills, and training that provide performance opportunities to develop, maintain, or demonstrate key skills and to correct weaknesses or deficiencies identified in a critique.

The NRC is adding § 50.200(c)(1)(vi)(B)(*6*) to require licensees with PDEPs to continue to use drills and exercise scenarios that provide reasonable assurance that anticipatory responses will not result from preconditioning of participants and that emphasize coordination among onsite and offsite response organizations. Unlike the current requirements under appendix E to 10 CFR part 50, paragraphs IV.F.2.b, IV.F.2.i, and IV.F.2.j, licensees with PDEPs are not required to submit to the NRC exercise scenarios 60 days before use in an exercise, demonstrate that exercise scenarios include a wide spectrum of radiological releases and events, or vary exercise scenarios across an eight calendar year exercise cycle to allow for the demonstration of responses to specified scenario elements, respectively. These requirements no longer apply due to the limited types of events that could occur. The previously routine progression to a General Emergency, or even a Site Area Emergency, in nuclear power reactor site exercise scenarios is not applicable for licensees with PDEPs.

Guidance in RG 1.235 provides one method acceptable to the NRC for licensees with PDEPs to comply with the drill and exercise requirements in this final rule.

*PDEP Offsite Response Organization Participation in Drills and Exercises*

Appendix E to 10 CFR part 50, paragraph IV.F, and § 50.47(b)(14) include requirements for periodic EP drills and exercises for licensees. Appendix E to 10 CFR part 50, paragraphs IV.F.2.c and IV.F.2.d, require offsite radiological emergency plans for each site to be exercised biennially with full participation by offsite authorities having a role under the radiological response plan. Appendix E to 10 CFR part 50, paragraphs IV.F.2.f and IV.F.2.h, address State and local participation in remedial exercises and refusal of State and local governments to participate. Because no action is required from State and local government organizations in response to events other than firefighting, law enforcement, and ambulance/medical services for licensees with PDEPs, the requirements related to ORO participation in radiological drills and exercises are not applicable to licensees with PDEPs. New § 50.200(c)(1)(vi)(B) removes the requirement to exercise offsite emergency plans once the NRC has docketed the licensee's certifications required under § 50.82(a)(1) or § 52.110(a) and the licensee elects under § 50.54(q)(8)(ii) to transition to a PDEP. For facilities that are located either on the same site or on adjacent contiguous sites to reactors that continue to operate, the offsite emergency plans must continue to be exercised as required under appendix E to 10 CFR part 50, paragraph IV.2.f, until all reactors at the site cease operation and transition to a PDEP. Similar to the requirements under appendix E to 10 CFR part 50, paragraph IV.2.f.e, this final rule is adding § 50.200(c)(1)(vi)(B)(*3*), to require a licensee with a PDEP to enable any State or local government to participate in the licensee's drills and exercises when requested.

*6. Independent Spent Fuel Storage Installation-Only Emergency Plans*

The NRC is adding § 50.54(q)(8)(iii) to require that licensees must have all spent fuel in dry cask storage before transitioning to an IOEP. Licensees with an IOEP must follow and maintain the effectiveness of an emergency plan that meets the requirements in § 72.32(a).

Licensees with 10 CFR part 72 specific licenses or under the 10 CFR part 72 general license may hold an IOEP. A licensee with all its spent fuel in dry cask storage that terminates its 10 CFR part 50 or 10 CFR part 52 license must first obtain a 10 CFR part 72 specific license before transitioning to the EP requirements already provided in § 72.32(a). A licensee maintaining its 10 CFR part 50 or 10 CFR part 52 license and, thus, its 10 CFR part 72 general license authorized under § 72.210 may opt to change its EP program to align it with the requirements of § 72.32 once all spent fuel is transferred to dry cask storage. In addition, licensees under the 10 CFR part 72 general license will need to continue to comply with all applicable 10 CFR part 50 and 10 CFR part 52 requirements until the 10 CFR part 50 or 10 CFR part 52 license is terminated consistent with § 50.82 or § 52.110, respectively.

Under § 50.54(q)(8)(iii), a licensee may choose not to comply with the EP requirements under § 72.32 and may instead maintain a PSEP or PDEP. Licensees with dry cask storage must ensure that the emergency plan includes an appropriate EAL scheme that includes consideration of ISFSI events.

In RG 1.235, the NRC provides guidance on transitioning to and maintaining an IOEP.

*7. All Spent Fuel Removed from Site*

During the fourth level of decommissioning, this final rule allows a licensee to terminate its EP program under § 50.54(q)(8)(iv) or § 72.44(f). Once all spent fuel has been permanently removed from the site, the site no longer poses any risk of a

significant radiological release. The licensee will then proceed with the decommissioning process subject to the applicable requirements until the license is terminated.

*8. Changes to Emergency Plans*

Current § 50.54(q)(2) requires nuclear power reactor licensees to follow and maintain the effectiveness of an emergency plan that meets the planning standards in § 50.47(b) and the requirements in appendix E to 10 CFR part 50. In addition, current § 50.54(q)(3) contains the conditions under which a licensee may make changes to its emergency plan without prior application to and approval by the NRC, provided that the changes do not reduce the effectiveness of the plan and that the plan, as changed, continues to meet the requirements in appendix E to 10 CFR part 50 and, for nuclear power reactor licensees, the planning standards in § 50.47(b). The NRC is adding several new paragraphs that, similar to § 50.54(q)(2) and (3), reference the requirements that emergency plans for decommissioning nuclear power reactors must meet and the process for making changes to these plans. In particular, § 50.54(q)(8) references the applicable emergency plan requirements after the NRC dockets a licensee's certifications under § 50.82(a)(1) or § 52.110(a), and § 50.54(q)(9) stipulates the conditions under which decommissioning nuclear power reactor licensees may make changes to their emergency plans without prior approval by the NRC.

The NRC is also amending some of the existing paragraphs of § 50.54(q) to reflect the new EP regulations. The NRC is revising § 50.54(q)(1) to clarify that the definitions in paragraph (q) apply to only paragraph (q). The NRC is adding to § 50.54(q)(2) an exception for § 50.54(q)(8). As a result, a decommissioning nuclear power reactor licensee must implement the EP requirements for an operating reactor or the graded approach in § 50.200 and § 72.32. In addition, the NRC is clarifying § 50.54(q)(3) to state that a decommissioning nuclear power reactor licensee may make changes to its emergency plan without prior application to and approval by the NRC,

provided that the changes do not reduce the effectiveness of the plan and that the plan, as changed, continues to meet the applicable requirements of § 50.200 or § 72.32 if the licensee has elected to implement the EP frameworks of § 50.200 or § 72.32, respectively.

The existing change process under § 50.54(q) does not establish whether a proposed change would impact the agency's determination that there is reasonable assurance that a licensee can and will take adequate protective measures in the event of a radiological emergency; the change process establishes only whether the licensee has the authority to implement the proposed change without prior NRC approval. The change process uses the criterion of "reduction in effectiveness" to exclude from the requirement to seek prior NRC approval those changes that would not reduce the effectiveness of the licensee's emergency plan. Because these changes would not reduce the effectiveness of the plan, the NRC expects that the changes should not have an impact on the agency's reasonable assurance determination. A licensee's determination that a proposed change would reduce the effectiveness of the emergency plan does not mean that the licensee could not or would not implement adequate protective measures to protect public health and safety in the event of a radiological accident, but only that prior NRC review is required to evaluate the impact of the change on the reasonable assurance determination. As part of routine oversight, the NRC screens emergency plan changes, including EAL changes, and reviews a sample of changes documented in reports submitted under § 50.54(q)(5). These reviews do not constitute the NRC's approval of the plan changes, and all such changes remain subject to future inspection and enforcement actions. The NRC documents its approval of plan changes under § 50.54(q)(4) in its decisions to grant license amendment requests.

The licensee cannot properly evaluate a proposed change to the emergency plan if it has not considered the basis for the NRC's approval of the original plan or the basis

for any subsequent changes to the plan—whether those changes were approved by the NRC or implemented by the licensee without prior NRC approval under § 50.54(q). RG 1.219, Revision 1, “Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors,” describes a method that the NRC considers acceptable to implement the requirements in § 50.54(q) as they relate to EP and specifically to making changes to emergency plans. As provided in RG 1.219, the licensee should consider its licensing basis to inform a § 50.54(q) evaluation, and, principally, applicable regulatory requirements, which are binding on the licensee unless the NRC explicitly exempts the licensee from them. In RG 1.235,the NRC provides guidance for decommissioning nuclear power reactor licensees in evaluating changes to emergency plans under § 50.54(q).

The change process is meant to ensure that emergency plans are maintained up to date and that the level of planning does not fall below the standards to which the licensee has committed. The regulations in § 50.54(q) define “reduction in effectiveness” as a change in an emergency plan that results in reducing the licensee’s capability to perform an emergency planning function in the event of a radiological emergency. “Emergency planning function” is currently defined as a capability or resource necessary to prepare for, and respond to, a radiological emergency.

When the NRC considers exemptions from EP requirements for a decommissioning nuclear power reactor licensee, the NRC considers whether there are special circumstances present as defined in § 50.12(a)(2). In particular, the NRC determines whether application of the EP regulations for which exemptions are under consideration in the particular circumstances would not serve their underlying purpose or are not necessary to achieve their underlying purpose, which is to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Once the NRC grants a licensee exemptions from EP

requirements, the exempted regulations no longer apply to the licensee. The licensee may need to submit a separate license amendment request if the planned changes conflict with an element of the current licensing basis. If not, the licensee need not submit a separate license amendment request for NRC approval of the emergency plan changes unless the plan changes go beyond those resulting from the exemptions granted. The NRC's intent is that this final rule establishes clear regulatory requirements for EP, reducing the need for licensees to request certain exemptions. As such, the NRC is adding § 50.54(q)(9) to establish the process for: (1) transitions from one decommissioning level's EP planning standards and requirements to the next level's EP planning standards and requirements, and (2) changes to emergency plans within a decommissioning level.

In considering a graded approach to EP, the NRC recognizes that a transition between the EP planning standards and requirements of each decommissioning level (i.e., PSEP, PDEP, and IOEP) is not equivalent to making changes to the emergency plan within a level. The transition between the EP planning standards and requirements of each decommissioning level is fundamentally a licensee's commitment to a different set of EP standards and associated emergency planning functions, and the change process should facilitate this transition.

For transitions from one decommissioning level to the next, the NRC is requiring licensees to establish emergency plans that meet the EP planning standards and requirements of the next level. The transition is optional, and a licensee that maintains its current level of emergency planning would satisfy the requirements of the next level; however, doing so would mean maintaining emergency planning functions above the commensurate level of planning for the risk involved. Under § 50.54(q)(9), a licensee can make changes to the emergency plan to commit to the EP planning standards and requirements of the next decommissioning level using the § 50.54(q)(3) change process,

but only needs to consider whether the changes meet the next level's planning standards and requirements. Licensees making changes to their emergency plans to commit to the EP planning standards and requirements of a decommissioning level are not required to determine if the changes are reductions in effectiveness. Instead, the NRC has already made this determination through its issuance of the regulations promulgating the EP planning standards and requirements for the decommissioning levels. The NRC's regulatory approach to transitions between EP decommissioning levels does not go beyond a licensee's authority to make changes to its emergency plan under § 50.54(q)(3). Additionally, any change to the emergency plan that is not made to comply with the EP planning standards and requirements of the next decommissioning level would require a licensee to determine whether the change would be a reduction in effectiveness.

After the Three Mile Island, Unit 2, accident in 1979, the NRC issued a final rule (45 FR 55402; August 19, 1980) (1980 EP Final Rule) that included § 50.54(u), which required licensees to upgrade their emergency plans to meet the then-new planning standards of § 50.47(b) and requirements in appendix E to 10 CFR part 50 and to submit those plans to the NRC. In the 2011 EP Final Rule, the NRC removed and reserved § 50.54(u). The NRC's approach in this final rule to transitions between the EP planning standards and requirements of decommissioning levels is analogous to the approach taken by the NRC when the 16 EP planning standards went into effect in 1980 (see the "Reasonable Assurance and Offsite Radiological Emergency Preparedness" section in this document). Under this approach, the NRC does not relinquish its oversight authority, as some commenters on the proposed rule suggested. The NRC is adding § 50.54(q)(9)(i) to require that initial emergency plan changes made to transition between EP decommissioning levels be submitted to the NRC at least 60 days prior to implementation, and that emergency plans remain subject to future inspection and

enforcement. The submittal is not intended to be a licensing action. It will provide a current copy of the emergency plan to the NRC prior to implementation in support of future inspection activities. This submittal will provide an opportunity for the NRC to ensure that the licensee maintains the effectiveness of its emergency plan. Subsequent emergency plan changes will need to follow the existing change control process under § 50.54(q)(3) and (4). Hearing rights will not attach to transitions between EP decommissioning levels. In addition, all emergency plan changes submitted under § 50.54(q)(5) and (9) will be publicly available.

In addition to the general requirements in § 50.54(q)(9)(i) governing transitions between EP decommissioning levels, § 50.54(q)(9) addresses changes specific to SSCs and EALs. Proposed § 50.54(q)(8)(ii) specified that, for SSCs that are no longer needed to provide support for an emergency planning function (as defined under § 50.54(q)(1)(iii)), a licensee may make a determination under § 50.54(q)(3) that emergency plan changes are not a reduction in effectiveness if the updated FSAR demonstrates that these SSCs are no longer required to be in service due to the decommissioning status of the facility. Proposed § 50.54(q)(8)(iii) stated that changes to EALs based on plant conditions that are not physically achievable or instrumentation that is no longer in service due to the transition to decommissioning would not be reductions in effectiveness provided that a § 50.54(q)(3) evaluation demonstrates that the change does not reduce the capability of taking timely and appropriate protective actions. The NRC proposed to add these requirements to provide clarity on § 50.54(q)(3) evaluations and alleviate the burden on licensees from submitting emergency plan changes that result from SSCs and instrumentation that are no longer required to be in service due to decommissioning.

In this final rule, the NRC is merging proposed § 50.54(q)(8)(ii) and (iii) into § 50.54(q)(9)(ii) in response to a comment on the proposed rule. A commenter stated that

the proposed § 50.54(q)(8)(ii) could be interpreted as applying only when all of the SSC functions are no longer in service. Therefore, that paragraph should be clarified to allow licensees to make changes when functions of SSCs that do not support an emergency planning function remain in service. The NRC agrees that this regulation should be clarified.

However, the NRC disagrees that addressing SSC functions within § 50.54(q)(9) is appropriate. The purpose of proposed § 50.54(q)(8)(ii) and (iii) was to provide licensees with more information to support the § 50.54(q)(3) evaluation of emergency plan changes as to whether the changes are a reduction in the effectiveness of the emergency plan and require prior approval from the NRC. A reduction in effectiveness would not occur if the equipment, instrument, or component is not operable or is not needed to support the FSAR during decommissioning. Although the FSAR, as revised, could be used as a demarcation point where licensees can implement associated emergency plan changes without receiving prior approval from the NRC, the timing of FSAR updates under paragraph (e) of 50.71, “Maintenance of records, making of reports,” and § 50.71(e)(4), may not support timely updates to emergency plans.

Instead, the NRC is using the change management process in § 50.59(c) that supports these FSAR changes as the demarcation point. If a licensee determines under § 50.59(c)(1) that a particular plant system, instrument, or component is no longer required to be operable, or receives NRC prior approval under § 50.59(c)(2) that the plant system, instrument, or component is no longer required to be operable, then the licensee can subsequently make the applicable changes to its emergency plan, including to emergency action levels. In addition, there is no need to have both proposed §§ 50.54(q)(8)(ii) and 50.54(q)(8)(iii) if one provision can support emergency plan and emergency action level changes.

After the implementation of a PSEP, PDEP, or IOEP, licensees are required by §

50.54(q)(8)(i) to continue to follow and maintain the effectiveness of the plan, and by § 50.54(q)(9)(i)-(ii) to comply with the change process described under § 50.54(q)(3) and (4). Therefore, licensees are allowed to make changes to these emergency plans without prior application to and approval by the NRC, provided that the changes would not reduce the effectiveness of the plan and that the plan, as changed, would continue to meet the EP planning standards and requirements for the applicable decommissioning level. Current § 50.54(q)(5) requires decommissioning licensees to submit to the NRC a report of each such change within 30 days after the change is put into effect. And, consistent with current requirements, decommissioning licensees have to submit changes that would reduce the effectiveness of the plan for prior NRC review and approval in accordance with § 50.54(q)(4) so that the NRC can make the requisite reasonable assurance determination. For subsequent emergency plan changes, once all fuel is in dry cask storage (i.e., for changes to an IOEP), § 50.54(q)(9)(i) allows licensees to follow the change process under § 72.44(f).

The amendments to the regulatory change process are necessary because:

- The regulation in existing § 50.54(q)(2), which provides that a licensee must follow and maintain the effectiveness of the emergency plan, should continue to apply in decommissioning to ensure that emergency plans are followed and kept up to date.

- The existing § 50.54(q) change process and the associated regulatory guidance currently do not address how a licensee could change its emergency plans to comply with the emergency plan standards and requirements as the licensee transitions to each level of decommissioning.

- This final rule allows the NRC to maintain, through a regulatory change process, reasonable assurance that a licensee can and will take adequate protective measures in the event of a radiological emergency.

The amendments to § 50.54(q), and related regulatory guidance, ensure that

licensees maintain the effectiveness of the emergency plans. Emergency plans that comply with the graded EP planning standards and requirements continue to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Any plan that does not meet these standards and requirements and, if applicable, the reduction in effectiveness criterion, is subject to potential enforcement actions. The approaches to transitioning between EP decommissioning levels and to making emergency plan changes within decommissioning levels provide an efficient and effective regulatory change process and promote consistent and predictable implementation and enforcement.

*9. Program Element Review Under § 50.54(t)*

Under current § 50.54(t), licensees must conduct reviews of EP program elements either: (1) at intervals not to exceed 12 months or (2) as necessary, based on an assessment by the licensee against performance indicators and as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that potentially could adversely affect EP. If a licensee chooses the second option, it must still review all program elements at least once every 24 months. For several reasons, this final rule provides decommissioning licensees with an alternative approach to reviewing EP program elements.

First, the NRC expects licensees to remain in the first level of decommissioning (i.e., with a PSEP) for less than 24 months, and the scope of a PSEP is largely unchanged from the scope of an operating reactor's emergency plan. Conversely, the second level of decommissioning (i.e., licensees with a PDEP) will involve more significant changes, and the NRC anticipates that licensees would remain in the second level of decommissioning for a longer period of time. Therefore, in order to support program continuity and minimize changes during the transition to a PDEP, the NRC is amending § 50.54(t) such that, starting after licensees enter the second level of

decommissioning, licensees are able to conduct program element reviews under § 50.54(t) at intervals not to exceed 24 months (rather than 12 months) without conducting an assessment against performance indicators. In addition, the NRC is adding new § 50.54(t)(3) to remove the requirement to conduct periodic EP program element reviews once all fuel is in dry cask storage (i.e., the third/IOEP level of decommissioning), consistent with the EP requirements for ISFSIs under 10 CFR part 72.

*10. Reasonable Assurance and Offsite Radiological Emergency Preparedness*

The regulations in §§ 50.47 and 50.54 indicate how the NRC will make licensing decisions or take appropriate enforcement actions by using findings of reasonable assurance that adequate protective measures can and will be taken to protect public health and safety in the event of a radiological emergency. The NRC has the authority and responsibility to make licensing findings on the overall adequacy of onsite and offsite emergency planning and preparedness. Commensurate with the NRC's responsibility to make such findings, the NRC has the authority to collect, review, and evaluate any information it needs to support its findings on EP. If available, the NRC also considers FEMA findings and determinations regarding the status of offsite EP. The relationship between the NRC and FEMA concerning findings of reasonable assurance of offsite EP is based on the Atomic Energy Act of 1954, as amended (AEA); the Energy Reorganization Act of 1974, as amended; the NRC Authorization Act for Fiscal Year 1980; the NRC's regulations; a memorandum of understanding between the two agencies ("Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Emergency Response, Planning, and Preparedness") first established in 1980 and last updated in 2015; and case law (e.g., *Massachusetts v. United States*, 856 F.2d 378, 382 (1st Cir. 1988); *State of Ohio ex rel. Celebrezze v.*

*NRC*, 868 F.2d 810, 815-16 (6th Cir. 1989)).

Not all licensing decisions involving EP require findings and determinations on the adequacy of offsite EP. For example, in the EP regulations for research and test reactors, fuel cycle facilities, and ISFSIs, there are no regulatory standards or requirements for offsite radiological emergency plans. As such, FEMA findings and determinations are not needed to support NRC licensing decisions for such facilities. The absence of NRC regulatory standards for offsite EP at those facilities does not imply that offsite emergency planning, in general, is not adequate to protect the public health and safety. In the Low Power Rule, the NRC concluded that findings and determinations on the state of offsite EP were not needed to support the issuance of a license for fuel loading and low power testing because there was sufficient time (at least 10 hours) in which to take action to protect the public in event of the worst-case accident. Additionally, the NRC has concluded in its review of several EP exemption requests for permanently shutdown and defueled nuclear power reactor licenses that formal offsite radiological emergency plans are not necessary after the spent fuel in the SFP has sufficiently decayed such that it would not reach zirconium fuel cladding ignition temperature within 10 hours under adiabatic heat up conditions. As a result, continued consultation with FEMA regarding the adequacy of the offsite plans is also no longer necessary.

For decommissioning nuclear power reactors, if regulatory standards for offsite radiological EP are not required, then findings and determinations on the adequacy of offsite radiological emergency plans are not needed in order for the NRC to make determinations regarding reasonable assurance. FEMA findings and determinations are only necessary when the NRC's planning standards apply to offsite radiological emergency plans. A licensee must follow and maintain the effectiveness of its emergency plan if the NRC is to continue to find that there is reasonable assurance that

adequate protective measures can and will be taken in the event of a radiological emergency and this continues to apply to licensees during decommissioning.

In 1979, the NRC predicated the rationale for the EP proposed rule (44 FR 75167; December 19, 1979) on the Commission's considered judgment following the accident at Three Mile Island, Unit 2. At the time, the Commission concluded that it must be in a position to know that offsite governmental plans had been reviewed and found adequate. However, the Commission also noted that the proposed rule was considered an interim upgrade of NRC emergency planning regulations based on past experience, and that further changes to emergency planning regulations may be proposed as more experience is gained. The NRC viewed the 1979 proposed rule as a first step in improving emergency planning.

The NRC recognizes the experience gained from implementing its regulations, and also that significant advances in emergency planning have occurred over the decades following the accident at Three Mile Island, Unit 2. In particular, the terrorist attacks on September 11, 2001, led to the establishment of the U.S. Department of Homeland Security, and lessons learned from disasters such as Hurricane Katrina have resulted in a national effort to prepare for and respond to all hazards and disasters. Homeland Security Presidential Directive 5, "Management of Domestic Incidents" (February 28, 2003), and Presidential Policy Directive (PPD)-8, "National Preparedness" (March 30, 2011), established national initiatives for a common approach to preparedness and response. These initiatives include the National Incident Management System, National Preparedness Goal, Core Capabilities, National Preparedness System, National Planning Frameworks, and the development of comprehensive preparedness guides and exercise methodologies.

The PPD-8 directed the development of a national preparedness goal that identifies the core capabilities necessary for preparedness and a national preparedness

system to guide activities that will enable the Nation to achieve the goal. Core capabilities are intended to help coordinate and unify efforts, improve training and exercise programs, promote innovation, and ensure that the administrative, finance, and logistics systems are in place to support these capabilities. The PPD-8 is aimed at facilitating an integrated, all-of-Nation, capabilities-based approach to preparedness, under the assumption that national preparedness is the shared responsibility of the "whole community," which includes all levels of government, the private and nonprofit sectors, and individual citizens. Acknowledging the national preparedness goal, the NRC maintains the sole legal authority to establish any regulations it deems necessary to ensure the adequate protection of public health and safety from radiological events.

For a decommissioning site, the licensee, as part of the whole community, will maintain radiological EP capabilities. Only in the highly unlikely event of a zirconium fire—in which mitigation actions were not successful—would there be a potential need to initiate response actions offsite. But unlike the EP planning basis for an operating reactor, within a few months of cessation of operations, there is no longer a potential need to provide for prompt offsite protective actions in the event of an accident at a decommissioning site. Additionally, protective actions such as evacuation are not unique to radiological events and occur in response to other unique hazards such as chemical spills, fires, and natural disasters, and are often initiated without any pre-planning. In NUREG-0396, the NRC states that "It has been, and continues to be the Federal position that it is possible (but exceedingly improbable) that accidents could occur calling for additional resources beyond those that are identified in specific emergency plans developed to support specific individual nuclear facilities. Further, the NRC and Federal position has been and continues to be, that as in other disaster situations, additional resources would be mobilized by State and Federal agencies."

State and local governments are responsible for the protection of public health

and safety (including at industrial sites like decommissioning reactors), and the NRC has high confidence in the ability of OROs to implement appropriate response actions when necessary. This confidence is further strengthened by the NRC's recognition of national-level efforts, in which the NRC participates, to improve the state of emergency planning at all levels of government and within the whole community. Consequently, for facilities licensed by the NRC where radiological hazards are highly unlikely to have an offsite impact, the risk posed by the remaining low-level hazard is analogous to that posed by non-nuclear hazards (e.g., train derailments or oil spills) that are addressed by all-hazards planning and not by a separate offsite radiological emergency plan. In such conditions, there is reasonable assurance that appropriate response actions can and will be taken in the event of a radiological emergency, without the need for regulatory standards for offsite radiological emergency response plans and the associated FEMA findings and determinations that offsite plans are adequate and can be implemented.

*11. Clean-up of Regulations*

The NRC is removing obsolete dates and requirements for certain one-time actions that were required as part of the 2011 EP Final Rule and other obsolete dates. The associated actions are complete, and the requirements are no longer binding on any current licensee. The dates and requirements that are being removed are:

(1) Paragraph 6 of appendix E to 10 CFR part 50, section I, which was used to promulgate specific compliance dates for the Tennessee Valley Authority's Watts Bar Nuclear Plant, Unit 2, which was under construction at the time of the 2011 EP Final Rule. Because the Watts Bar Nuclear Plant, Unit 2, is now operational and subject to all current requirements for operating reactors, the NRC is deleting this provision.

(2) Appendix E to 10 CFR part 50, paragraph IV.4, which required nuclear power reactor licensees to develop an ETE analysis using decennial data published within 365 days of the later of the date of the most recent decennial data or December 23, 2011.

There is no longer a need for the date requirement of this provision because that date has passed. Therefore, the NRC is deleting “later of the date of the” and “or December 23, 2011” from this provision.

(3) Appendix E to 10 CFR part 50, paragraph IV.A.7, which required licensees to identify and describe the expected assistance from appropriate local, State, and Federal agencies during an emergency, including a hostile action, by June 23, 2014. The NRC is deleting “By June 23, 2014” from this provision because that date has passed.

(4) Appendix E to 10 CFR part 50, paragraph IV.A.9, which required licensees to conduct a detailed analysis by December 24, 2012, demonstrating that on-shift personnel are not assigned responsibilities that would prevent the timely performance of assigned functions in the emergency plan. The NRC is deleting “By December 24, 2012” from this provision because that date has passed.

(5) Appendix E to 10 CFR part 50, paragraph IV.B.1, which required licensees, by June 20, 2012, to establish EALs that include hostile action that may adversely affect the nuclear power plant. There is no longer a need for the date requirement of this provision because that date has passed. Therefore, the NRC is removing “By June 20, 2012” and retaining the remainder of the provision.

(6) Appendix E to 10 CFR part 50, paragraph IV.C.2, which required licensees, by June 20, 2012, to establish and maintain the capability to assess, classify, and declare an emergency condition within 15 minutes after indications that an EAL had been exceeded. There is no longer a need for the date requirement of this provision because that date has passed. Therefore, the NRC is deleting “By June 20, 2012” and retaining the remainder of the provision.

(7) Appendix E to 10 CFR part 50, paragraph IV.E.8.c, which required licensees’ EOFs to have the capabilities required under the section by June 20, 2012. Because the date requirement of this provision has passed, the NRC is deleting “By June 20, 2012”

from this provision.

(8) Appendix E to 10 CFR part 50, paragraph IV.E.8.d, which required licensees to identify an alternative facility that would be accessible in the event of hostile action by December 23, 2014, with the exception of the capability for staging ERO personnel at the alternative facility and communications capabilities with emergency responses facilities, which had to be implemented by June 20, 2012. There is no longer a need for the date requirements of this provision because those dates have passed. Therefore, the NRC is deleting the date requirements.

(9) Appendix E to 10 CFR part 50, paragraph IV.F.2.d, which required licensees to fully participate in one hostile action exercise by December 31, 2015. Because the date requirement of this provision has passed, the NRC is deleting “and should fully participate in one hostile action exercise by December 31, 2015” from this provision.

(10) Appendix E to 10 CFR part 50, paragraph IV.F.2.j.(v), which required licensees to conduct a hostile action exercise for each of their sites no later than December 31, 2015. Because the date requirement of this provision has passed, the NRC is deleting this provision.

(11) Appendix E to 10 CFR part 50, paragraph IV.I, which required licensees, by June 20, 2012, to provide a range of protective actions to protect onsite personnel during hostile action. Because the date requirement of this provision has passed, the NRC is deleting “By June 20, 2012” from this provision.

The NRC is eliminating completed one-time requirements and completion dates in the interest of regulatory clarity. Eliminating these provisions will not relax any currently effective regulatory requirement or cause any regulatory burden for current or future licensees or applicants.

*12. Revisions to § 72.32*

The NRC is amending § 72.32(a) to address the applicability of that provision’s

requirement that an application for a specific license ISFSI must include an emergency plan that includes the information in § 72.32(a)(1) through (16). The amendment clarifies that the requirement applies when the proposed ISFSI will not be located on the site or within the exclusion area of a nuclear power reactor licensed under 10 CFR part 50 or 10 CFR part 52. A nuclear power reactor licensed under 10 CFR part 50 or 10 CFR part 52 could be under construction, operating, or in decommissioning. These revisions consolidate the current language and remove redundancies by using standardized language consistent with other amendments in this final rule.

The NRC is amending § 72.32(c) to clarify that the nuclear power reactor referenced in that provision need not be authorized to operate for the ISFSI licensee to use the emergency plan requirements in § 50.47 to meet the requirements of § 72.32. Currently, § 72.32(c) applies to ISFSI licensees located on the site or within the exclusion area of a nuclear power reactor that is licensed to operate. Because a nuclear power reactor licensee is not authorized to operate once the NRC dockets the certifications required under § 50.82(a)(1) or § 52.110(a), § 72.32(c) could be read not to apply to an ISFSI licensee at a decommissioning reactor site. However, the current language of § 72.32 allows an ISFSI licensee with a reactor emergency plan to use that emergency plan to meet the applicable requirements for an ISFSI emergency plan. Therefore, this final rule clarifies that, when the nuclear power reactor is under construction, operating, or in decommissioning, the ISFSI licensee can rely on the emergency plan requirements in § 50.160, the requirements in appendix E to 10 CFR part 50 and § 50.47(b), or the requirements of § 50.200(a) or (b), to meet the requirements of § 72.32.

*13. Departure from a License Condition or a Technical Specification*

Section 50.54(y) of the NRC's regulations establishes the decision-making authority to decide when a licensee may depart from a license condition or TS in an

emergency when such action is immediately needed to protect the public health and safety, as permitted in § 50.54(x). In the proposed rule, the NRC proposed changes to § 73.55(p)(1), which allows for the suspension of security measures in an emergency or during severe weather, to make that provision consistent with current § 50.54(y). Thus, in the proposed rule, both provisions would have allowed, as a minimum, a senior licensed operator or CFH to have the authority to take the actions allowed under § 50.54(x) or § 73.55(p)(1) during decommissioning. As discussed in section III.B.6, "Suspension of Security Measures," of this document, public comments on the proposed rule suggested that the NRC include a separate provision in § 73.55(p)(1) for when all spent fuel from the reactor is in dry cask storage (i.e., when the facility is in Level 3). The NRC agrees with these comments for § 73.55(p) and is making similar changes to § 50.54(y). The NRC is also revising § 50.54(y) to clarify terminology.

The only change to § 50.54(y) in this final rule for an operating nuclear power reactor is in terminology. Before submitting the certifications required under § 50.82(a)(1) or § 52.110(a) to the NRC, decisions to depart from a license condition or TS must be approved by a senior licensed reactor operator or an organizationally senior individual. For licensees that have submitted the § 50.82(a)(1) or § 52.110(a) certifications but have not yet placed all spent fuel in dry cask storage, decisions to depart from a license condition or TS must be approved by a senior licensed reactor operator, CFH, or organizationally senior individual. Compared to the current § 50.54(y), this provision represents a change in terminology, as well as a change to the applicable phase of decommissioning when these actions can be taken. The latter change results from the addition to § 50.54(y) of a provision for Level 3.

In Level 3, the individual who must approve the decisions to depart from a license condition or TS is an individual designated by the licensee or an organizationally senior individual. In most cases, these individuals will be a security supervisor. The

NRC's main consideration for removing this authority from a CFH in Level 3 is that the fuel is in a static, passively cooled state, and licensees may not have CFHs onsite. Based on those factors, the authority to invoke § 50.54(x) is assigned to individuals specifically designated by the licensee. The designation assures that both responsibility and accountability for the invocation of § 50.54(x) in Level 3 continues to reside with licensee-identified individuals that have established organizational reporting relationships. For these reasons and to maintain alignment between licensees' safety and security programs, the NRC is making the same change to § 73.55(p)(1), as described in section III.B.6 of this document.

The term "organizationally senior individual" is being used in this final rule to clarify the NRC's position and replace the words "as a minimum" in current § 50.54(y). An organizationally senior individual is a senior licensee representative responsible for overall site safety and security. These individuals should be in the direct reporting chain for the on-shift senior licensed reactor operator during Level 1 (e.g., operations manager, plant manager, site vice-president), on-shift senior licensed reactor operator or CFH during Level 2, and the individual designated by the facility licensee during Level 3. The basis for this position comes from the preamble for the final rule that established § 50.54(x) and (y) ("Applicability of License; Conditions and Technical Specifications in an Emergency," 48 FR 13966; April 1, 1983). In that preamble, the Commission stated that if "more senior licensee personnel" than the senior licensed reactor operator are available, "the decision to depart from the license in an emergency would pass to them (as higher authorities in the chain of command)."

*B. Physical Security*

The NRC's regulations governing physical security at a nuclear power reactor typically do not distinguish between an operating nuclear power reactor and a nuclear power reactor that is in a decommissioning status. However, the security risk profile

presented by a decommissioning reactor decreases significantly from that of an operating nuclear power reactor due to the reduction in the number of target sets and the reduced consequences of radiological sabotage. The radiological consequences of a security event decrease as reactors transition through each of the following four levels of decommissioning: (1) permanent cessation of operations and permanent removal of all fuel from the reactor vessel, (2) sufficient decay of fuel in the SFP such that it would not reach the zirconium fuel cladding ignition temperature within 10 hours under adiabatic heat up conditions, (3) transfer of all fuel to dry storage, and (4) removal of all fuel from the site. Decommissioning nuclear power reactor licensees have sought NRC approval of exemptions from, license amendments for, and alternative measures to, certain physical security regulatory requirements because of the reduction in the number of target sets and the reduced consequences of radiological sabotage as the nuclear power reactor site transitions through these levels. This final rule provides options to allow nuclear power reactor licensees to make certain commonly requested changes to their physical security plans based on these decommissioning levels without requesting exemptions, alternative measures, or license amendments.

*1. Security Plans*

Upon the cessation of operations and removal of all fuel from the reactor vessel, licensees typically seek to modify their security plans to reflect changes in site conditions. The current regulations in § 50.54(p) establish processes that allow licensees to make changes to their security plans. Section 50.54(p)(1) requires licensees to seek NRC review and approval of any changes that result in a decrease in safeguards effectiveness of their security plans. Section 50.54(p)(2) allows licensees to make changes to their security plans without prior NRC approval provided that the changes do not decrease the safeguards effectiveness of the plan.

The current regulations do not define the term “decrease in safeguards

effectiveness" nor do they include examples of the types of changes that would constitute a decrease in safeguards effectiveness. Additionally, there is no definition of the term "change." This lack of clear definitions has resulted in difficulties for licensees implementing security plan changes. For example, some licensees have implemented changes under § 50.54(p)(2) that the NRC later determined decreased the safeguards effectiveness of their security plan. Similarly, some licensees have unnecessarily requested NRC review and approval of changes that did not decrease the safeguards effectiveness of their security plan.

The NRC is revising § 50.54(p) to include definitions of the terms "change" and "decrease in safeguards effectiveness." The application of these definitions is limited to § 50.54(p) and applies to all 10 CFR part 50 and 10 CFR part 52 licensees with operating, decommissioning, and/or decommissioned reactor units, and general license ISFSIs. The term "change" is defined in the new § 50.54(p)(1)(i) to mean an action that results in a modification of, addition to, or removal from, the licensee's security plans. The NRC received comments on the proposed rule that noted that the proposed definition for a "decrease in safeguards effectiveness" was tailored for use by licensees that implement security plans that implement interdiction and neutralization. This definition would only allow for its use for power reactor security plan changes. In this final rule, the NRC is defining "decrease in safeguards effectiveness" to allow for its use by any licensees that implement security plans referenced in the new § 50.54(p)(2). The term "decrease in safeguards effectiveness" is defined in the new § 50.54(p)(1)(ii) to mean a change or series of changes to an element or component of the security plans referenced in the new § 50.54(p)(2) that reduces or eliminates the licensee's ability to meet the performance objectives and capabilities of the applicable physical protection program or system required by 10 CFR part 73.

Currently, decommissioning (and operating) reactor licensees and general

license ISFSIs use the existing § 50.54(p)(2) (new § 50.54(p)(3)) process to implement changes that they have determined do not decrease the safeguards effectiveness of their security plans. This process requires that licensees submit a report of these changes to the NRC. In addition to a description of these changes, reactor licensees have typically included in their report supplemental information demonstrating that such changes do not constitute a decrease in safeguards effectiveness. The submittal of this supplemental information in the reports has been voluntary. The NRC's practice is to review these reports to confirm that the licensee properly concluded that the changes would not decrease the safeguards effectiveness of their Commission-approved security plan. The submittal of supplemental information in the reports allows the NRC to evaluate in a timely manner that the change does not result in a decrease in the safeguards effectiveness of the plan. Without this supplemental information, the NRC could only make this determination through the inspection process. Therefore, the NRC is requiring that licensees include with the required report a summary of the analysis performed to determine that the change does not decrease safeguards effectiveness of the security plan. The summary must be sufficient to demonstrate that the change does not decrease the safeguards effectiveness of the Commission-approved security plan.

*2. Dry Cask Storage*

An ISFSI located at a nuclear power reactor site is typically licensed under a general license issued pursuant to subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites," of 10 CFR part 72. Under a general license, licensees are required to protect the SNF in the ISFSI in accordance with the physical security requirements in § 73.55, with the additional conditions and exceptions noted in § 72.212, "Conditions of general license issued under § 72.210." The NRC also licenses certain ISFSIs under a 10 CFR part 72 specific license. Consistent with § 72.180, "Physical protection plan," licensees holding a specific license are required to protect the SNF in

the ISFSI in accordance with the physical security requirements in § 73.51.

Although the physical security requirements that apply to general license ISFSIs and specific license ISFSIs provide equivalent levels of protection, there are differences in these two protection frameworks. For instance, at a power reactor, § 73.55 requires licensees to ensure they maintain the capability to detect, assess, interdict, and neutralize threats to protect against significant core damage and spent fuel sabotage. Section 73.51 requires licensees to detect and assess threats and communicate with an appropriate response organization. As stated at the beginning of this section, decommissioning reactors typically transition through four distinct levels during decommissioning. Many decommissioning licensees have submitted license amendment requests, requests for exemptions, and requests for approval of alternative measures to remove § 73.55 physical security requirements that are no longer applicable once the licensee enters the third decommissioning level, which is when all SNF has been moved to a dry cask storage system.

Under this final rule, once all SNF has been placed in dry cask storage, licensees may elect to follow § 72.212(b)(9)(vii) and protect a general license ISFSI in accordance with the physical security requirements in § 73.51. The applicability section of § 73.51 is also being amended to reflect this change. A licensee can use the process established in the revised and renumbered § 50.54(p)(3) to make this change and submit its revised physical security plan to the NRC. The licensee's physical protection system must continue to address the terms of any applicable security-related orders associated with an ISFSI. The NRC is also revising § 72.13, "Applicability," to reflect the requirements that will apply to a licensee that elects to follow § 72.212(b)(9)(vii).

*3. Significant Core Damage*

The prevention of significant core damage and spent fuel sabotage is a general performance objective of the reactor licensee physical protection program required by §

73.55. During the first level of decommissioning, when the NRC has docketed a licensee's certifications that the reactor has permanently ceased operations and all fuel has been removed from the reactor vessel and placed in the SFP, there is no longer fuel in the core and therefore the risk to public health and safety from significant core damage has been removed. This reduced risk allows licensees to eliminate requirements to protect against significant core damage or train security and operational personnel to protect and respond to core damage events.

Under this final rule, the licensee of a decommissioning nuclear power reactor is no longer required to meet the requirement in § 73.55(b)(3) to protect against significant core damage once the NRC has docketed a licensee's certifications that the reactor has permanently ceased operations and all fuel has been removed from the reactor vessel. The requirement in § 73.55(b)(3) to protect against spent fuel sabotage remains in effect as long as spent fuel remains in the SFP.

*4. Vital Areas*

A vital area (VA) is defined in § 73.2, "Definitions," as any area that contains vital equipment. Under § 73.2, vital equipment means any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger public health and safety by exposure to radiation. The NRC also considers the equipment or systems that would be required to function to protect public health and safety following such a failure, destruction, or release to be vital. There are specific physical security requirements for the protection of VAs and vital equipment. The current regulation in § 73.55(e)(9)(v) specifies that the reactor control room shall be considered a VA.

The role of the reactor control room at an operating plant, as described in Criterion 19, "Control room," of appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR part 50, is to provide a protected space from which actions can be

taken to operate the nuclear power plant safely without interruption under normal or accident conditions. For a permanently shutdown and defueled nuclear power reactor, the vital equipment associated with operating the reactor vessel is no longer needed. The remaining vital equipment (e.g., associated with SFP cooling) may no longer be needed or may be relocated to a VA separate from the reactor control room. Once a reactor has permanently ceased operations, the need for a reactor control room is eliminated if all the vital equipment is removed and if the area does not serve as the VA boundary for other VAs. This final rule revises § 73.55(e)(9)(v) to provide that the licensee of a decommissioning nuclear power reactor no longer needs to designate the reactor control room as a VA if the licensee has submitted and the NRC has docketed the certifications required under § 50.82(a)(1) or § 52.110(a), and the licensee has documented that all vital equipment has been removed from the control room and the control room does not serve as the vital area boundary for other vital areas.

*5. Communications*

Currently § 73.55(j)(4)(ii) requires continuous and redundant communications between the reactor control room and the alarm stations. Once a nuclear power reactor has permanently ceased operations, a licensee may no longer have a reactor control room, or a licensed senior operator present in a reactor control room. Therefore, it may not be feasible for the licensee of a decommissioning nuclear power reactor to comply with the current regulatory requirement. Licensees typically request an exemption from this requirement and request that the alarm stations be allowed to establish continuous and redundant communications with the CFH or senior onsite licensee representative.

The NRC is amending § 73.55(j) to require continuous and redundant communications be maintained between the alarm stations and the CFH or senior on-shift licensee representative once the reactor has ceased operations and the licensee no longer has licensed senior operators in the control room. The intention of this change is

to allow licensees flexibility in maintaining communications with one or both of these individuals.

The final rule otherwise retains all the communication requirements of the current rule: continuous communication capability with onsite and offsite resources; radio or microwave transmitted two-way voice communication, in addition to conventional telephone service, between the alarm stations and local law enforcement authorities; and alternative communication measures in place in areas where communication could be interrupted or cannot be maintained.

*6. Suspension of Security Measures*

Current regulations in § 73.55(p) allow for the suspension of security measures in an emergency or during severe weather. At a minimum, a licensed senior operator must approve the suspension of security measures (with input from the security supervisor or manager under § 73.55(p)(1)(ii)). Once a nuclear power reactor has entered decommissioning status and all fuel has been removed from the reactor, there may no longer be a licensed senior operator on site. Therefore, it may not be possible for the licensee of a decommissioning nuclear power reactor to implement this requirement in the event of an emergency or severe weather.

In the proposed rule, the NRC proposed to amend the requirements in § 73.55(p)(1)(i) and (ii) to allow a CFH, as a minimum, to suspend security measures in the event of an emergency or severe weather (with input from the security supervisor or manager under § 73.55(p)(1)(ii)) once the reactor has shut down and all fuel has been removed from the reactor core. The NRC is including these changes in this final rule. As discussed in section III.A.13, “Departure from a License Condition or a Technical Specification,” of this document, these changes to § 73.55(p)(1) are consistent with the existing regulations in § 50.54(x) and (y) that govern approvals for reasonable actions that a licensee may take to depart from a license condition or a TS in an emergency.

The NRC received comments on the proposed rule that requested that the NRC, consistent with the NRC's Regulatory Issue Summary 2008-26, "Clarified Requirements of Title 10 of the Code of Federal Regulations (10 CFR) Section 50.54(y) When Implementing 10 CFR Section 50.54(x) to Depart from a License Condition or Technical Specification," clarify that decisions to suspend security measures under § 73.55(p) can be authorized by a senior licensed operator, a CFH (for licensees who have docketed the § 50.82(a)(1) or § 52.110(a) certifications), or any individual in a superior position to a senior licensed operator or CFH. Other comments concerned the use of a licensed senior operator or a CFH during dry storage because these positions are normally not maintained at an ISFSI.

In response to these comments, the NRC is amending § 73.55(p)(1) to use the term "organizationally senior individual" instead of "as a minimum" and to require that, once all spent fuel has been placed in dry cask storage, the approval authority to suspend security measures during emergency conditions and severe weather lies with individuals designated by the facility licensee or an organizationally senior individual. The basis for these changes is described in section III.A.13 of this document, including why approval authority to depart from a license condition or TS under § 50.54(y) (which is equivalent to the authority to suspend security measures during emergency conditions and severe weather under § 73.55(p)(1)) lies with an organizationally senior individual when such an individual is available. By making similar changes to §§ 50.54(y) and 73.55(p)(1), the NRC is promoting consistency in approval authorities across licensees' safety and security programs, which will facilitate licensee response during the types of events addressed by these regulations.

As a result of this final rule, for an operating nuclear power reactor, decisions to suspend security measures under § 73.55(p)(1) must be approved by a senior licensed reactor operator or an organizationally senior individual (with input from the security

supervisor or manager under § 73.55(p)(1)(ii)). This is a change in terminology from “as a minimum” to “an organizationally senior individual” but not a substantive change from the current regulations. For licensees that have submitted the § 50.82(a)(1) or § 52.110(a) certifications but have not yet placed all spent fuel in dry cask storage, decisions to suspend security measures must be approved by a senior licensed reactor operator, CFH, or organizationally senior individual. Compared to the proposed rule, this is a change in terminology and a change to the applicable phase of decommissioning when the actions can be taken. The latter change occurs because of the addition of a requirement for when the licensee is in Level 3 of the NRC’s graded approach to decommissioning: during dry cask storage, the individual who must approve the decisions to suspend security measures under § 73.55(p)(1) will be an individual designated by the licensee or an organizationally senior individual.

The NRC is also fixing an inconsistency presented in the proposed rule. In the proposed rule, the NRC would have required that the suspension of security measures under § 73.55(p)(1)(i) and (ii) be approved by either a licensed senior operator or a CFH if the certifications required under § 50.82(a)(1) or § 52.110(a) had been docketed by the NRC. However, in similar emergency circumstances, the proposed rule would have required the decision to depart from a license condition or a TS under § 50.54(x) and (y) be approved by either a licensed senior operator or a CFH if the certifications required under § 50.82(a)(1) or § 52.110(a) had been submitted by the licensee to the NRC. So, in certain emergency situations, a CFH could approve the actions under § 50.54(x) but not under § 73.55(p)(1) if the certifications had been submitted by the licensee but not yet docketed by the NRC. To avoid an unnecessary procedural complication and to ensure the alignment of site processes during an emergency, the NRC is changing the term “docketed” in proposed § 73.55(p)(1)(i) and (ii) to “submitted” in this final rule to be consistent with § 50.54(y).

*C. Cybersecurity*

The NRC is updating the cybersecurity requirements in § 73.54, “Protection of digital computer and communication systems and networks” for nuclear power reactor licensees to clarify the cybersecurity requirements applicable to a nuclear power reactor during each stage of the decommissioning process.

As stated in current § 73.54, applicants and licensees must provide high assurance that their digital computer and communication systems and networks associated with safety and important-to-safety, security, and emergency preparedness (SSEP) functions are adequately protected against cyberattacks, up to and including the design-basis threat described in § 73.1, “Purpose and scope.” To accomplish this, each holder of a nuclear power reactor operating license under 10 CFR part 50 has submitted a cybersecurity plan (CSP) to the NRC that has been approved by the NRC. Further, each COL applicant under 10 CFR part 52 is required to submit its CSP as part of its COL application for review and approval by the NRC. Each approved CSP is referenced in a license condition in each 10 CFR part 50 license, and this license condition requires a licensee to maintain its CSP until the license is terminated or the license condition is removed by license amendment. A COL holder does not have an equivalent cybersecurity license condition.

The cybersecurity requirements in § 73.54 apply to licensees currently licensed to operate a nuclear power plant. Once the NRC has docketed a licensee’s § 50.82(a)(1) or § 52.110(a) certifications, that licensee is no longer authorized to operate a nuclear power plant. Therefore, the requirements in § 73.54 would no longer apply to such a licensee. However, each 10 CFR part 50 licensee has a license condition requiring the licensee to maintain its CSP, and this license condition remains in effect during decommissioning. A COL holder, without the CSP license condition, is not required to maintain its CSP when it begins decommissioning.

Although a licensee that has submitted its § 50.82(a)(1) or § 52.110(a) certifications is no longer operating, such a licensee may still have fuel recently removed from the reactor vessel in its SFP. As discussed in the "Technical Basis for Graded Approach" section of this document, if the spent fuel in the SFP has not sufficiently decayed, there is a risk that the spent fuel could heat up to clad ignition temperature and lead to a zirconium fire for postulated draindown scenarios in a timeframe that is too short to reliably implement mitigation measures or to take other appropriate response actions.

As further discussed in the "Technical Basis for Graded Approach" section of this document, in Level 2 there is little chance that the spent fuel in the SFP could heat up to clad ignition temperature within 10 hours. Accordingly, cybersecurity requirements in § 73.54 continue to apply to licensees through Level 1 but are removed in Level 2 and beyond in this final rule. This continuation of the cybersecurity requirements in Level 1 ensures that a compromise of digital systems cannot adversely impact the effective operation of the licensees' physical security programs and emergency functions prior to the time at which the spent fuel cannot reasonably heat up to clad ignition temperature within 10 hours after a draindown event. Although the cybersecurity requirements would continue to apply through Level 1, the number of critical digital assets would decrease as systems are removed from service, which in turn reduces the number of critical digital assets that must be protected by the CSP.

To clarify the applicability of the cybersecurity requirements to decommissioning nuclear power reactor licensees, the NRC is adding two paragraphs to § 73.54. New § 73.54(i) states that the requirements of § 73.54 will remain in effect until: (1) the NRC has docketed the licensee's § 50.82(a)(1) or § 52.110(a) certifications, and (2) at least 10 months for a BWR or 16 months for a PWR have elapsed since the date of permanent cessation of operations, or an NRC-approved alternative to the 10- or 16-

month spent fuel decay period, submitted under § 50.54(q)(8)(ii)(A) or (B), has elapsed. New § 73.54(j) also states that, after both requirements of § 73.54(i) have been met, the licensee's license condition that requires implementation and maintenance of a cybersecurity plan would be deemed removed from the license. Removal of this license condition is discussed further in section III.O, "Removal of License Conditions and Withdrawal of Orders," of this document.

The NRC is also removing the introductory paragraph of § 73.54 in its entirety and revising the language of § 73.54(a), (b), and (c). These are conforming changes that clarify that the applicability of § 73.54 is not limited to "operating" reactors (i.e., that § 73.54 would still be applicable after the NRC has docketed a licensee's § 50.82(a)(1) or § 52.110(a) certifications), remove language that is no longer needed concerning the initial submission of cybersecurity plans by existing licensees, and add clarifying language to § 73.54(b) and (c). Further, the NRC is changing § 73.55(c)(6), which requires the licensee to establish, maintain, and implement a cybersecurity plan. This is a conforming change to reflect the scenario in which a decommissioning nuclear power reactor licensee is no longer required to maintain a cybersecurity plan (i.e., the NRC has docketed the certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, and the fuel in the SFP has sufficiently decayed) but is still required to comply with § 73.55(c).

The revision to § 73.54(a) does not constitute backfitting for 10 CFR part 50 licensees. The revision constitutes a change affecting the issue finality of COL holders; extending the requirement to maintain a CSP during decommissioning would be a new requirement imposed on COL holders. The NRC's backfit analysis that justifies this change is located in section IX.C, "Backfit Analysis," of this document.

The NRC received public comments on the proposed rule requesting that the NRC clarify in § 73.55(b)(9) what elements of cybersecurity would be needed for the IMP

at Level 2 and beyond. Under § 73.55(b)(9), a licensee is required to establish, maintain, and implement an IMP to monitor the initial and continuing trustworthiness and reliability of individuals granted unescorted access authorization (UAA) or unescorted access (UA) to a protected area (PA) or VA.

One commenter recommended that the NRC clarify that once Level 2 is reached, no elements of cybersecurity would be needed for the IMP. The NRC agrees with this comment. As explained earlier in this section, cybersecurity requirements are not needed once a licensee reaches Level 2 of the decommissioning graded approach. The IMP requirements in § 73.55(b)(9)(ii)(C) need to reflect this graded approach. Accordingly, the NRC is revising the rule language in response to these comments. Specifically, this final rule revises § 73.55(b)(9)(ii)(C) to clarify that no elements of a cybersecurity plan are required for the IMP once Level 2 is reached during decommissioning.

*D. Drug and Alcohol Testing*

*1. Scope of 10 CFR Part 26*

The NRC is amending § 26.3 to correct an inconsistency within § 26.3(a) where the FFD requirements in 10 CFR part 26 apply differently to 10 CFR part 50 and 10 CFR part 52 licensees with decommissioning nuclear power reactors. The § 26.3(a) provision lists those licensees that are required to comply with designated subparts of 10 CFR part 26, including licensees who are authorized to operate a nuclear power reactor under § 50.57, “Issuance of operating license,” and holders of a combined license under 10 CFR part 52 after the Commission has made the finding under paragraph (g) of § 52.103, “Operation under a combined license.” In accordance with this requirement, 10 CFR part 26 does not apply to the holder of a nuclear power reactor license issued under 10 CFR part 50 that is no longer authorized to operate a nuclear power reactor because the NRC has docketed the certifications required under § 50.82(a)(1) (i.e., a decommissioning 10

CFR part 50 nuclear power reactor licensee). However, 10 CFR part 26 continues to apply to holders of combined licenses issued under 10 CFR part 52 throughout decommissioning. Therefore, there is an inconsistency in the application of FFD requirements to nuclear power reactor licensees during decommissioning.

The NRC has determined that there is no technical basis for this inconsistency. In the 1989 10 CFR part 26 final rule (54 FR 24468; June 7, 1989) (1989 FFD Final Rule), the Commission explained that the intent of that rule was to address the potential for worker impairment of any kind, including substance abuse, which could affect the safe operation of nuclear power plants. The emphasis throughout the 1989 FFD Final Rule is that the rule is necessary to promote public health and safety when the plant is operational. The wording for 10 CFR part 52 licensees described in the scope of the 2008 10 CFR part 26 final rule (73 FR 16966; March 31, 2008) (2008 FFD Final Rule), specifically § 26.3(a), was an oversight. The emphasis of the 1989 FFD Final Rule that FFD need only apply to operating 10 CFR part 50 sites should be the same for 10 CFR part 52 licensees. Due to the decreased risk to public health and safety during decommissioning, 10 CFR part 26 should not apply to these licensees during decommissioning.

Therefore, the NRC is clarifying that 10 CFR part 26 does not apply to 10 CFR part 52 licensees once the NRC has docketed their § 52.110(a) certifications. Section 26.3(a) of this final rule specifies that each holder of an operating license for a nuclear power reactor under 10 CFR part 50 and each holder of a COL under 10 CFR part 52 for which the Commission has made the finding under § 52.103(g) must comply with the requirements of 10 CFR part 26, except for subpart K, “FFD Program for Construction,” of 10 CFR part 26, until the NRC’s docketing of the license holder’s certifications required in § 50.82(a)(1) or § 52.110(a).

For clarity, the NRC divided the current paragraph of § 26.3(a) into two

paragraphs. Revised paragraph (a)(1) retains the requirement in the second sentence of current § 26.3(a) to state the deadline by which licensees must implement their FFD program. Revised paragraph (a)(2) retains the requirement in the first sentence of current § 26.3(a) that these licensees must comply with the requirements of 10 CFR part 26, except subpart K, but clarifies that this requirement ends when the NRC dockets the licensee's § 50.82(a)(1) or § 52.110(a) certifications.

*2. Fitness-for-Duty Elements for Insider Mitigation Program*

Section 73.55(b)(9)(ii)(B) requires that an IMP must contain elements of an FFD program described in 10 CFR part 26. However, the regulations do not identify which FFD program elements must be included in the IMP. Section 73.55(b)(9)(ii)(B)(*1*) and (*2*) of this final rule amends § 73.55(b)(9)(ii)(B) to establish an appropriate set of FFD provisions to be incorporated into the IMPs of operating and decommissioning 10 CFR part 50 and 10 CFR part 52 licensees to provide reasonable assurance that individuals granted UAA or UA to the PA or VA are trustworthy and reliable.

Section 73.55(b)(9)(ii)(B)(*1*) of this final rule clarifies § 73.55(b)(9)(ii)(B) that licensees implementing 10 CFR part 26, regardless of whether they are required to do so, are in compliance with § 73.55(b)(9)(ii)(B). A licensee's full 10 CFR part 26 FFD program (i.e., an FFD program that complies with all applicable 10 CFR part 26 requirements) contains FFD elements appropriate for inclusion in the licensee's IMP. This applies to both operating and decommissioning licensees.

Section 73.55(b)(9)(ii)(B)(*2*)(*i*) and (*ii*) of this final rule describes the minimum 10 CFR part 26 elements necessary for a 10 CFR part 50 and 10 CFR part 52 decommissioning licensee's IMP. Section 73.55(b)(9)(ii)(B)(*2*)(*i*) of this final rule states that individuals who have UA to the VAs at a decommissioning site, perform the functions of a CFH (as defined in § 50.2) prior to all SNF at a site being placed in dry cask storage, perform security-related functions (i.e., security personnel described in §

26.4(a)(5)), or administer the FFD program (i.e., FFD program personnel described in § 26.4(g)), are subject to the requirements in 10 CFR part 26 except for subpart I, "Managing Fatigue," and subpart K. Individuals with UA to the VA have access to the SFP or perform work around the SFP and, thus, may have knowledge of value to an adversary. CFHs maintain UA to the VA and are essential to the safe movement of SNF. Individuals who have security-related responsibilities maintain UA to the VA and generally carry weapons on site, which would pose a significant challenge to site security if they were to perform as an active violent insider during an attack. FFD program personnel who administer the FFD program perform functions such as making authorization decisions under 10 CFR part 26 for individuals to be considered for UA to the VA or PA, or collecting specimens for alcohol and drug testing, which are essential to the integrity of the FFD program.

In the proposed rule, the NRC proposed a new § 73.55(b)(9)(ii)(B)(*2*)(*ii*) that would have subjected individuals who have UA to the PA, but do not perform CFH or security-related functions or administer the FFD program, to pre-access and for-cause testing (§ 26.31(c)(1) and (2)) and behavior observation (§ 26.33) but not require other types of testing, such as random testing (§ 26.31(c)(5)). The NRC proposed to relax these requirements because, while the reactor is in decommissioning, the potential contribution of these personnel to support an adversary as an insider is reduced. Individuals who do not have any security-related responsibilities or regular SFP area UA will have less potential contribution as an insider threat. However, a limited FFD program is still necessary under the IMP for individuals who have UA to the PA. For example, UA to the PA affords individuals with the opportunity to surveil facility operations and staffing functions, both of which could be of use to an adversary.

The NRC received numerous comments on proposed § 73.55(b)(9)(ii)(B)(*2*)(*ii*). Several comments supported the limited FFD program elements of pre-access and for-

cause testing and a behavioral observation program included in the proposed rule that would apply to individuals who have UA to the PA. Other comments claimed that the limited number of FFD program elements would strip away defense-in-depth and undermine the basic function of the FFD program. The NRC agrees that the following additional FFD program elements should apply to the individuals who have UA to the PA: FFD policy and procedures (§ 26.27), training (§ 26.29), follow-up testing (§ 26.31(c)(4)), drug testing panel (§ 26.31(d)(3)), protection of information (§ 26.37), review of FFD policy violations (§ 26.39), self-disclosure (§ 26.61(a) and (b)), suitable inquiry (§ 26.63(d)), authorization with potential disqualifying FFD information (§ 26.69), sanctions (§ 26.75(a) through (g)), management actions regarding possible impairment (§ 26.77), specimens to be collected (§ 26.83), alcohol testing devices (§ 26.91), alcohol testing cutoff levels (§§ 26.99 and 26.103), subversion attempt detection procedures (§§ 26.105 and 26.111), use of U.S. Department of Health and Human Services' certified laboratories (§ 26.153), validity testing (§ 26.161), drug testing (§ 26.163), use of medical review officers (§ 26.183), use of substance abuse experts (§ 26.187), determinations of fitness (§ 26.189), records retention (§ 26.713), and FFD program performance reporting (§ 26.719). Each of these FFD program elements must already be maintained at a decommissioning power reactor site for the workforce covered under new § 73.55(b)(9)(ii)(B)(*2*)(*i*). These FFD program elements serve important functions that include detecting and deterring prohibited substance use and attempts to subvert the testing process, assessing and addressing potentially impairing FFD issues, providing donor protections, and ensuring enforceability and oversight of FFD program requirements.

The NRC has determined that the FFD elements necessary for an IMP under this final rule are commensurate with the hazard and potential event consequences associated with a facility's operational status. Section 73.55(b)(3) states that the physical

protection program must be designed to prevent significant core damage and spent fuel sabotage. Operating nuclear power reactor facilities contain many target sets located throughout the PA of potential interest to an adversary seeking to affect core damage or spent fuel sabotage; thus, anyone who has UAA or UA to the PA could contribute significantly to an adversary.

The hazard and potential event consequences associated with decommissioning facilities significantly decrease in comparison to those associated with the operating facilities. During decommissioning, the SFP becomes the primary focus of the licensee's obligation to protect against the radiological sabotage design-basis threat, as it becomes the location where all spent fuel is located when a nuclear power reactor is no longer operating and prior to transitioning the spent fuel to an ISFSI. With this perspective, this final rule tailors applicability of the FFD elements commensurate with the duties and access of personnel who have been granted UAA and maintain UA to the PA or VA.

*3. Criminal Penalties*

The NRC is amending the criminal penalties section of 10 CFR part 26 by including § 26.3 within § 26.825(a). Existing § 26.825(a) applies the NRC's authority under the AEA to impose criminal penalties for willful violations of, attempts to violate, or conspiracies to violate NRC regulations. Section 26.825(b) lists § 26.3 as one of the 10 CFR part 26 provisions that is excluded from § 26.825(a). In general, the criminal penalties sections of NRC regulations apply to substantive requirements, and administrative or procedural regulatory provisions are excluded from criminal penalties sections. The current § 26.3 is entitled "Scope" and identifies which entities are within the scope of 10 CFR part 26. Scoping provisions typically do not contain substantive requirements, which may explain why § 26.825(b) includes § 26.3. However, the current § 26.3(a) not only describes the entities that are subject to the requirements of 10 CFR part 26 but also includes a substantive requirement for certain entities to comply with

requirements in 10 CFR part 26 by a specific deadline. This requirement was added to § 26.3(a) in the 2008 FFD Final Rule, but § 26.825(b) was not updated to reflect this change, which was an oversight. This final rule does not change the substantive requirement in § 26.3(a). Because § 26.3(a) continues to impose a substantive requirement, the NRC is removing § 26.3 from § 26.825(b), thereby including § 26.3 in § 26.825(a).

*E. Certified Fuel Handler Definition and Elimination of Licensed Operators and the Shift Technical Advisor*

The NRC is making three revisions to its regulations related to staffing and training requirements. The first change amends the definition of a CFH in § 50.2 to provide an alternative that eliminates the need for licensees to seek NRC approval for fuel handler training programs. The new alternative definition requires a CFH to be responsible for decisions on safe conduct of decommissioning activities, safe handling and storage of spent fuel, and appropriate response to plant emergencies, and specifies that a CFH must be qualified in accordance with a fuel handler training program that meets the same requirements as training programs for non-licensed operators required by § 50.120. This change is consistent with the 1995 decommissioning proposed rule (60 FR 37374; July 20, 1995), where the NRC discussed that a CFH is an individual who has the requisite knowledge and experience to evaluate potential plant conditions and make judgments about emergency action decisions necessary to protect the public health and safety. This change provides consistency in the regulatory treatment of the training programs for non-licensed operators (which do not require NRC approval) and fuel handler training programs to qualify a non-licensed operator as a CFH (which currently require NRC approval). The second change clarifies that licensed operators (i.e., operators and senior operators) and an STA are not required for decommissioning reactors. These changes provide clarity to the CFH's responsibilities and functions, as

well as the role of an STA, by codifying current licensing practices. The third change amends the applicability of § 50.120 such that training programs derived from a systems approach to training (SAT) as defined in § 55.4, “Definitions,” are no longer required for the categories of nuclear power plant personnel that are no longer necessary at decommissioning plants.

*1. Alternative Definition for Certified Fuel Handler*

The current definition of a CFH in § 50.2 does not specify what is in an NRC-approved fuel handler training program. Licensees have submitted requests for the approval of CFH training and retraining programs in connection with their decommissioning activities. After receiving NRC approval of a CFH training program, the licensee typically submits a license amendment request to propose changes to the Administrative Controls section of the TS to include a CFH position, among other applicable changes based on the approval of the CFH training program.

For example, on May 12, 2014, the NRC approved the Shift Manager/CFH training program for Kewaunee. The NRC’s safety evaluation supporting approval of the CFH training program used criteria that focused on whether the licensee trained CFHs on the following three objectives: (1) safe conduct of decommissioning activities; (2) safe handling and storage of spent fuel; and (3) appropriate response to plant emergencies. These three objectives have subsequently been the basis for other NRC approvals of CFH training programs for licensees entering or planning to enter the decommissioning process, including Entergy for Vermont Yankee and the FitzPatrick Nuclear Power Plant and Exelon for the Oyster Creek Nuclear Generation Station (Oyster Creek), Clinton Power Station, and Quad Cities Nuclear Power Station.

In the safety evaluations for approved CFH training programs, the NRC discusses the 1996 Final Rule and its role in the development of the objectives for an acceptable CFH training program. The NRC recognized that the risks posed at

decommissioning reactors are significantly less than those posed by operating reactors. The NRC noted specifically that:

- While the spent fuel is still highly radioactive and generates heat caused by radioactive decay, no neutron flux is generated, and the fuel slowly cools as its energetic decay products diminish.
- The systems required for maintaining the spent fuel in the SFP as well as the operations required to contain the remaining residual contamination in the facility and SFP are relatively simple.
- Because the spent fuel is stored in a configuration that precludes a nuclear fission reaction, no generation of new radioactivity can occur and the potential for consequences that could result from an inadvertent nuclear reaction are highly unlikely.

Because of the reduced risks and relative simplicity of the systems needed for safe storage of spent fuel, the NRC explained in the 1996 Final Rule that the degree of regulatory oversight required for a nuclear power reactor during its decommissioning stage is considerably less than that required for the facility during its operating stage. Consistent with this reduction in NRC oversight at decommissioning sites, these plants will at some point no longer need a licensed operator. A properly trained CFH can fulfill the necessary role of ensuring that decommissioning activities and emergencies do not interfere with the safety of spent fuel without the added regulatory measure of licensure for those individuals fulfilling the CFH role.

In addition to using the three CFH training program objectives to evaluate the fuel handler training programs for licensees entering or planning to enter decommissioning, the NRC applied the criteria in § 50.120 and assessed the fuel handler training programs against the elements of an SAT. Section 50.120 identifies individuals required to be subject to an SAT, including non-licensed operators such as CFHs, and necessary elements for training programs for these individuals. These elements include the

requirement to periodically evaluate and revise the training program, as appropriate, to reflect changes to the facility (e.g., decommissioning), procedures, regulations, and quality assurance requirements.

Because it has developed succinct criteria to approve fuel handler training programs, the NRC is including these criteria in its regulations through this final rule as an alternative definition of a CFH to eliminate the need for licensees to submit requests for NRC approval of CFH training programs. Specifically, the NRC is codifying current approval practices by amending § 50.2 to add the three broad-scope objectives as responsibilities for which a CFH must be trained: (1) safe conduct of decommissioning activities; (2) safe handling and storage of spent fuel; and (3) appropriate response to plant emergencies. In addition, the CFH would have to qualify in accordance with a fuel handler training program that meets the same requirements as training programs for non-licensed operators required by § 50.120. Should a licensee not exercise the new alternative definition, it would need to submit a request for approval of a fuel handler training program to the NRC.

*2. Elimination of Licensed Operators and the Shift Technical Advisor*

The final rule that established paragraph (m), "Licensed Operator Staffing at Nuclear Power Units," of § 50.54 (48 FR 31611; July 11, 1983), required all licensees of nuclear power units to provide a minimum number of licensed operators and senior operators on shift at all times to respond to normal and emergency conditions. This rule was created following the Three Mile Island, Unit 2, accident to ensure that operating nuclear power units were adequately staffed with licensed personnel. The STA is a position identified in licensees' TSs. The STA provides engineering expertise in the diagnosis of complex problems with SSCs during reactor operation. Once a licensee enters the decommissioning process, the licensed operator levels in § 50.54(m) are no longer applicable and the STA function is no longer needed. The current regulations do

not address the acceptability of discontinuing the licensed operator, licensed senior operator, and STA positions for a decommissioning reactor. Licensees have been removing the STA position and replacing their licensed operator and senior operator positions with a CFH and a non-licensed operator in their TSs through license amendments (see Duke Energy Florida for Crystal River; Exelon for Oyster Creek; and Entergy for Vermont Yankee).

In the proposed rule, the NRC proposed to revise a footnote to the table titled "Minimum Requirements Per Shift for On-Site Staffing of Nuclear Power Units by Operators and Senior Operators Licensed Under 10 CFR Part 55" in § 50.54(m)(2)(i) to state that an STA is not required upon the NRC's docketing of the license holder's certifications required under § 50.82(a)(1) or § 52.110(a). A public comment on the proposed rule noted that the senior reactor operator would also not be needed following permanent cessation of operations. In this final rule, consistent with this public comment and NRC precedent, the NRC is including the proposed rule edit to the footnote and also revising the same footnote to state that licensed senior operators and licensed operators are also not required upon the NRC's docketing of the facility license holder's certifications required under § 50.82(a)(1) or § 52.110(a).

*3. Change in Applicability for § 50.120 Training and Qualification Programs*

In this final rule, the NRC is amending § 50.120(b)(2) to clarify how it applies to licensees of decommissioning plants. As § 50.120(b)(2) is currently written, if a decommissioning licensee decides that one or more existing training programs is no longer necessary in decommissioning, the licensee needs to obtain relief from the requirements in § 50.120(b)(2) by applying for an exemption to eliminate or modify the programs. The NRC recognizes that the categories of nuclear power plant personnel listed in § 50.120(b)(2) are based on the categories of personnel needed for an operating reactor and, thus, likely not necessary for a decommissioning plant. Therefore,

in this final rule, the NRC is adding a statement to § 50.120(b)(2) to clarify that decommissioning licensees must have training programs, derived from an SAT as defined in § 55.4, for the categories of nuclear power plant personnel listed in § 50.120(b)(2) that are needed at such a licensee's facility.

This change to § 50.120(b)(2) is consistent with the change described in section III.E.2, "Elimination of Licensed Operators and the Shift Technical Advisor," of this document, where the NRC is amending the footnote to § 50.54(m)(2)(i) to read, in part, that the STA position is not necessary at a decommissioning reactor. The revision to § 50.120(b)(2) carries that forward to the training requirement by clarifying that a training program for STAs is also not necessary at a decommissioning reactor. Decommissioning licensees can determine whether other positions listed in § 50.120(b)(2) are necessary at their facilities.

*F. Decommissioning Funding Assurance*

The NRC is amending its regulations to modify decommissioning funding reporting requirements, clarify decommissioning funding assurance requirements, and eliminate duplicative regulations.

*1. Clarification of § 50.82(a) and § 52.110(h)*

The NRC is amending the regulations in §§ 50.82(a)(8)(i)(A) and 52.110(h)(1)(i) to remove the term "legitimate." This term does not add any substance to the regulations and is potentially confusing. The purpose of the regulation is to ensure that expenses to be paid with funds from the decommissioning trust fund fall within the NRC definition of decommission. Whether an expense falls within the definition of decommission will continue to be determined on a case-by-case basis by the licensee when considering whether to make a withdrawal from the decommissioning trust fund. Since the term "legitimate" is nonsubstantive, its removal does not change any of the existing requirements regarding the use of decommissioning funds.

*2. Changes to Reporting Requirements*

In the "Financial Assurance Requirements for Decommissioning Nuclear Power Reactors" final rule (63 FR 50465; September 22, 1998), the NRC added the provisions currently in § 50.75(f)(1) and (2) that require each nuclear power reactor licensee to file a report with the NRC on the status of its decommissioning funding, for each reactor that it owns, by March 31st of every odd-numbered year or annually for plants that are within five years of their projected end of operations. This report must specify: (1) the amount of decommissioning funds estimated to be required pursuant to § 50.75(b) and (c); (2) the amount of decommissioning funds accumulated to the end of the calendar year preceding the date of the report; (3) a schedule of the annual amounts remaining to be collected; (4) the assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections; (5) any contracts upon which the licensee is relying; (6) any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report; and (7) any material changes to trust agreements.

The NRC is changing the reporting frequency in § 50.75(f)(1) to coordinate the reporting frequency with the ISFSI decommissioning funding assurance reporting frequency in § 72.30. This change converts the biennial decommissioning funding status report required for 10 CFR part 50 and 10 CFR part 52 nuclear power reactor licensees to a triennial decommissioning funding status report as is currently required for 10 CFR part 72 ISFSI licensees. This revision does not change the annual reporting frequency for a reactor licensee that is within 5 years of its projected end of operation, whether that projection is based on the license's expiration date or on a premature shutdown, and will not change the annual reporting frequency for a reactor that has permanently ceased operations. In addition, the change in reporting frequency does not relieve the licensee from calculating annual adjustments of the amount to be provided for decommissioning

as required under § 50.75(b)(2) and will not affect the table of minimum amounts required to demonstrate reasonable assurance of funds for decommissioning in § 50.75(c) or its escalation factors. Therefore, a licensee is required to continue to monitor its decommissioning funding on an annual basis, but instead of reporting at least once every 2 years to the NRC, it would report at least once every 3 years.

Since 1999, the NRC's regulations have mandated that licensees report to the NRC the status of their decommissioning funding. Under § 50.75(f)(1), the biennial decommissioning funding status report requires the disclosure of seven items, including the balance of the decommissioning trust fund as of December 31 of the prior year. The NRC conducted spot checks of licensee records related to this information. The NRC did not identify any major discrepancies related to this information, as explained in SECY-15-0005, "Recommendation to Sunset the Decommissioning Trust Fund Spot-Check Program," dated January 15, 2015. Therefore, the NRC has confidence that changing from a biennial to a triennial reporting frequency will not subject the public to any additional risks associated with decommissioning funding assurance. In addition, even with a triennial reporting frequency, there will be ample time to resolve any decommissioning funding issue because the reports will be submitted at least 5 years prior to the projected end of operation. Furthermore, the revision does not change the requirement for annual reporting of decommissioning funding assurance as a licensee approaches the permanent cessation of operations and while the licensee is in decommissioning, or the requirement for a site-specific decommissioning cost estimate during this period.

Once a nuclear power reactor is permanently shut down, the decommissioning financial assurance reporting requirements that apply to power reactor licensees are § 50.82(a)(8)(v), (vi), and (vii), and new § 52.110(h)(5), (6), and (7), which require annual reporting on decommissioning funding and annual reporting on funding for the

management of spent fuel. Section 72.30(c) also continues to apply and to require reporting on ISFSI decommissioning funding at least every 3 years. The §§ 50.82(a)(8)(v)-(vi) and 52.110(h)(5)-(6) reporting requirements end when the licensee has completed its final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license.

The NRC received public comments on the proposed rule requesting that the NRC revise § 50.82(a)(8)(v) and (vii), and proposed § 52.110(h)(5) and (7), to reflect that the majority of 10 CFR part 50 and 10 CFR part 52 licensees will not be able to completely terminate their license until the general license ISFSI is also decommissioned. The comments requested revisions that would allow those licensees that have completed a final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license with the exception of the ISFSI to submit their report on the status of funding for decommissioning and for the management of spent fuel on a triennial basis consistent with the § 72.30 requirements. The NRC agrees with these comments and is revising the rule language accordingly.

Specifically, the NRC is making a clarifying change to §§ 50.82(a)(8)(v) and 52.110(h)(5) for use by general license ISFSIs at reactor sites to specify that this reporting requirement also ends when decommissioning has been completed but for the decommissioning of the ISFSI, and all that remains under the 10 CFR part 50 or 10 CFR part 52 license is the general license ISFSI itself. This change is acceptable because, even without the decommissioning financial assurance reporting requirement of § 50.82(a)(8)(v) or § 52.110(h)(5), a power reactor licensee that completes decommissioning but for the decommissioning of the ISFSI is still required by § 72.30(c) to continue to provide ISFSI decommissioning funding assurance updates at intervals not to exceed 3 years. The NRC is also making a conforming change to §§ 50.82(a)(8)(vii) and 52.110(h)(7) to specify that once the § 50.82(a)(8)(v) or §

52.110(h)(5) reporting requirement no longer applies, the spent fuel management funding report may be combined with the § 72.30(c) ISFSI decommissioning funding reporting requirement.

As is done in this rule for the periodicity of the decommissioning financial assurance reporting requirements during operation, the NRC is also aligning the decommissioning financial assurance reporting requirements when decommissioning has been completed but for the decommissioning of the ISFSI. Specifically, the NRC is amending §§ 50.82(a)(8)(vii) and 52.110(h)(7) to align the timing of the requirement regarding the reporting on funding for the management of spent fuel with the ISFSI decommissioning funding plan updates required by § 72.30(c), such that both reporting requirements have a periodicity of not to exceed 3 years. Changing the spent fuel management financial assurance status report frequency from annually to intervals not to exceed 3 years at this stage of decommissioning appropriately reflects the likelihood of subsequent changes regarding financial assurance. For instance, spent fuel management funding is not expected to change substantively year-over-year because of the passive nature of the ISFSI design and the static nature of ISFSI operations after loading. The most significant change to be expected during this period would be a change to the date for the transfer of title to the fuel and possession of the fuel to the DOE. However, such a date change would likely not be sudden and, therefore, reporting on a 3-year periodicity will still allow the NRC ample notice to ensure that a licensee is appropriately planning to cover the projected cost of spent fuel management. Moreover, the NRC has observed that licensees have successfully recovered spent fuel management expenses from the DOE by making claims for damages resulting from the DOE's breach of the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (10 CFR part 961, "Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste"). Several of the settlement

agreements with the DOE have also included the ability to recover spent fuel management costs annually until the fuel is moved offsite.

The NRC is also revising § 50.75(h) to be consistent with the requirements of § 50.4. Specifically, notifications will be sent directly to the Document Control Desk, and not to the Director, Office of Nuclear Reactor Regulation, or Director, Office of Nuclear Material Safety and Safeguards, as applicable. This change provides one consistent location for licensees to docket all notifications to the NRC.

The NRC is deleting § 50.75(f)(2). The language of existing § 50.75(f)(1) fully encompasses the language of paragraph (f)(2), and, therefore, paragraph (f)(2) is unnecessary and potentially confusing. By removing paragraph (f)(2), the NRC is not removing the requirement on licensees to continue submitting decommissioning funding assurance status reports. Existing paragraphs (f)(3) through (5) are redesignated as paragraphs (f)(2) through (4).

*3. Shortfalls in Decommissioning Funding Assurance*

The requirement in § 50.75 that the licensee provide reasonable assurance that sufficient funds will be available for radiological decommissioning is a continuing obligation. However, economic factors can cause the amount of a licensee's financial assurance to fall below the amount required (either by the NRC minimum formula in § 50.75(c), or by a licensee's site-specific decommissioning cost estimate), thereby creating a shortfall. The regulations do not explicitly discuss what to do when a licensee faces a funding shortfall, regardless of its cause. Instead, the NRC addressed the funding shortfall scenario in its guidance in RG 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors." This guidance provides that non-rate-regulated licensees should make up shortfalls in decommissioning funding within 2 years, and electric utility licensees should make up shortfalls in decommissioning funding within 5 years.

The NRC is amending its regulations in § 50.75(f)(1) to clarify that, although the regulations establish a continuing obligation to provide reasonable assurance of decommissioning funding, it is permissible for the decommissioning funding status report required by § 50.75(f)(1) to identify that the funds projected to be available to decommission are less than the amount estimated to be required to decommission (i.e., that there is a shortfall). However, such a shortfall must be remedied so that the next report for licensees that are not "electric utilities" as defined in § 50.2, or the decommissioning funding status report two reports later for licensees that are electric utilities, does not identify a shortfall. Otherwise, the licensee would not be providing the requisite reasonable assurance that funds will be available to decommission the facility. This allows up to three years for a non-electric utility licensee and up to six years for an electric utility licensee to demonstrate that a previously identified shortfall has been covered. However, within five years of permanent cessation of operations, the reporting frequency is annual, so the time to demonstrate that a previously identified shortfall has been covered would then become one year or two years, respectively. Additionally, the requirements regarding the annual financial assurance status reports during decommissioning in § 50.82(a)(8)(v) and (vi) or § 52.110(h)(5) and (6) require that any report identifying a shortfall also include additional financial assurance to cover that shortfall. The NRC is also clarifying the last sentence of current § 50.75(f)(1) to reduce the number of clauses and enhance readability.

The NRC is revising §§ 50.82(a)(9)(ii)(F) and 52.110(i)(2)(vi) to require licensees to identify the specific sources of funds for "remaining decommissioning costs," including license termination, spent fuel management, and ISFSI decommissioning, as applicable.

*4. Duplicative Requirement for Site-Specific Decommissioning Cost Estimate*

The NRC is deleting a duplicative requirement in §§ 50.82(a)(8)(iii) and

52.110(h)(3) for submission of a site-specific decommissioning cost estimate because compliance with § 50.82(a)(4)(i) or § 52.110(d)(1) will always ensure that the requirements in §§ 50.82(a)(8)(iii) and 52.110(h)(3) are met. Each of §§ 50.82(a)(4)(i) and 52.110(d)(1) require licensees to submit a PSDAR, which may be submitted prior to, but no later than 2 years after permanent cessation of operations, and also requires that licensees include a site-specific decommissioning cost estimate with the PSDAR. Because the site-specific decommissioning cost estimate is part of the PSDAR, §§ 50.82(a)(4)(i) and 52.110(d)(1) require a site-specific decommissioning cost estimate to be submitted prior to, but no later than 2 years after permanent cessation of operations. The existing §§ 50.82(a)(8)(iii) and 52.110(h)(3) require a site-specific decommissioning cost estimate to be submitted within 2 years following permanent cessation of operations, if not already submitted. Therefore, a licensee that complies with § 50.82(a)(4)(i) or § 52.110(d)(1) will have either submitted a site-specific decommissioning cost estimate prior to permanent cessation of operations (in which case § 50.82(a)(8)(iii) or § 52.110(h)(3) would not apply) or will submit a site-specific decommissioning cost estimate within 2 years following permanent cessation of operations. Accordingly, the NRC is deleting §§ 50.82(a)(8)(iii) and 52.110(h)(3) because they are redundant to the requirements in §§ 50.82(a)(4)(i) and 52.110(d)(1).

*5. Clarifications of 10 CFR Part 52 Requirements and Conforming Changes to 10 CFR Part 52*

The NRC is revising § 52.110 to make the same changes as in § 50.82 for the reasons previously discussed and for consistency. In addition, the NRC is adding paragraphs (h)(5) through (h)(7) to § 52.110 with site-specific decommissioning cost estimate reporting requirements that are identical to the requirements in § 50.82(a)(8)(v) through (vii). Consistent with § 52.110(h)(7), a report on irradiated fuel should only be submitted if irradiated fuel is on site.

The NRC is revising § 50.75(b)(1) to enhance its readability, primarily to clarify the requirements for licensees of 10 CFR part 52 facilities. There are other minor language changes or clarifications for consistency being added throughout § 50.75(e) and (f), primarily related to adding in a corresponding § 52.110 reference wherever applicable and using the term “decommissioning cost estimate” consistently throughout these paragraphs.

*6. Change to 10 CFR Part 72*

The NRC is revising § 72.30 so that the ISFSI financial assurance submittals subsequent to the initial decommissioning funding plan will no longer require NRC approval. The NRC found little benefit in approving subsequent decommissioning funding plans for ISFSIs because the financial assurance mechanisms employed are very similar to those used for nuclear power reactors. The experience to date is that these decommissioning funding plans have not changed substantively because of the passive nature of the ISFSI design, the static nature of ISFSI operations after loading, and the fact that there are no liquids or liquid effluents present in dry cask storage facilities. In addition, the NRC expects that the frequency of events that could potentially impact the decommissioning funding plan (i.e., due to spills, facility modifications, or changes in possession limits as specified in § 72.30(c)) will continue to be low. However, if they were to occur, it is important that these events be factored into the cost of decommissioning.

The revisions to § 72.30(b) restructure the current requirement to clarify the ISFSI decommissioning funding plan reporting requirements for general license and specific license ISFSIs. The redesignated § 72.30(b)(1) clarifies that a specific license ISFSI applicant must submit a decommissioning funding plan as part of its application to receive a specific license. The redesignated § 72.30(b)(2) clarifies that a general license ISFSI holder must submit a decommissioning funding plan prior to the initial storage of

spent fuel in accordance with § 72.212(a)(3). The § 72.30(b) requirement on content of the decommissioning funding plans for both general license and specific license ISFSIs is being retained and is being redesignated as § 72.30(b)(3). Both types of funding plans must be reviewed and approved by the NRC.

Section 72.30(c) is also being revised to clarify that an updated decommissioning funding plan is required at the time of specific license renewal for an ISFSI but not for general license ISFSI renewals. General license ISFSIs do not have a provision for license renewal, although when a 10 CFR part 72 Certificate of Compliance is renewed, the associated users' general licenses are also renewed. The requirement to submit updated ISFSI decommissioning funding plans at intervals not to exceed 3 years is being retained. These changes make the processes under § 72.30(c) more efficient and less burdensome to the licensee and the NRC, while still maintaining reasonable assurance of adequate funding for the decommissioning of ISFSIs.

*7. Consistency Changes in § 50.75*

The NRC is revising § 50.75(b)(1) to replace the words "financial assurance for decommissioning" with the words "reasonable assurance that funds will be available to decommission." The NRC is making a similar change in § 50.75(e)(1) by replacing the words "Financial assurance" with "Reasonable assurance of funds to decommission." These changes are intended to improve clarity by using language that is consistent with § 50.75(a), which already reads as follows: "This section establishes requirements for indicating to NRC how a licensee will provide reasonable assurance that funds will be available for the decommissioning process." The NRC is also revising § 50.75(b)(4) to include the requirement that the site-specific decommissioning cost estimate may be more, but not less, than the amount stated in the table of minimum amounts in § 50.75(c)(1), adjusted using a rate at least equal to that stated in § 50.75(c)(2).

*G. Offsite and Onsite Financial Protection Requirements and Indemnity Agreements*

The NRC is amending its financial protection regulations under 10 CFR part 140, "Financial Protection Requirements and Indemnity Agreements," and § 50.54(w) to address instances where a decommissioning reactor licensee may not need to maintain its full amounts of offsite liability insurance and onsite property insurance. Reductions in insurance amounts may be warranted commensurate with the reduction in probability of an incident at a reactor in decommissioning, as well as a reduction in the offsite and onsite consequences from this event. The amendments to the financial protection requirements codify the current approach the NRC applies to requests for exemption from the financial protection requirements for decommissioning nuclear power reactor licensees. The changes also increase efficiency and transparency in this area by clarifying the requirements for financial protection of decommissioning plants, providing for regulatory certainty, and reducing regulatory burden without affecting public health and safety. Specifically, these requirements represent a graded approach, including the criteria to be considered, where the financial protection requirements for decommissioning sites are adjusted commensurate with the level of risk posed at two stages of the decommissioning process.

The revisions to 10 CFR part 140 and § 50.54(w) also address the applicability of procedures regarding Extraordinary Nuclear Occurrences (ENOs) and a new notification requirement for licensees when they make changes to the amount of onsite insurance.

*1. Revisions to Offsite Liability and Onsite Property Insurance Requirements*[5]

[5] At the time the proposed rule was published, the dollar amount stated in § 140.11 was $450 million. On October 19, 2023, the NRC issued a final rule revising the amount from $450 million to $500 million (88 FR 71988).

The NRC is allowing 10 CFR part 50 and 10 CFR part 52 nuclear power reactor licensees in decommissioning to reduce the offsite liability and onsite property insurance amounts that they are required to maintain under § 140.11, “Amounts of financial protection for certain reactors,” and § 50.54(w), respectively, without obtaining exemptions from the NRC’s regulations. Instead, under new §§ 140.11(a)(5) and 50.54(w)(5), once certain criteria are satisfied, licensees can reduce their financial protection to the amounts stated in Level 2 of Table 3:

**Table 3—Two-Step Graded Approach**

| Level | Reactor Site Description | Offsite Requirement (§ 140.11) | Onsite Requirement (§ 50.54(w)) |
|---|---|---|---|
| 1 | Operating or Permanently Ceased Operations and Permanently Defueled | $500 million; participation in the industry retrospective rating plan | $1.06 billion |
| 2 | Sufficiently Decayed Fuel | $100 million; withdrawal from the industry retrospective rating plan | $50 million |

Licensees in Level 1 of the graded approach are required to maintain the full amounts of offsite liability and onsite property insurance currently required in §§ 140.11(a)(4) and 50.54(w), respectively, until the probability of a zirconium fuel cladding fire in the SFP is minimized. Maintaining the full level of insurance recognizes the potential for liability insurance claims following an accident of this type and the need for available resources to clean up the site.

The transition to Level 2 financial protection amounts for licensees are optional and can occur after the passage of a specified amount of time. The NRC is establishing two regulatory alternatives to specify when the transition to Level 2 financial protection amounts may occur: (1) after spent fuel has decayed for a period of at least 10 months (for BWRs) or 16 months (for PWRs) that starts from the date of permanent cessation of operations, or (2) after an alternative timeframe based on a site-specific analysis that

shows that the fuel in the SFP cannot heat up to zirconium fuel cladding ignition temperature (900 degrees C) within 10 hours under adiabatic conditions. This site-specific analysis would be subject to NRC review and approval before a transition to Level 2 financial protection amounts. In either case, a licensee will be permitted to transition to Level 2 financial protection amounts only after the NRC's docketing of the licensee's certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel pursuant to § 50.82 or § 52.110.

The reduction in the financial protection amounts identified in Level 2 of Table 3 (i.e., $100 million in offsite liability insurance and withdrawal from the industry retrospective rating plan) was modeled on the offsite liability claims experience from the accident at Three Mile Island, Unit 2, as documented in SECY-93-127, "Financial Protection Required of Licensees of Large Nuclear Power Plants During Decommissioning," dated May 10, 1993. SECY-93-127 provides a reasonable basis for using the Three Mile Island, Unit 2, experience as a model for determining the appropriate liability insurance coverage level for a permanently shutdown reactor that has completed its respective spent fuel cooling period. Additionally, as documented in SECY-93-127, the reduced onsite financial protection amount in Level 2 of Table 3 (i.e., $50 million in onsite property insurance coverage) was modeled on the potential onsite cleanup costs from a radiological incident involving the rupture of a large liquid radioactive waste storage tank (~450,000 gallons) containing slightly radioactive water. This event was selected as conceivable and a bounding scenario having negligible radiological consequences offsite.

The spent fuel heatup analysis performed by the licensee for the purpose of reducing its insurance amounts to those in Level 2 of Table 3 could be the same analysis that the licensee performs to relax the offsite emergency planning requirements under § 50.54(q)(8)(ii)(A) or (B). The transition to Level 2 would prompt the licensee to

notify the NRC under paragraph (e) of § 140.15, “Proof of financial protection,” of a material change in financial protection—namely a reduction in offsite primary financial protection from $500 million to $100 million and withdrawal from the industry retrospective rating plan. The NRC is implementing a conforming change in new § 50.54(w)(6) for a similar notification of a material change to onsite property insurance amounts.

The NRC will also periodically adjust the offsite and onsite financial protection amounts required for decommissioning reactors to account for inflation. These adjustments will be in accordance with the aggregate percentage change in the Consumer Price Index and performed at intervals that coincide with the inflation adjustments for the retrospective premium under Section 170t of the AEA. The method for adjusting the offsite and onsite financial protection amounts for decommissioning reactors, as well as the applicability of those changes to facilities in different levels of decommissioning, will be described in a future rulemaking activity that implements these adjustments.

*2. Revision to Extraordinary Nuclear Occurrences Requirements*

The NRC is amending its regulations in § 140.81, “Scope and purpose,” to clarify the applicability of the requirements for an ENO to reactors in decommissioning. Under Sections 11 and 170 of the AEA, and NRC regulations in subpart E, “Extraordinary Nuclear Occurrences,” to 10 CFR part 140, the NRC is authorized to make a determination as to whether an event at a production or utilization facility causing a discharge or dispersal of source, special nuclear, or byproduct material, that has resulted or will result in substantial damages to offsite members of the public or property, is an ENO. An event will qualify as an ENO if the NRC determines that the criteria in § 140.84, “Criterion I – Substantial discharge of radioactive material or substantial radiation levels offsite,” and § 140.85, “Criterion II – Substantial damages to persons

offsite or property offsite," have been met.

The NRC recognizes that the radiological consequences resulting from an accident at a decommissioning power reactor or non-power production and utilization facility in Level 1 can be similar to those from an accident at an operating reactor or facility. As presented in NUREG-1738, for power reactors, in the timeframe beginning immediately after the reactor is defueled and the fuel is placed in the SFP, the radiological consequences of a zirconium fire may be comparable to those from operating reactor postulated severe accidents. The existing potential consequences from a zirconium fire, until the fuel in the SFP has sufficiently decayed, provides the basis for the NRC's amendment to its regulations to include nuclear power reactors in Level 1 within the scope of § 140.81. Similar reasoning underlies the NRC's inclusion of non-power production and utilization facilities in Level 1 within the scope of § 140.81.

The NRC is making two changes to the proposed § 140.81. The proposed provision would have included within the scope of subpart E of 10 CFR part 140 holders of 10 CFR part 50 operating licenses, 10 CFR part 52 combined licenses, and 10 CFR part 54 renewed licenses "authorizing operation" of production facilities and utilization facilities. This sentence could have been read to mean that § 140.81 applies to the listed licensees as long as their licenses authorize operation. Under §§ 50.82(a)(1) and 52.110(a), operating and combined licenses, respectively, no longer authorize power reactor operation once the NRC dockets the corresponding certifications under § 50.82(a)(1) or § 52.110(a). Thus, the applicability of § 140.81 would have ended as soon as the licensee enters Level 1. To clarify that the applicability of § 140.81 extends into Level 1 for power reactors, the NRC is removing the reference to licenses "authorizing operation."

The second change to the proposed § 140.81 is to clarify when the applicability of § 140.81 ends for the holder of a license for a non-power production or utilization

facility under 10 CFR part 50. The NRC is adding a new sentence to state that subpart E of 10 CFR part 140 ceases to apply to such licenses once the NRC removes the licensee's authority to operate through a license amendment.

*3. Conforming Change for Prompt Notification in § 50.54(w)(6)*

The NRC is amending § 50.54(w) to require a prompt notification to the Commission of any material change in proof of onsite property insurance filed with the Commission under 10 CFR part 50. Specifically, the transition to Level 2 of a decommissioning facility will prompt the licensee to notify the NRC under new § 50.54(w)(6) of a reduction in onsite property insurance from $1.06 billion to $50 million. This amendment to § 50.54(w) is a conforming change, for consistency, with the existing offsite financial protection requirements under § 140.15(e).

*H. Environmental Considerations*

*1. Clarifying Changes to 10 CFR Part 50 and 10 CFR Part 52*

A nuclear power reactor licensee's transition from operating to decommissioning status does not involve an agency action that would trigger NRC responsibilities under environmental statutes, such as the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and Tribal and environmental justice policy. However, the existing regulations at § 50.82(a)(4)(i) (for nuclear power reactors licensed under 10 CFR part 50) and § 52.110(d)(1) (for nuclear power reactors licensed under 10 CFR part 52) require that PSDARs provide the reasons for concluding that appropriate previously issued EISs will bound the environmental impacts from site-specific decommissioning activities. After the PSDAR is submitted, the licensee must remain in compliance with § 50.82(a)(6)(ii) or § 52.110(f)(2), as applicable. These regulations state that licensees may not perform any decommissioning activities, as defined in § 50.2 or § 52.1, that result in significant environmental impacts not previously reviewed. As explained in the 1996 Final Rule, the

requirement in § 50.82(a)(6)(ii) functions as a prohibition against the licensee performing a decommissioning activity that would result in a significant impact “not previously reviewed” (61 FR 39283, 39286, and 39291; July 29, 1996).

In certain circumstances, a licensee may be unable to satisfy the requirement that it conclude in the PSDAR that all environmental impacts associated with site-specific decommissioning activities will be bounded by previous EISs. For example, NUREG-0586, Supplement 1, Volumes 1 and 2, “Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities: Regarding the Decommissioning of Nuclear Power Reactors” (Decommissioning GEIS), identified several environmental impact issues that could not be generically resolved. If EISs prepared for the construction, operation, or license renewal of the nuclear plant, or EAs prepared for other licensing actions, did not include site-specific analyses of the environmental impact issues not generically resolved in the Decommissioning GEIS, the licensee would be unable to make a determination in the PSDAR that the site-specific environmental impacts of decommissioning will be bounded. Therefore, the licensee would have to either alter the decommissioning activity so that the environmental impacts would be bounded or seek NRC approval of a license amendment or exemption request to satisfy the existing requirements in § 50.82(a)(4)(i) or § 52.110(d)(1) prior to commencing the decommissioning activity.

In the revised regulations, the NRC is changing the PSDAR requirements in §§ 50.82(a)(4)(i) and 52.110(d)(1) to require that licensees provide the basis for determining whether the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate federally issued environmental reviews. This final rule states that licensees, at the PSDAR stage, are required to discuss in the PSDAR whether the proposed decommissioning activities will be bounded by appropriate federally issued environmental review documents and

provide the reasons for reaching that conclusion. Given that some decommissioning activities will occur well in the future, licensees might not be able to make the definitive conclusion that site-specific environmental impacts will be bounded at the PSDAR stage. Therefore, the changes to §§ 50.82(a)(4)(i) and 52.110(d)(1) also provide licensees the flexibility to address unbounded environmental impacts after submittal of the PSDAR but still prior to the decommissioning activity being undertaken that could cause the unbounded impact. In that case, the licensee should identify in the PSDAR the unbounded environmental impacts that will be evaluated in the future. This change is consistent with the purpose, in part, of the PSDAR as a mechanism for NRC oversight, as noted in RG 1.185, Revision 2, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," because it would alert the NRC to any potentially unbounded site-specific environmental impacts of planned decommissioning activities.

The regulations will continue to require licensees that are considering decommissioning activities that could result in significant environmental impacts and would otherwise be prohibited by § 50.82(a)(6)(ii) or § 52.110(f)(2), to modify the decommissioning activity so that the impacts would be bounded, decide not to perform the proposed activity, or seek NRC approval of a license amendment or exemption request. If the licensee decides to pursue a license amendment or exemption, its request would trigger an NRC review of the site-specific environmental impacts of the decommissioning activity under NEPA. In addition, prior to performing a decommissioning or spent fuel management activity that is inconsistent with the PSDAR but permitted by § 50.59 or § 72.48, "Changes, tests, and experiments" (i.e., prior NRC approval is not required to take the action), the licensee must notify the NRC in writing, with a copy to the affected States, in accordance with §§ 50.82(a)(7) and 52.110(g). The §§ 50.82(a)(7) and 52.110(g) requirements are in the current regulations and are being changed in this final rule to include reference to the spent fuel management provisions,

as discussed in section III.K, “Spent Fuel Management Planning,” of this document.

The NRC is also changing §§ 50.82(a)(4)(i) and 50.82(a)(6)(ii), and §§ 52.110(d)(1) and 52.110(f)(2), to allow licensees to use appropriate federally issued environmental review documents instead of only EISs. These documents could be prepared in compliance with NEPA, ESA, NHPA, or other environmental statutes. One reason for replacing the phrase “previously issued environmental impact statements” with “federally issued environmental review documents” is the NRC can, in many instances, satisfy its NEPA compliance obligations by the preparation of an EA or through a categorical exclusion determination rather than by the preparation of an EIS. A second reason is that this change allows licensees to use a wider range of documents that address various environmental impact issues. Examples of appropriate federally issued environmental review documents include EAs prepared for license amendments such as extended power uprates; documents prepared during Section 7 consultations under the ESA such as biological assessments and biological opinions; or programmatic agreements prepared during the Section 106 review process under the NHPA to resolve adverse effects to historic properties. Environmental review documents prepared by other Federal agencies could also be used if they were relevant to the impacts associated with decommissioning activities.

The existing regulations in §§ 50.82(a)(6)(ii) and 52.110(f)(2) prohibit licensees from undertaking decommissioning activities that could result in *significant* environmental impacts not previously reviewed. The NRC is amending these provisions to clarify that any significant environmental impact must be bounded by appropriate federally issued environmental review documents. In this regard, the determination of significance should be made in terms of the appropriate Federal environmental resource protection statute. For example, if a proposed decommissioning activity were likely to result in a potential adverse effect on a historic property, as the term “adverse effect” is

described in the Advisory Council on Historic Preservation regulation 36 CFR 800.5, "Assessment of adverse effects," then that potential adverse effect would most likely be equivalent to a significant environmental impact under § 50.82(a)(6)(ii) or § 52.110(f)(2). Similarly, for threatened or endangered species listed under the ESA, the equivalent threshold would be a proposed decommissioning activity that could result in a "take," as that term is defined in 16 U.S.C. 1532(19), of any listed species at the time of the proposed decommissioning activity.

These changes provide flexibility to the licensee to address unbounded environmental impacts closer in time, but still prior to, the decommissioning activity being undertaken that results in the unbounded impact. The regulations will continue to allow licensees to modify the decommissioning activity so that the impacts would be bounded, decide not to perform the decommissioning activity, or seek NRC approval of a license amendment or exemption request before performing the decommissioning activity. A license amendment or exemption request, if submitted, will continue to include an NRC evaluation of environmental impacts of the decommissioning activity before the impacts are realized.

*2. Consistency Changes to 10 CFR Part 51*

The current regulation in paragraph (d) of § 51.53, "Postconstruction environmental reports," requires that an applicant for a license amendment authorizing decommissioning activities for a production or utilization facility either for unrestricted use or continuing use restrictions, and each applicant for a license or license amendment to store spent fuel at a nuclear power reactor after expiration of the operating license submit an environmental report. The current regulation in paragraph (d) of § 51.95, "Postconstruction environmental impact statements," states that the NRC will prepare a supplemental EIS or an EA in connection with the amendment of a 10 CFR part 50 or 10 CFR part 52 license to authorize decommissioning activities or for

issuance, amendment, or renewal of a license to store spent fuel at a nuclear power reactor after expiration of the license.

The 1996 Final Rule eliminated the requirement for nuclear power reactor licensees to seek NRC authorization for decommissioning and spent fuel storage. Therefore, there is no need for licensees to seek a license amendment or prepare an environmental report, and no Federal action requiring the NRC to conduct a NEPA review, in relation to the transition of a nuclear power reactor from operations to decommissioning. In response to the 1995 decommissioning proposed rule, commenters suggested revisions be made to then-§ 51.53, “Supplement to environmental report,” and then-§ 51.95, “Supplement to final environmental impact statement,” to reflect the forthcoming rule change regarding decommissioning authorization. However, the NRC did not amend the 10 CFR part 51 regulations at that time because non-power reactor facilities were still required to submit a DP.

The NRC is revising §§ 51.53(d) and 51.95(d) to reflect the changes made in the 1996 Final Rule that rendered it unnecessary for nuclear power reactor licensees to request license amendments for authorization to perform decommissioning activities and to store spent fuel. In § 51.53(d), the NRC is removing language referencing an amendment authorizing decommissioning activities and the environmental report requirement for nuclear power reactors. In response to public comments on the proposed rule, the NRC is also removing language referencing a license or license amendment to store spent fuel after expiration of the operating license for a nuclear power reactor because these licensing actions are no longer necessary and, in accordance with § 50.51, “Continuation of license,” and § 52.109, “Continuation of combined license,” the operating license for a nuclear power reactor in decommissioning does not expire. Instead, §§ 50.51 and 52.109 provide that the license continues in effect beyond the expiration date, until the NRC notifies the licensee in writing that the

license is terminated. During this period of continued effectiveness, the licensee is permitted to take actions necessary to decommission and decontaminate the facility, to continue to maintain the facility, including the spent fuel, in a safe condition, and to conduct activities in accordance with all other restrictions applicable to the facility per NRC regulations and the provisions of the facility license.

In § 51.95(d), the NRC is similarly removing language referencing a license amendment authorizing decommissioning activities. In response to public comments on the proposed rule, the NRC is also removing language referencing an amendment to or renewal of a license to store spent fuel at a nuclear power reactor after expiration of the operating or combined license for the reactor because these licensing actions are no longer necessary and, in accordance with §§ 50.51 and 52.109, the operating license for a nuclear power reactor in decommissioning does not expire. The NRC is further revising § 51.95(d) to indicate that the NRC will conduct an environmental review under the provisions of NEPA and prepare the necessary documentation after receiving a license amendment request to approve the licensee's plan for license termination. The NRC also is adding a cross-reference to § 52.110 in §§ 51.53(d) and 51.95(d) as reactors licensed under 10 CFR part 52 will perform decommissioning under § 52.110, not § 50.82. In addition, the NRC is not including language regarding approval of an IFMP in either § 51.53(d) or § 51.95(d), as was suggested in the proposed rule. As discussed in section III.K of this document, the NRC is merging the existing IFMP provisions into the PSDAR provisions in §§ 50.82 and 52.110, which results in the IFMP information not being subject to NRC approval and therefore not triggering a Federal action requiring the NRC to conduct an environmental review.

The NRC is not making any changes in 10 CFR part 51 affecting non-power production or utilization facilities (e.g., research and test reactors) or fuel reprocessing plants. Non-power production or utilization facility and fuel reprocessing plant licensees

must continue to submit a license amendment request for license termination, including requesting approval of a DP, and submit an environmental report. The NRC will continue to conduct an environmental review under the provisions of NEPA and prepare the necessary documentation after receiving a license amendment request to approve the licensee's DP for license termination.

*3. Comments Received on the Proposed Rule*

The NRC received substantial comments on the proposed rule concerning environmental reviews and public involvement during decommissioning. These included comments suggesting that the NRC's site-specific NEPA review should be conducted earlier in the decommissioning process. Other commenters expressed concern that licensees are allowed to self-report the environmental impacts of decommissioning activities without NRC oversight. Some comments stated that the proposed rule did not address site-specific NEPA reviews during decommissioning and requested that the NRC update the Decommissioning GEIS. Commenters also wanted NHPA Section 106 consultations conducted before ground-disturbing decommissioning activities occur. In addition, commenters identified site-specific environmental issues at nuclear facilities currently undergoing decommissioning and requested increased engagement with States and tribes on decommissioning topics.

The NRC did not amend the final rule as a result of these comments. In developing the regulatory basis for this rule and the 1996 Final Rule, the NRC considered shifting the agency's environmental review to earlier in the decommissioning process based on approval of the PSDAR, thereby creating a licensing action that would trigger NRC's NEPA responsibilities. The NRC found that there is no health and safety benefit to approving the PSDAR because of the reduction in risk at a permanently shut down and defueled reactor. In addition, the PSDAR does not expand a licensee's authority or authorize actions that are outside the scope of the operating license for the

nuclear power reactor, which renders approval of the PSDAR unnecessary. Because approval of the PSDAR is not required, there is no associated licensing action for which the NRC would perform a site-specific NEPA review.

In the PSDAR, nuclear power reactor licensees must discuss whether the environmental impacts of site-specific decommissioning activities will be bounded by appropriate federally issued environmental review documents, provide the reasons for reaching that conclusion, and describe any decommissioning activities whose environmental impacts will not be so bounded and will be evaluated prior to the performance of the activities. Licensees are prohibited from performing any decommissioning activities that result in significant environmental impacts not previously reviewed. Therefore, before performing unbounded decommissioning activities, licensees must request prior NRC approval of an exemption or a license amendment, both of which would require a site-specific NEPA review and implicate agency responsibilities, including under NHPA, ESA, and the NRC's environmental justice and Tribal policies. Licensees must also submit a license termination plan to complete decommissioning, which is approved via a license amendment and requires a site-specific NEPA review. This process involving the PSDAR, the prohibition of performing unbounded decommissioning activities, and a license termination plan ensures that unbounded environmental impacts do not occur.

*I. Record Retention Requirements*

The NRC's regulations require licensees to retain the records associated with certain SSCs until the license is terminated, and sometimes require that these records be kept in duplicate. To decrease the burden associated with long-term record storage and increase the overall efficiency of the decommissioning process, licensees that are transitioning to decommissioning frequently request exemptions from these requirements. Although this approach continues to meet the underlying purpose of the

recordkeeping regulations, the process of preparing, submitting, and reviewing exemptions from the record retention requirements is not an efficient use of NRC or licensee resources given that the subject records are no longer needed to support any NRC-regulated function. In addition, maintaining the current regulations with respect to record retention during decommissioning could create a situation in which the facilities used to store records are ready to be dismantled in support of site decommissioning before the necessary exemptions can be processed. The NRC is resolving these issues by amending its regulations in this rule.

The recordkeeping requirements at issue include the following:

- Criterion XVII, “Quality Assurance Records,” of appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” to 10 CFR part 50 requires a licensee to retain certain records consistent with regulatory requirements for a duration established by the licensee.

- Section 50.59(d)(3) and paragraph (b)(2) of § 52.63, “Finality of standard design certifications,” require a licensee to maintain certain records until termination of its license issued under 10 CFR part 50 or 10 CFR part 52.

- Section 50.71(c) requires licensees to maintain certain records consistent with various elements of the NRC regulations, facility TSs, and other licensing basis documents.

- Paragraph (d) of § 72.72, “Material balance, inventory, and records requirements for stored materials,” requires licensees to duplicate certain records for spent fuel and high-level radioactive waste and store them in a separate location sufficiently remote from the original records so that a single event would not destroy both sets.

Licensees that have previously requested exemptions from these requirements

used the justification that, when the SSCs associated with these records are removed from service and the associated licensing basis documents, the SSCs will no longer serve any NRC-regulated function. Therefore, it would no longer be necessary to retain the records in support of public health and safety. In addition, several licensees requesting an exemption from the requirements of § 72.72(d) used the justification that they will store the ISFSI spent fuel records using the same procedures and processes used for the facility spent fuel (and other) records, which are typically stored in accordance with the NRC-approved quality assurance program (QAP).

The NRC granted the previous record retention exemptions based on a finding of reasonable assurance that the licensee would continue to meet the underlying purpose of the recordkeeping regulations, which is to establish the minimum retention periods necessary for the NRC to ensure compliance with the safety and health aspects of the nuclear environment and for the NRC to accomplish its mission to protect the public health and safety. In “Retention Periods for Records; Final Rule” (53 FR 19240; May 27, 1988), the Commission explained that requiring licensees to maintain adequate records assists the NRC in judging compliance and noncompliance, to act on possible noncompliance, and to examine facts as necessary following any incident. Because the SSCs that were safety-related or important to safety during reactor operations or operation of the SFP are removed from the licensing basis, and subsequently removed from the facility during the decommissioning process, the records associated with those SSCs are no longer required to achieve the purpose of the recordkeeping and record retention regulations.

Records associated with SSCs that maintain compliance with requirements or that protect public health and safety during the decommissioning process have been excluded from these exemptions. Examples include those SSCs associated with programmatic controls pertaining to residual radioactivity, security, and quality

assurance (QA), and those SSCs associated with spent fuel assemblies or the SFP (while assemblies are still in the SFP) and ISFSIs. These exemptions do not affect the record retention requirements of § 50.75 or any other requirements of 10 CFR part 50 or 10 CFR part 52 that apply to decommissioning.

Based on the justification provided by these past exemptions and one of the stated purposes of this rule to reduce the number of regulatory exemptions needed for a nuclear power reactor to transition from operations to decommissioning, the NRC is changing the recordkeeping and record retention requirements. Once the NRC dockets a licensee's certifications of permanent cessation of operations and permanent removal of fuel from the reactor required by § 50.82(a)(1) or § 52.110(a) for power reactor licensees and § 50.82(b)(1) for non-power production or utilization facility licensees that are no longer authorized to operate, these licensees can then eliminate records associated with SSCs that no longer serve any NRC-regulated function.

The records that are subject to removal are associated with SSCs that had been important to safety during reactor operation or operation of the SFP, but that are no longer capable of causing an event, incident, or condition that would adversely impact public health and safety, as evidenced by their appropriate removal from the licensing basis documents. Removal from the licensing basis documents is typically accomplished using appropriate change mechanisms, such as the § 50.59 evaluation process or NRC-approved TS changes, which assess removal of these records to determine that elimination of the records would have no adverse impact on public health and safety. Since the SSCs no longer have the potential to cause these scenarios, the records associated with these SSCs are not reasonably necessary to assist the NRC in determining compliance, taking action on possible noncompliance, and examining facts following an incident. Therefore, retention of such records does not serve the underlying purpose of the recordkeeping regulations.

The NRC is making the following four changes to the recordkeeping and record retention requirements and associated regulatory guidance to enhance the efficiency of the decommissioning regulations:

- Clarifying in RG 1.184, Revision 2, “Decommissioning of Nuclear Power Reactors,” that the requirements of Criterion XVII in appendix B to 10 CFR part 50 concerning record retention, such as duration, location, and assigned responsibility, continue to be met by compliance with this final rule’s changes to recordkeeping and record retention requirements.
- Amending § 50.71(c) to specify that licensees, for which the NRC has docketed the certifications required under § 50.82(a)(1) or § 52.110(a) for power reactor licensees and § 50.82(b)(1) for non-power production or utilization facility licensees that are no longer authorized to operate, are not required to retain records associated with SSCs that have been removed from service using an NRC-approved change process. However, § 50.71(c) requires licensees to retain records important to decommissioning as specified under § 50.75(g).
- Amending §§ 50.59(d)(3) and 52.63(b)(2) to clarify that records of changes in the facility must be maintained until the termination of the license except for records associated with SSCs removed from service using an NRC-approved change process after the NRC has docketed the certifications required under § 50.82(a)(1) or § 52.110(a) for power reactor licensees and § 50.82(b)(1) for non-power production or utilization facility licensees that are no longer authorized to operate. In response to public comments, this final rule also includes conforming changes to section X, “Records and Reporting,” of the appendices in 10 CFR part 52 for certified designs.
- Amending § 72.72(d) to allow that records of spent fuel, high-level radioactive waste, and reactor-related greater than Class C waste containing special nuclear

material no longer be kept in duplicate, as long as the licensee can demonstrate that it will store the records in the same manner as it would for other QA records using a single storage facility subject to the same procedures and processes outlined in an NRC-approved QAP.

In most cases, an NRC-approved QAP involves nuclear power reactor licensee document storage requirements that meet American National Standards Institute (ANSI) standard N45 2.9-1974, “Requirements for Collection, Storage, and Maintenance of Quality Assurance Records,” which specifies, in part, the design requirements for use in the construction of record storage facilities when the use of a single storage facility is desired. In approving the associated QAP, the NRC typically approves the single facility location used for the storage and maintenance of QA records at the facility, and the licensee typically affirms in the QAP that the record storage facility was constructed and is being maintained to meet the requirements of the NRC-approved QAP.

Records for an ISFSI are typically classified as QA records and include all documents and records associated with the operation, maintenance, installation, repair, and modification of ISFSI SSCs covered by the QAP. An ISFSI’s records also include historical records that have been gathered and collected during plant and ISFSI operations. These records are either required in support of the dry cask storage systems used at the ISFSI or for ultimate shipment of the fuel to a Federal repository. The QAP typically allows the storage of QA records, including ISFSI records, to be done in accordance with ANSI N45 2.9-1974 in a single storage facility designed and maintained to minimize the risk of damage from adverse conditions.

The retention of records required by §§ 50.59(d)(3), 52.63(b)(2), 50.71(c), and appendix B to 10 CFR part 50, Criterion XVII, provides assurance that records associated with SSCs will be captured, indexed, and stored in an environmentally suitable and retrievable condition. Although licensees retain the records required by their

license as the plant transitions from operating to license termination, plant dismantlement obviates the regulatory need for maintenance of most records. As the SSCs already removed from the licensing basis are subsequently dismantled and the need for the associated records is, on a practical basis, eliminated, the changes in this final rule allow disposal of the records associated with SSCs and historical activities that are no longer relevant to decommissioning and thereby eliminate the associated regulatory and economic burdens of creating alternative storage locations, relocating records, or retaining irrelevant records. The recordkeeping and record retention changes in this final rule only expedite the schedule for disposition of the specified records. Considering the content of these records, their elimination on an advanced timetable does not affect the public health and safety. In addition, upon dismantlement of the affected SSCs, the records have no functional purpose relative to maintaining the safe operation of the SSCs, maintaining conditions that would affect the ongoing health and safety of workers or the public, or informing decisions related to nuclear safety and security.

The conforming changes to the recordkeeping requirements for the certified designs in 10 CFR part 52 state that licensees for which the NRC has docketed the certifications required under § 52.110(a) are not required to retain records of departures from the design of the facility associated solely with SSCs that have been permanently removed from service using an NRC-approved change process. This change is consistent with the recordkeeping requirements being implemented for nuclear power reactors licensed in accordance with 10 CFR part 50 and is supported by the same underlying considerations as the other record retention requirement changes.

The change to the portion of § 72.72(d) to eliminate the requirement for ISFSI licensees to keep a duplicate set of records for spent fuel in storage continues to meet the recordkeeping requirements of appendix B to 10 CFR part 50, as well as other

applicable 10 CFR part 72 requirements for the storage and maintenance of spent fuel records in accordance with an NRC-approved QAP. Specifically, paragraph (d) of § 72.140, “Quality assurance requirements,” states that a QA program that the NRC has approved as meeting the applicable requirements of appendix B to 10 CFR part 50 will be accepted as satisfying the requirements of § 72.140(b) for establishing an ISFSI QA program. However, the licensee must also meet the recordkeeping provisions of § 72.174, “Quality assurance records.” In addition, this final rule change does not affect the record content, retrievability, or retention requirements specified in § 72.72 or § 72.174, such that the licensee will continue to meet all other applicable recordkeeping requirements for the ISFSI and associated special nuclear materials.

In implementing these rule changes, the NRC determined that the process and procedures used to store the ISFSI records (i.e., in accordance with the QAP at a facility designed for protection against degradation mechanisms such as fire, humidity, and condensation) help ensure that the licensee will adequately maintain the required spent fuel information. Therefore, changes to the duplicate record requirement of § 72.72(d) do not affect public health and safety. In addition, allowing the ISFSI spent fuel records to be stored in the same manner as that of other QA records for the nuclear facility provides for greater efficiency in the storage of all records once the facility enters the final stages of decommissioning, where the site licensed footprint may be reduced to only encompass the ISFSI.

*J. Low-Level Radioactive Waste Transportation*

The existing paragraph III.E of appendix G, “Requirements for Transfers of Low-Level Radioactive Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests,” to 10 CFR part 20 contains requirements for investigating, tracing, and

reporting shipments of LLW if the shipper[6] has not received notification of receipt within 20 days after transfer. In addition, paragraph III.E requires the shipper to report such missing shipments to the NRC. Licensees, primarily those that are involved in the decommissioning process, frequently request an exemption from the requirement related to the 20-day receipt notification window. Based on the justification provided by these past exemptions and one of the stated purposes of this rule to reduce the number of regulatory exemptions needed for a nuclear power reactor to transition from operations to decommissioning, the NRC is amending this requirement to extend the receipt notification window because such an extension provides licensees with flexibility while not impacting public health and safety or the common defense and security.

In the proposed rule, the NRC explained that licensees that had been granted these exemptions typically requested extension of the required investigation timeframe to 45 days using the justification that operating experience indicated that, while the 20-day receipt notification window is adequate for waste shipments by truck, waste shipments using other modes of shipment such as rail, barge, or mixed-mode shipments, such as combinations of truck and rail, barge and rail, and barge and truck shipments, may take more than 20 days to reach their destination due to delays in the route that are outside the shipper's control (e.g., rail cars in switchyards waiting to be included in a complete train to the LLW disposal facility). The NRC granted the previous transportation investigation requirement exemptions based on a finding of reasonable assurance that the shipper would continue to meet the underlying purpose of the LLW transportation regulations—to require the shipper to investigate, trace, and report radioactive shipments that have not reached their destination, as scheduled, for

[6] Paragraph III.E of appendix G to 10 CFR part 20 uses the term "shipper," which the regulation defines to mean "the licensed entity (i.e., the waste generator, waste collector, or waste processor) who offers LLW for transportation, typically consigning this type of waste to a licensed waste collector, waste processor, or land disposal facility operator."

unknown reasons.

Under the current regulations, the shipper must investigate, trace, and report to the NRC any shipments of LLW for which the shipper has not received a notification of receipt within 20 days after transfer unless the shipper receives an exemption from the 20-day receipt notification requirement. The NRC has found that exempting licensees from this requirement does not undermine public health and safety, nor does it increase any security risk. Specifically, the NRC notes that allowing the receipt notification to be made past 20 days would not impact public health and safety or the common defense and security, even if the LLW transportation package was situated in a publicly accessible area and waiting for continuing transport to the waste disposal site because: (1) individuals in the vicinity of the LLW transportation package would receive no additional radiological dose above background levels resulting from the disposal container, which will have been prepared and packaged in accordance with the applicable U.S. Department of Transportation requirements for shipping radiological waste; and (2) the LLW would remain secured in the transportation package until the package can be delivered to the waste disposal site. The NRC also notes that for LLW waste shipments, most shippers will use an electronic data tracking system interchange or similar tracking systems that allow the carrier to monitor the progress of the shipments daily. Because of the oversight and monitoring of radioactive waste shipments throughout the journey from the nuclear facility to the disposal site, the loss, misdirection, or diversion of a shipment without the knowledge of the carrier or the shipper is unlikely.

Therefore, the NRC proposed to change the requirement for the investigation, tracing, and reporting timeframe for LLW transportation to extend the receipt notification window to 45 days after the shipper transfers LLW from a licensed facility to a disposal site. After publication of the proposed rule, the NRC received seven additional requests

for exemption from the LLW notification requirement. These requests indicated that 45 days may not be a reasonable upper limit for this notification window based on the amount of time LLW shipments by rail can take, especially from facilities on the east coast of the United States that have limited or no direct rail access at the site.

As a result of this additional information, the NRC is extending the receipt notification window to 90 days after the shipper transfers LLW from a licensed facility to a disposal site. This change continues to meet the underlying purpose of appendix G to 10 CFR part 20, paragraph III.E, which requires the shipper to investigate, trace, and report LLW shipments that have not reached their destination, as scheduled, for unknown reasons. Furthermore, extending the time period for notification of receipt to 90 days before requiring investigation, tracing, and reporting maintains a reasonable upper limit on shipment duration if a breakdown of normal tracking systems were to occur, based on operating experience.

In addition, the NRC is correcting a typographical error in the current version of appendix G to 10 CFR part 20, paragraph III.E. Specifically, that paragraph III.E states that LLW shipments must "be investigated by the shipper if the shipper has not received notification **or** receipt within 20 days after transfer…" (emphasis added). The "or" should be "of," consistent with the subsequent discussions in 10 CFR part 20 regarding notifications of receipt and the associated exemptions granted in this area. Therefore, the NRC is correcting this error as part of this final rule for consistency and clarity within 10 CFR part 20.

*K. Spent Fuel Management Planning*

The existing regulation in § 72.218(a) states that the § 50.54(bb) spent fuel management program (i.e., the irradiated fuel management plan or IFMP) must include a plan for removing from the reactor site the spent fuel stored under a 10 CFR part 72 general license. The IFMP must show how the spent fuel will be managed before

starting to decommission the SSCs needed for moving, unloading, and shipping this spent fuel. Section 72.218(b) requires that an application for termination of a reactor operating license submitted under § 50.82 or § 52.110 must also describe how the spent fuel stored under a 10 CFR part 72 general license will be removed from the reactor site. Although § 72.218 states what information the § 50.54(bb) IFMP and the § 50.82 or § 52.110 application for termination of a reactor operating license must include, the regulations in §§ 50.54(bb), 50.82, and 52.110 do not contain this information.

As §§ 50.54(bb), 50.82, and 52.110 do not reflect or otherwise reference the provisions in § 72.218, this causes regulatory uncertainty. The NRC is revising the regulations in §§ 50.54(bb), 50.82, 52.110, and 72.218 to align the requirements, provide regulatory clarity, and enhance overall regulatory transparency and openness regarding decommissioning and spent fuel management planning.

*1. Requirements for the IFMP in § 50.54(bb) and the PSDAR in §§ 50.82 and 52.110*

The PSDAR and IFMP are planning documents for decommissioning and spent fuel management, respectively. The current requirements for the timing of the submittal of the PSDAR and IFMP are similar, as the NRC's regulations recognize that a licensee's ability to plan properly and safely for decommissioning is closely related to the licensee's ability to manage its spent fuel. Actions to manage spent fuel include activities taken prior and subsequent to decommissioning. Therefore, a licensee's spent fuel management plans and its decommissioning plans should be consistent.

The NRC is amending the regulations to merge the existing IFMP provisions in §§ 50.54(bb) and 72.218 into the PSDAR provisions in §§ 50.82 and 52.110 and deleting § 50.54(bb), such that there will no longer be a requirement for a standalone IFMP and a licensee's planning information for decommissioning and spent fuel management will be consolidated in one report (the PSDAR). This will align licensees' decommissioning

plans and spent fuel management plans, as well as the NRC's review of, oversight for, and stakeholder engagement on, those plans.

The NRC is moving the IFMP requirements in the current § 50.54(bb) to §§ 50.82(a)(4) and 52.110(d) to require that the PSDAR discuss: (1) the licensee's planned actions for managing spent fuel until title to, and possession of, the spent fuel is transferred to the Secretary of Energy; (2) how those actions would be consistent with the NRC requirements for possession of spent fuel; and (3) any actions related to spent fuel management that would require NRC authorization. The NRC is moving the current § 72.218(a) provision regarding the management of spent fuel during decommissioning to §§ 50.82(a)(4) and 52.110(d). Consistent with the approach in current § 72.218(a), the final rule requires that licensees do not start to decommission SSCs needed for moving, unloading, and shipping spent fuel that is stored in an ISFSI licensed under the general license provisions in § 72.210 until the NRC has received the licensee's PSDAR submittal.

The NRC is deleting the current § 50.54(bb) requirement to provide information on the funding for management of irradiated fuel because the existing §§ 50.82(a)(4)(i) and 52.110(d)(1) already require the site-specific decommissioning cost estimate submitted with the PSDAR to include the projected cost of managing spent fuel. Also, the existing § 50.82(a)(8)(vii) and the new § 52.110(h)(7) require licensees, after submitting the site-specific decommissioning cost estimate, to annually report on the status of their funding for managing spent fuel.

The NRC is merging the current § 50.54(bb) requirement for notification of IFMP changes into the §§ 50.82(a)(7) and 52.110(g) requirements for notification of PSDAR changes, as the IFMP will now be a part of the PSDAR. The current §§ 50.82(a)(7) and 52.110(g) already require licensee notification to the NRC and the affected State(s) of any planned decommissioning activity permitted under § 50.59 but inconsistent with, or

making any significant schedule change from, those actions and schedules described in the PSDAR, including changes that significantly increase the decommissioning cost. The NRC is adding to §§ 50.82(a)(7) and 52.110(g) references to spent fuel management activities permitted under § 72.48, the 10 CFR part 72 equivalent to § 50.59, to require notification of those activities inconsistent with, or making any significant schedule change from, those actions and schedules described in the IFMP or PSDAR, including changes that significantly increase the cost of managing spent fuel.

The NRC is also adding language to recognize that an IFMP submitted under § 50.54(bb) before the effective date of this final rule will be considered to be part of the PSDAR after the effective date of this final rule, so changes to previously submitted IFMP information will be subject to the notification requirements in §§ 50.82(a)(7) and 52.110(g). The NRC is not requiring licensees who submitted an IFMP under § 50.54(bb) before the effective date of this final rule to re-submit that IFMP to incorporate the IFMP information into the PSDAR.

The NRC is moving the current and proposed § 50.54(bb) recordkeeping requirements to §§ 50.82(a)(7) and 52.110(g) to require that licensees retain a copy of any previously submitted IFMP as a record, and that the IFMP must be retained until termination of the 10 CFR part 50 or 10 CFR part 52 license. The NRC is also adding a requirement that the licensee similarly retain a copy of the PSDAR as a record, as the IFMP will now be a part of the PSDAR. The NRC did not previously have an explicit requirement to retain a copy of the PSDAR, but the requirement was implicit because the licensee had to retain a copy of the PSDAR to know what changes to the activities described in the PSDAR would require notification to the NRC under §§ 50.82(a)(7) and 52.110(g).

In the proposed rule, the NRC proposed to require submittal of the IFMP, and any changes to the IFMP, as a license amendment request. This proposed change was

meant to address the current IFMP approval provision in § 50.54(bb) that is outdated. Current § 50.54(bb) states that "[f]inal Commission review [of the IFMP] will be undertaken as part of any proceeding for continued licensing under part 50 or part 72…." However, these proceedings no longer exist as they did when § 50.54(bb) was first promulgated in 1984. In the final rule adopting § 50.54(bb), "Requirements for Licensee Actions Regarding the Disposition of Spent Fuel Upon Expiration of Reactor Operating Licenses" (49 FR 34688; August 31, 1984) (1984 Final Rule), the Commission discussed the "proceeding for continued licensing under part 50" as the pre-1996 power reactor decommissioning process, where licensees were required to submit a license amendment request for approval of the DP and to change the license from an operating license to a possession-only license before starting decommissioning. The NRC noted in the 1984 Final Rule that the IFMP would become part of the conditions of an amended 10 CFR part 50 possession-only license for a shutdown power reactor facility. After the 1996 Final Rule, the NRC no longer requires submittal of a license amendment request when a power reactor ceases operations, and thus, there is no longer a "proceeding for continued licensing under part 50" for the NRC to undertake a final review of the IFMP.

The 1984 Final Rule discusses the "proceeding for continued licensing under part 72" as the application for, and NRC issuance of, a 10 CFR part 72 specific license for storage of spent fuel in an ISFSI. The 1984 issuance of § 50.54(bb) preceded the general license ISFSI provisions, which were added to 10 CFR part 72 in 1990. Regarding the 10 CFR part 72 general license, storage of spent fuel in a general license ISFSI is authorized by operation of law via § 72.210, so there is no NRC "licensing proceeding" or approval needed for the 10 CFR part 72 general license. As most power reactor licensees use the 10 CFR part 72 general license for storage of spent fuel in an ISFSI or already hold a 10 CFR part 72 specific license before they are required to submit an IFMP, there would be no "proceeding for continued licensing under part 72"

for the NRC to undertake a final review of the IFMP.

The NRC received substantive and varied comments on the IFMP topic in the proposed rule, particularly with respect to the proposal to require NRC approval of the IFMP by license amendment. Some commenters requested that the NRC approve IFMPs, while other commenters asked the NRC to delete the IFMP requirement entirely. The remainder of the commenters took issue with the proposal to approve IFMPs by license amendment, stating that this approach is: (1) inconsistent with the current regulatory framework for decommissioning power reactors, where licensees already have the authority under their existing licenses to perform decommissioning activities under §§ 50.59, 50.82, and 52.110; (2) inconsistent with the current regulatory framework for spent fuel storage under a 10 CFR part 72 general license, which does not involve additional site-specific approvals per the Nuclear Waste Policy Act (NWPA); (3) inconsistent with the Commission's position on the nature of the IFMP as a planning document that supports NRC oversight; (4) overly burdensome and not appropriate because the NRC's approval of the IFMP does not authorize any actions or grant the licensee any new or greater authority than it already had; and (5) an unanalyzed backfit.

The NRC agrees with many of these comments. The proposed approval of the IFMP (and changes to the IFMP) via license amendment is unnecessary when licensees already have the authority to decommission the plant and SSCs under §§ 50.59, 50.82, and 52.110. The proposed rule approach would diverge from the current regulatory framework for spent fuel storage under a general license, which, consistent with the NWPA, does not involve additional site-specific approvals. The NRC does not agree that there is a basis to eliminate the requirement for an IFMP. The requirement for licensees to provide the NRC with their spent fuel management planning information is still necessary because, until such time as DOE takes title to, and possession of, a licensee's spent fuel, the NRC regulates the licensee's storage of spent fuel.

In response to public comments, the NRC is merging the existing IFMP provisions in §§ 50.54(bb) and 72.218 into the PSDAR and decommissioning provisions in §§ 50.82 and 52.110. This change will align these requirements, reduce regulatory uncertainty, and enhance overall regulatory transparency and openness regarding decommissioning and spent fuel management planning. This approach will increase transparency and openness by expanding the public notice, comment period, and meeting already required for PSDARs to the spent fuel management information in IFMPs, thereby providing opportunities for stakeholder engagement on this information that do not exist under the current regulations. This approach will also improve the effectiveness and efficiency of communications between the NRC and stakeholders on the nexus between decommissioning and spent fuel management and assist the NRC in addressing frequent stakeholder questions on which reactor SSCs are needed—and when—for spent fuel management.

Merging the IFMP provisions into the PSDAR provisions will mean that the spent fuel management planning information will not be subject to NRC approval because the NRC does not approve the PSDAR. However, the NRC's overall approach will result in the IFMP and PSDAR review process being more expansive and responsive to stakeholders' interests and concerns, and will better support the NRC's oversight of safe and effective decommissioning and spent fuel management.

As a result of the merging of the IFMP requirements with the PSDAR requirements, the NRC is re-organizing §§ 50.82(a)(4)(i) and 52.110(d)(1) for readability. New §§ 50.82(a)(4)(i) and 52.110(d)(1) each have four subparagraphs. The first two and fourth subparagraphs describe the existing requirements (as revised in this final rule) for the contents of a PSDAR. The new third subparagraph describes the aspects of the licensee's spent fuel management plan that must be included in the PSDAR. The NRC is also revising §§ 50.82(a)(4)(ii) and 52.110(d)(2) to clarify the NRC's noticing

requirements with respect to the PSDAR.

*2. Requirements in § 72.218 for Termination of the General License for Spent Fuel Storage*

As discussed in section III.K.1, "Requirements for the IFMP in § 50.54(bb) and the PSDAR in §§ 50.82 and 52.110," of this document, the NRC is moving the spent fuel management provision from § 72.218(a), regarding decommissioning of SSCs needed for moving, unloading, and shipping spent fuel, to the PSDAR and decommissioning provisions in §§ 50.82 and 52.110. The NRC also determined that the language in § 72.218(a) and (b) requiring licensees to have a plan for removal of the spent fuel from the reactor site and a description of how the spent fuel will be removed from the reactor site is not necessary because fuel removal is contingent upon a national policy for the final disposition of spent fuel and is beyond the control of the licensee. Accordingly, this language is being deleted. This final rule more appropriately requires that a licensee's plans to safely manage spent fuel at the reactor site until DOE takes title to, and possession of, the spent fuel be included in the PSDAR.

In addition, the NRC is revising § 72.218 to address requirements related to the termination of the 10 CFR part 72 general license, as the title of § 72.218, "Termination of licenses," suggests. The 10 CFR part 72 general license is issued to 10 CFR part 50 or 10 CFR part 52 licensees, per the regulation in § 72.210. It follows that the 10 CFR part 72 general license would terminate coincident with the termination of the 10 CFR part 50 or 10 CFR part 52 license. In addition, since the general license ISFSI is part of the 10 CFR part 50 or 10 CFR part 52 licensed site, decommissioning of the general license ISFSI would follow the reactor decommissioning process in § 50.82 or § 52.110, respectively. This approach is also consistent with the NRC's approach to ISFSI decommissioning funding as discussed in section III.F, "Decommissioning Funding Assurance," of this document.

To provide regulatory clarity between 10 CFR part 50, 10 CFR part 52, and 10 CFR part 72 in terms of decommissioning and termination of the 10 CFR part 72 general license, the NRC is revising § 72.218 to include the following provisions: (1) the general license ISFSI must be decommissioned consistent with the requirements in § 50.82 or § 52.110; and (2) the general license is terminated upon termination of the 10 CFR part 50 or 10 CFR part 52 license. This change provides regulatory clarity among 10 CFR part 50, 10 CFR part 52, and 10 CFR part 72 in terms of decommissioning and termination of the 10 CFR part 72 general license, analogous to the provision in § 72.210 that ties the issuance of the 10 CFR part 72 general license to the existence of the 10 CFR part 50 or 10 CFR part 52 license.

*L. Backfit Rule*

For nuclear power reactor licensees, the NRC's backfitting provisions are located in § 50.109 and the issue finality provisions are in 10 CFR part 52 (hereinafter collectively referred to as the "Backfit Rule"). The language of the Backfit Rule clearly applies to the design, construction, or operation of a nuclear power facility. For example, § 50.109(a)(1) defines "backfitting" to mean changes to, among other things, the procedures or organization required to design, construct, or operate a facility. The application of the Backfit Rule to decommissioning plants is not as clear. In SECY-98-253, "Applicability of Plant-Specific Backfit Requirements to Plants Undergoing Decommissioning," dated November 4, 1998, the NRC staff presented the Commission with a list of reasons underlying this uncertainty:

- The Backfit Rule has no end point when the rule no longer applies, "thereby implying that backfit protection continues into decommissioning and up to the point of license termination."
- The term "operate" could reasonably be interpreted as including activities to decommission the reactor.

- The Backfit Rule was developed when the decommissioning of plants was not an active area of regulatory concern.
- The Backfit Rule's definition of "backfitting" uses terms associated with the design, construction, and operation of a facility rather than with its decommissioning, although the staff noted in SECY-98-253 that "prior to the 1996 decommissioning rule, the Commission regarded decommissioning as a phase of the plant's life cycle which is different from the operational phase."
- Two of the factors used in evaluating a backfit—costs of construction delay/facility downtime, and changes in plant/operational complexity—are targeted to power operation and are "conceptually inappropriate in evaluating the impacts of a backfit on a decommissioning plant."
- The preambles for the 1970 (35 FR 5317; March 31, 1970), 1985 (50 FR 38097; September 20, 1985), and 1988 (53 FR 20603; June 6, 1988) final Backfit Rules did not discuss any aspect of decommissioning, focusing instead on construction and operation.
- Proposed changes to decommissioning requirements usually focus on relaxing a requirement or on whether a requirement applicable to an operating reactor continues to be applicable to a decommissioning plant. Thus, "the notion of a 'substantial increase' in protection to public health and safety from a backfit does not appear to be particularly useful [in decommissioning]."
- The 1996 Final Rule did not directly respond to questions from the public on the applicability of the Backfit Rule to a decommissioning plant.

Over the years, the NRC tried to clarify the applicability of the Backfit Rule to nuclear power reactors in decommissioning. In SECY-98-253, the NRC staff requested Commission approval to amend § 50.109, among other regulations, so that the Backfit

Rule would clearly apply to plants in decommissioning. In that paper, the NRC staff also proposed that, until the rulemaking was finished, the staff would apply the Backfit Rule to plants undergoing decommissioning “to the extent practical.”

In the February 12, 1999, SRM for SECY-98-253, the Commission approved development of a Backfit Rule for plants undergoing decommissioning. The Commission directed the NRC staff to continue to apply the then-current Backfit Rule to plants undergoing decommissioning until issuance of the final rule. The Commission directed the staff to develop a rulemaking plan, which the staff transmitted to the Commission in SECY-00-0145. In SECY-00-0145, the NRC staff proposed, among other decommissioning-related amendments to its regulations, amendments to § 50.109 to show clearly that the Backfit Rule applies during decommissioning and to remove factors that are not applicable to nuclear power plants in decommissioning. As explained in section I.C, “Post-1996 Final Rule Decommissioning Activity,” of this document, the NRC ultimately did not conduct that rulemaking. Therefore, the NRC continued to apply the Backfit Rule to NRC actions affecting facilities undergoing decommissioning to the extent practical.

In this final rule, the NRC completes the process begun more than two decades ago to capture in its regulations the Commission’s long-standing policy that the Backfit Rule applies to NRC actions that affect nuclear power reactor licensees in decommissioning. The reasons for applying the Backfit Rule to these actions are the same reasons for applying the Backfit Rule to NRC actions that affect licensees that are operating a nuclear power reactor. As explained in the Commission’s policy statement, “Revision of Backfitting Process for Power Reactors” (48 FR 44173; September 28, 1983), the Backfit Rule is needed to ensure the NRC properly identifies, documents, and justifies certain new or changed requirements or staff positions to be imposed on nuclear power reactor licensees. For a nuclear power reactor in decommissioning, § 50.51(b)

(with a similar requirement in § 52.109 for combined license holders) provides that the licensee's reactor license continues in effect and the licensee continues as a nuclear power reactor licensee until the NRC terminates the reactor license.

The NRC is amending § 50.109 to create a backfitting provision in new § 50.109(b) solely for nuclear power reactors in decommissioning that is similar to the backfitting provision during their operating phase. New § 50.109(b)(1) lists the entities that are within the scope of this backfitting provision: nuclear power reactor licensees that possess an approved DP, have NRC-docketed certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel under § 50.82(a)(1) or § 52.110(a), have a license that was permanently modified to allow possession but not operation of their facility, or have been issued a final legally effective order to permanently cease operations and such order has come into effect. Listing these entities in § 50.109(b)(1) is a change from the proposed rule, in response to a public comment, to clarify the scope of § 50.109(b).

Another change from the proposed rule is the removal of language from proposed § 50.109(b)(1) (which is § 50.109(b)(2) in this final rule) that made that provision unclear and could have limited the scope of the Backfit Rule to a smaller group of decommissioning nuclear power reactors than the NRC intended. The NRC is also replacing the timing language in proposed § 50.109(b)(1) to clarify the date after which an NRC modification or addition could constitute backfitting. That date is when the licensee meets one of the criteria in § 50.109(b)(1) and begins the decommissioning phase for its facility. These changes result from public comments.

The NRC is making other revisions to § 50.109 in this final rule. To make the section easier to read, the NRC is inserting paragraph headings. The NRC is removing existing § 50.109(b) regarding backfits imposed prior to October 21, 1985, because the language is obsolete and no longer needed. The remaining paragraphs of existing §

50.109 have been moved under § 50.109(a) and renumbered to create the backfitting provisions for nuclear power reactor licensees prior to decommissioning. The new § 50.109(b) contains the backfitting provisions for decommissioning nuclear power reactor licensees.

Section 50.109(a)(1)(vi) and its corresponding provision in new § 50.109(b)(7) each include a sentence explaining that a documented evaluation, which is used by the NRC to justify not performing a backfit analysis for backfitting actions, must include a consideration of the costs of imposing the backfit if the basis for backfitting is bringing a facility into compliance with a license or the rules or orders of the Commission, or into conformance with the licensee's written commitments under § 50.109(a)(1)(iv)(A) or (b)(5)(i). This change is consistent with the Commission's policy stated in Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," which is based on the U.S. Supreme Court's decision in *Michigan v. Environmental Protection Agency*, 576 U.S. 743 (2015). In that decision, the Court ruled that, under the Administrative Procedure Act, unless Congress has indicated otherwise, an agency's decision-making process must include at least some consideration of the cost placed on a licensee to comply with new requirements. In the AEA, Congress directs the NRC to take actions necessary for adequate protection of the public health and safety. In taking those actions directed by Congress, the NRC does not consider costs (*Union of Concerned Scientists v. Nuclear Regulatory Commission*, 824 F.2d 108 (D.C. Cir. 1987)). However, backfitting actions under § 50.109(a)(1)(iv)(A) or § 50.109(b)(5)(i) are not necessary to ensure adequate protection of the public health and safety and, therefore, the NRC must consider the costs of those backfitting actions.

Further, the NRC is making conforming changes to § 72.62 to clarify that the corresponding backfitting regulations in 10 CFR part 72 apply during the decommissioning of an ISFSI or a monitored retrievable storage facility subject to those

provisions.

*M. Foreign Ownership, Control, or Domination*

The NRC is amending its regulations to address the circumstances when a facility licensed under 10 CFR part 50 or 10 CFR part 52 no longer meets the definition of a utilization facility or a production facility. The AEA has certain requirements specific to utilization or production facilities. By clarifying when a 10 CFR part 50 or 10 CFR part 52 licensed facility is no longer a utilization or a production facility, the NRC can then specify whether these AEA requirements still apply to the licensee for that facility. For instance, the AEA prohibits the issuance of a license for a utilization or a production facility to an entity that the Commission knows or has reason to believe is foreign owned, controlled, or dominated. The Commission's regulations that implement this prohibition, however, were unclear as to when a facility undergoing decommissioning is no longer a utilization or a production facility. Given this uncertainty, licensees requested exemptions from § 50.38 to transfer 10 CFR part 50 licenses for facilities that no longer met the definition of a utilization facility. The NRC is amending its regulations to clarify when a facility licensed under 10 CFR part 50 or 10 CFR part 52 is not considered a production or utilization facility and, therefore, the FOCD prohibition no longer applies.

The NRC's regulations in 10 CFR part 50 and 10 CFR part 52 provide for the issuance of a 10 CFR part 50 license for a utilization or a production facility and a 10 CFR part 52 license for a utilization facility. The AEA defines "utilization facility" as:

> (1) any equipment or device, except an atomic weapon, determined by rule of the Commission to be capable of making use of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public, or peculiarly adapted for making use of atomic energy in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; or (2) any important component part especially designed for such equipment or device as determined by the Commission.

The AEA defines "production facility," in part, as:

> (1) any equipment or device determined by rule of the Commission to be capable of the production of special nuclear material in such quantity as to be of significance to the common defense and security, or in such manner as to affect the health and safety of the public; or (2) any important component part especially designed for such equipment or device as determined by the Commission.

As authorized by the AEA, the Commission has a rule defining utilization facility and production facility. In § 50.2, a utilization facility is defined as either (1) any nuclear reactor other than one designed or used primarily for the formation of plutonium or uranium-233; or (2) an accelerator-driven subcritical operating assembly used for the irradiation of materials containing special nuclear material and described in the application for the SHINE Medical Isotope Production Facility. A production facility is defined as a nuclear reactor designed or used primarily for the formation of plutonium or uranium-233; with certain exceptions not relevant here, a facility designed or used for the separation of the isotopes of plutonium; or, with certain exceptions not relevant here, a facility designed or used for the processing of irradiated materials containing special nuclear material.

The NRC's case law provides insight as to when a facility licensed under 10 CFR part 50 or 10 CFR part 52 is no longer a utilization or a production facility. In LBP-84-33, *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit 1), 20 NRC 765 (1984), an Atomic Safety and Licensing Board granted the licensee's motion to withdraw its application for a 10 CFR part 50 operating license for a nuclear power reactor, despite the fact that the facility was almost completely built. One of the conditions for granting the motion was that the nuclear steam supply system be modified to prevent the facility's operation as a utilization facility. The Board determined that because a utilization facility under the AEA is a facility that is capable of making use of special nuclear material, the facility must be modified to eliminate that capability for it to no longer be categorized as a utilization facility. The Board observed that this can be

achieved, for example, by severing and welding caps on main feedwater lines and main steam lines and removing the fuel and the control rod drive mechanisms.

The NRC is adding to its regulations language similar to the *Zimmer* decision to establish the criteria for when a facility licensed under 10 CFR part 50 or 10 CFR part 52 no longer meets the statutory or regulatory definition of a utilization or a production facility (i.e., is no longer capable of making use of special nuclear material or of the production of special nuclear material, separation of the isotopes of plutonium, or processing of irradiated materials containing special nuclear material (hereinafter collectively referred to as production-facility activities)). The first criterion is that the facility must not be legally authorized to operate. The second criterion is the physical modification of the licensed facility to be incapable of making use of special nuclear material and of production-facility activities, without significant facility alterations necessary to restore the capability to make use of special nuclear material or to engage in production-facility activities. When a utilization facility is physically modified to be incapable of making use of special nuclear material, it is no longer designed or used to sustain nuclear fission in a self-supporting chain reaction.

Sections 50.82(a)(2) and 52.110(b) already provide for the first criterion for nuclear power reactor licensees—that the facility is no longer legally authorized to operate. Sections 50.82(a)(2) and 52.110(b), as revised in this final rule, state, respectively, that a 10 CFR part 50 license and a 10 CFR part 52 license no longer authorize operation of the reactor or emplacement of fuel into or retention of fuel in the reactor vessel once the NRC has docketed the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel, or when a final legally effective order to permanently cease operations has come into effect. The NRC is amending these regulations to add the second criterion—that the facility licensed under 10 CFR part 50 or 10 CFR part 52 is no longer a utilization facility once the licensee

modifies the facility to be incapable of making use of special nuclear material without significant facility alterations.

Because the NRC's regulations do not state when a non-power production or utilization facility or fuel reprocessing plant licensee is no longer authorized to operate (other than at license termination), the NRC is amending § 50.82(b) to add the criteria for when a non-power production or utilization facility or fuel reprocessing plant is no longer a production or a utilization facility. The NRC is renumbering current paragraph (b)(6) in § 50.82 as paragraph (b)(8) and adding new paragraphs (b)(6) and (b)(7). New paragraph (b)(6) provides that a non-power production or utilization facility or fuel reprocessing plant is not legally capable of operating when the NRC removes the licensee's authority to operate the facility through a license amendment. The NRC can remove a non-power production or utilization facility or fuel reprocessing plant licensee's authority to operate by issuing a possession-only license amendment or by approving the licensee's DP through a license amendment, either of which would explicitly remove the licensee's authority to operate. These licensees typically request a possession-only license amendment first and then submit a DP via a second license amendment request. This final rule offers licensees the option to request only one licensing action—the DP license amendment—that also would address the licensee's operating authority, rendering a separate "possession-only license amendment" unnecessary. To address those instances when the licensee is still operating the facility when the licensee submits its DP license amendment request, the DP license amendment would itself identify the date on which the authority to operate is removed.

The NRC also is including in new § 50.82(b)(6) the second criterion for when the non-power production or utilization facility or fuel reprocessing plant is no longer a production or a utilization facility (i.e., once the licensee modifies the facility to be incapable of production-facility activities and making use of special nuclear material

without significant facility alterations).

The NRC is adding new § 50.82(b)(7) and amending §§ 50.82(a)(2) and 52.110(b) to affirm the continuation of the NRC's statutory authority over the existing 10 CFR part 50 or 10 CFR part 52 license after the performance of decommissioning activities that lead to the licensed facility no longer meeting the definition of a utilization or a production facility. This facility transition occurs with every licensee during decommissioning: eventually, the facility will be dismantled to the point where it is incapable of making use of special nuclear material or of production-facility activities without significant facility alterations.

Although the facility licensed under 10 CFR part 50 or 10 CFR part 52 may no longer be a utilization or a production facility, the NRC maintains the authority to regulate the existing 10 CFR part 50 or 10 CFR part 52 license. A 10 CFR part 50 operating license for a production or utilization facility is issued under AEA section 103 or section 104, and a 10 CFR part 52 combined license for a utilization facility is issued under AEA section 103 and section 185b. That license may contain authorities beyond those governed by 10 CFR part 50 or 10 CFR part 52. Under § 50.52, "Combining licenses," the Commission may combine in a single license the activities that would otherwise be licensed under separate licenses. Accordingly, a typical 10 CFR part 50 or 10 CFR part 52 nuclear power reactor license also includes in a single license the authority under 10 CFR part 30, 10 CFR part 40, and 10 CFR part 70 of the NRC's regulations to perform activities or possess materials authorized by those parts.

Part 30, part 40, and part 70 of 10 CFR are authorized by section 81, section 63, and section 53 of the AEA and concern the licensing of byproduct, source, and special nuclear materials, respectively. A typical 10 CFR part 50 non-power production or utilization facility license also includes the authority under 10 CFR part 30 and 10 CFR part 70 of the NRC's regulations to perform activities or possess materials authorized by

those parts. When the facility is no longer a production or utilization facility, the NRC maintains the authority to regulate the facility and the 10 CFR part 50 or 10 CFR part 52 license under a combination of AEA section 53, section 63, section 81, and section 161. Sections 50.51(b) and 52.109 of the NRC's regulations also establish that the 10 CFR part 50 or 10 CFR part 52 license continues in effect until the NRC terminates the license, notwithstanding the fact that at some point in time during the dismantlement required for license termination, the licensed facility will be disassembled to such an extent that it no longer satisfies the definition of a utilization or a production facility. Therefore, the NRC is amending §§ 50.82(a)(2), 50.82(b), and 52.110(b) to explicitly cite these statutory provisions as the basis for its retention of the authority to regulate the existing 10 CFR part 50 or 10 CFR part 52 facility. The NRC is making conforming changes to the authority citations for 10 CFR part 50 and 10 CFR part 52 to add section 53, section 63, and section 81 of the AEA.

The NRC is also amending §§ 50.82(a)(2), 50.82(b), and 52.110(b) to state which requirements apply to the existing 10 CFR part 50 or 10 CFR part 52 license after the licensed facility is no longer a utilization or a production facility. As provided by section 161b of the AEA, the Commission is authorized to establish by regulation such standards to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property. Consistent with this statutory authority, the amendments to §§ 50.82(a)(2), 50.82(b), and 52.110(b) make clear that, after the facility licensed under 10 CFR part 50 or 10 CFR part 52 is no longer a utilization or a production facility and until the termination of the 10 CFR part 50 license pursuant to § 50.82(a)(11) or § 50.82(b)(8) or the 10 CFR part 52 license pursuant to § 52.110(k), the NRC regulations applicable to utilization or production facilities will continue to apply to the holder of the 10 CFR part

50 or 10 CFR part 52 license, as applicable, unless those regulations explicitly state otherwise. These amendments enable a licensee to maintain reasonable assurance of adequate protection of the common defense and security and the public health and safety by requiring the licensee to continue to comply with those regulations applicable to utilization or production facilities, as applicable to that licensee, unless stated otherwise.

The NRC has identified that § 50.38 should not apply to a facility that is no longer a utilization or a production facility. Specifically, the AEA prohibits the issuance of a license for a utilization or a production facility to an entity that the Commission knows or has reason to believe is foreign owned, controlled, or dominated. However, since the FOCD prohibition only applies to a utilization or production facility, it would not apply once a 10 CFR part 50 or 10 CFR part 52 facility is no longer a utilization or a production facility. Therefore, the NRC is amending § 50.38 such that its prohibition on transferring a license to an entity that the Commission knows or has reason to believe is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government, is not applicable if the license is a 10 CFR part 50 or 10 CFR part 52 license for a facility that no longer meets the definition of a utilization or a production facility.

Section 50.80, “Transfer of licenses,” of 10 CFR governs the transfers of 10 CFR part 50 and 10 CFR part 52 licenses for production and utilization facilities. It requires the written consent of the NRC before the transfer of the license for a production or utilization facility. This section also requires applicants for a license transfer to provide the same identifying, technical, and financial information that an initial license applicant is required to provide under § 50.33, “Contents of applications; general information,” and § 50.34, “Contents of applications; technical information.” In particular, § 50.33 requires an application to state the citizenship of the applicant. Under § 50.38, the applicant is ineligible to apply for and obtain a license if it is a foreign entity.

Section 50.38 implements section 103 and section 104 of the AEA, which provide in part that a license for a utilization or a production facility may not be issued to an alien or any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government. Since section 103 and section 104 of the AEA apply to utilization and production facilities, the NRC is amending § 50.38 to clarify that this prohibition does not apply to a person, corporation, or other entity seeking a license for a facility that is no longer a utilization or a production facility, as would be provided under revised § 50.82(a)(2), § 50.82(b)(6), or § 52.110(b).

The amendment to § 50.38 maintains the common defense and security and public health and safety because, even though § 50.38 does not prohibit the transfer to foreign entities of 10 CFR part 50 and 10 CFR part 52 licenses for facilities that do not meet the definition of a utilization or a production facility, other regulations ensure that such transfers would not be inimical to the common defense and security or to the health and safety of the public. For instance, § 50.80(c) states that the Commission will approve an application for the transfer of a license if the Commission determines that the proposed transferee is qualified to be the holder of the license and that the transfer of the license is otherwise consistent with applicable provisions of law, regulations, and orders issued by the Commission. In turn, under § 50.57 or § 52.97, “Issuance of combined licenses,” the Commission may issue a 10 CFR part 50 or 10 CFR part 52 license, respectively, only if the Commission finds that the issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.

The amendment to § 50.38 is consistent with how the NRC analyzed requests for exemptions from § 50.38 for the Maine Yankee Atomic Power Station, Haddam Neck Plant, and Yankee Nuclear Power Station (78 FR 58571; September 24, 2013).

Specifically, the NRC granted those exemptions because the reactor facilities had been dismantled and removed such that only ISFSIs remained on site; an ISFSI, whether licensed under 10 CFR part 50 or 10 CFR part 72, is not capable of making use of special nuclear material; and the AEA definition of a utilization facility does not include ISFSIs. The NRC found that the FOCD prohibition did not apply to ISFSIs and, thus, did not preclude the NRC from granting the exemptions.

The NRC is also amending § 50.1, "Basis, purpose, and procedures applicable," § 50.51, § 52.0, "Scope; applicability of 10 CFR Chapter I provisions," and § 52.109 in light of the amendments to §§ 50.38, 50.82, and 52.110. The amendments make clear that the regulations in 10 CFR part 50, and the similar regulations in 10 CFR part 52, provide not only for the licensing of utilization and production facilities, but also for their decommissioning and the termination of their associated licenses. These changes are clarifications; 10 CFR part 50 has included decommissioning and license termination regulations since 1961 ("Creditors' Rights; and Transfer, Surrender, and Termination of Licenses," 26 FR 9546; October 10, 1961). The NRC is deleting the language in §§ 50.51 and 52.109 that discusses what 10 CFR part 50 and 10 CFR part 52 licenses authorize in lieu of the more complete discussion provided in the amendments to §§ 50.82(a)(2), 50.82(b)(6) and (7), and 52.110(b).

In the proposed rule, the NRC included a definition for "non-power production or utilization facility" in § 50.2. However, in the EP for SMRs and ONTs Final Rule, the NRC added a definition for this term to § 50.2. Therefore, this final rule does not add the definition to § 50.2.

The NRC is revising the introductory text of § 50.82(b) to replace the term "non-power reactor licensees" with "non-power production or utilization facility licensees and fuel reprocessing plant licensees" to ensure that all non-power facilities licensed under § 50.22 or § 50.21(a) or (c) are subject to the relevant license termination and

decommissioning regulations.

*N. Clarification of Scope of License Termination Plan Requirement*

The NRC is amending its regulations to clarify that the requirement for a license termination plan in §§ 50.82(a)(9) and 52.110(i) applies only to nuclear power reactor licensees that commenced operation. This clarification is in response to apparent confusion among combined license holders that have sought to surrender their licenses before operation. By letter dated November 1, 2017, Duke Energy Florida informed the NRC that it would seek termination of the 10 CFR part 52 combined licenses for Levy Nuclear Plant, Units 1 and 2, and would submit a license termination plan in accordance with § 52.110(i). Subsequently, South Carolina Electric & Gas Company (SCE&G) submitted a letter dated December 27, 2017, seeking withdrawal of the 10 CFR part 52 combined licenses for Virgil C. Summer Nuclear Station, Units 2 and 3. The SCE&G request neither cited § 52.110 nor indicated that it would submit a license termination plan. Instead, SCE&G cited the Commission's final "Policy Statement on Deferred Plants" (52 FR 38077; October 14, 1987) (Policy Statement) to support its request for NRC approval to withdraw its combined licenses. The Policy Statement addresses holders of construction permits that defer or terminate plant construction. The Policy Statement provides that a permit holder can request to withdraw its permit and does not cite to the license termination provisions in 10 CFR part 50. The Policy Statement was issued prior to the promulgation of 10 CFR part 52 and has not been updated since, but there is nothing to prevent holders of a combined license from following the applicable parts of the Policy Statement while continuing to comply with the Commission's regulations and the terms and conditions of the combined license.

The requirement for a license termination plan in § 52.110(i) does not apply to plants that have not begun operating. While § 52.110(i) does refer to "[a]ll power reactor licensees," the regulatory history and context indicates that § 52.110 as a whole applies

only to plants that have started operation. Specifically:

- The organization of § 52.110 generally follows the license termination process for an operating plant, from permanent cessation of operations to permanent removal of fuel from the reactor vessel to decommissioning activities to license termination. The requirement for a license termination plan should be understood in this context.

- The vast majority of the requirements in § 52.110 (including § 52.110(i)) either explicitly refer to, or make sense only in the context of, a plant that has operated and is undergoing decommissioning.

- The "[a]ll power reactor licensees" language also appears in § 50.82(a)(9), the 10 CFR part 50 analogue to § 52.110(i). But the NRC does not apply the similar requirements in § 50.82 to holders of construction permits even though construction permits fall within the definition of "License" in § 50.2. For example, the following construction permit terminations do not cite or otherwise address § 50.82: "Washington Public Power Supply System, Washington Nuclear Project, Unit 3; Order Revoking Construction Permit No. CPPR-154" (64 FR 4725; January 29, 1999); "Bellefonte Nuclear Plant, Units 1 and 2—Withdrawal of Construction Permit Nos. CPPR-122 for Unit 1 and CPPR-123 for Unit 2" (September 14, 2006); and "Energy Northwest Nuclear Project No. 1—Termination of Construction Permit CPPR-134" (February 8, 2007). In addition, the rule issuing the "[a]ll power reactor licensees" language in § 50.82(a)(9)—the 1996 Final Rule—was directed at holders of operating licenses, not construction permits.

- According to the final rule issuing § 52.110, which was titled "Licenses, Certifications, and Approvals for Nuclear Power Plants" (72 FR 49352; August 28, 2007), § 52.110 and its companion regulation § 52.109 were intended to be analogous to the

requirements in §§ 50.51 and 50.82 for permanent shutdown of a nuclear power plant, its decommissioning, and the termination of the operating license.

For these reasons, § 52.110 is best understood to apply only to plants that began operation. However, to avoid confusion over the license termination plan requirement, the NRC is amending § 52.110(i) so that it explicitly applies only to "power reactor licensees that have loaded fuel into the reactor." As stated in the "Final Procedures for Conducting Hearings on Conformance With the Acceptance Criteria in Combined Licenses" (81 FR 43266; July 1, 2016), the NRC has historically understood operation as beginning with the loading of fuel into the reactor. Therefore, § 52.110(i) applies to 10 CFR part 52 nuclear power reactor licensees that have begun to load fuel into the reactor.

A conforming change in § 50.82(a)(9) clarifies that the requirement in that provision—that all 10 CFR part 50 nuclear power reactor licensees must submit an application for termination of license—applies to only those 10 CFR part 50 nuclear power reactor licensees that have loaded fuel into the reactor.

*O. Removal of License Conditions and Withdrawal of Order*

The NRC is withdrawing an order and removing license conditions that are substantively redundant with provisions in 10 CFR. The NRC is also amending § 50.155(h) to add new paragraphs (6)-(8) to reflect the withdrawal and removals. Although NRC orders generally provide for their relaxation, withdrawal, or rescission on a licensee-specific basis, use of that process would be an inefficient and unnecessary administrative burden on licensees and the NRC—with no impact on public health and safety—when a subsequent rule replaces the orders in their entirety for all applicable licensees. Therefore, the NRC finds that good cause is shown to withdraw Order EA-06-137, "Order Modifying Licenses," dated June 20, 2006, concerning mitigation strategies for large fires or explosions at nuclear power plants. This order was issued to certain

licensees who received Order EA-02-026, “Order for Interim Safeguards and Security Compensatory Measures,” dated February 25, 2002, which required licensees to take specific interim compensatory measures, including mitigation strategies for large fires or explosions at nuclear power plants, in light of the then-high-level threat environment. Order EA-06-137 required that licensees incorporate key mitigation strategies for large fires or explosions into their security plans. The requirement that these strategies be incorporated in security plans was subsequently relaxed by letter dated August 28, 2006, which permitted licensees to consent to having their licenses amended to incorporate a license condition on the subject. Several licensees had these license conditions imposed by administrative license amendment (e.g., “Browns Ferry Nuclear Plant, Units 1, 2, and 3 – Conforming License Amendments to Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026 and the Radiological Protection Mitigation Strategies Required by Commission Order EA-06-137,” dated August 16, 2007). In its Power Reactor Security Requirements final rule, the NRC established in § 50.54(hh)(2) a regulation that provides a performance-based requirement that encompasses the mitigation strategies required under Order EA-06-137 and its associated license condition. The Mitigation of Beyond-Design-Basis Events rule subsequently moved § 50.54(hh)(2) to § 50.155(b)(3). As a result, neither Order EA-06-137 nor the license condition is necessary. Accordingly, the NRC finds that good cause is shown to withdraw Order EA-06-137 for each licensee that received the order. In addition, because § 50.155(b)(3) provides the same requirements as the license condition associated with Order EA-06-0137, the NRC deems the license condition removed from each applicable nuclear power reactor license.

Order EA-02-026 included a section, numbered B.5.b, in its Attachment 2, requiring mitigation strategies for large fires or explosions at nuclear power plants.

Extensive interactions among the NRC, industry, and licensees refined the strategies required by the order. In 2007, the NRC issued to all then-operating nuclear power reactor licensees an administrative license amendment (e.g., "Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 – Conforming License Amendments to Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026," dated July 11, 2007), containing a license condition entitled, "Mitigation Strategy License Condition," which required licensees to use 14 mitigation strategies. In the Power Reactor Security Requirements final rule, the NRC established in § 50.54(hh), § 50.34(i), and paragraph (d) of § 52.80, "Contents of applications; additional technical information," regulations that made the requirements of Order EA-02-026 generically applicable to nuclear power reactor licensees and applicants. In the Power Reactor Security Requirements final rule, the Commission explained that operating nuclear power reactor licensees already had procedures in place that complied with the new § 50.54(hh)(2). Licensees used the same implementation guidance to comply with the Mitigation Strategy License Condition as they used to comply with § 50.54(hh)(2); consequently, compliance with § 50.54(hh)(2) is sufficient to comply with the Mitigation Strategy License Condition. Subsequently, the NRC rescinded Order EA-02-026, section B.5.b by letter dated November 28, 2011, based on the fact that the regulations encompassed the order requirements. Because licensees comply with both the regulations and Mitigation Strategy License Condition via the same guidance, such that the former § 50.54(hh)(2) requirements encompass the license condition requirements, the NRC concludes that § 50.155(b)(3) fully replaces the requirements that exist in the Mitigation Strategy License Condition and deems that the Mitigation Strategy License Conditions imposed in 2007 are removed from the licenses for those licensees that received that license condition.

As discussed in section III.C., "Cybersecurity," of this document, the NRC imposed a license condition referencing the approved CSP in each 10 CFR part 50

license during the course of review and approval of the CSP. This final rule removes that license condition once sufficient time has passed since the permanent removal of fuel from the reactor vessel.

Because this final rule removes certain license conditions without actually amending the associated licenses, the NRC will issue by letter an administrative license amendment to each applicable licensee that will remove the relevant license condition(s) from that licensee's license and include revised license pages.

*P. Changes for Consistent Treatment of Holders of Combined Licenses and Operating Licenses*

The NRC is revising §§ 50.36(c)(6), 50.44(b), 50.46(a)(1)(i), 50.48(f), 50.54(y), 50.60(a), 50.61(b)(1), 50.62(a), 50.71(e)(4), and 10 CFR part 50, appendix I, section IV.C, to provide consistent treatment for COL (10 CFR part 52) and operating license (10 CFR part 50) holders. These changes align regulatory applicabilities for COL holders upon submittal of the § 52.110(a) certifications with regulatory applicabilities for operating license holders upon submittal of the § 50.82(a)(1) certifications. In each section listed, the NRC is inserting "or § 52.110(a)" following each instance of "§ 50.82(a)(1)."

The NRC is revising incorrect references to § 52.110 in §§ 50.49(a), 50.54(o), 50.65(a)(1), and 52.110(e) by replacing "§ 52.110(a)(1)" with "§ 52.110(a)." The NRC is inserting a reference to § 52.110 following an existing reference to § 50.82 in §§ 50.54(w)(4)(ii), 50.54(w)(4)(iii), 50.75(e)(1)(ii)(B), 50.75(e)(1)(v), 50.75(h)(1)(iv), and 50.75(h)(2). The NRC is removing the words "under this part" from the § 50.54(w) introductory text because paragraph (w) is also applicable to holders of combined licenses issued under 10 CFR part 52 as stated in the introductory text for § 50.54. Also, the NRC is revising an incorrect reference in § 50.59(b) by replacing "§ 50.110" with "§ 52.110(a)." Finally, the NRC is providing further specificity to a reference in 10 CFR

part 50, appendix I, section IV by replacing “§ 52.110” with “§ 52.110(a).”

## IV. Opportunities for Public Participation

The NRC published the proposed rule on March 3, 2022, and the comment period was open until May 17, 2022. On May 17, 2022, the NRC extended the public comment period by an additional 105 days to August 30, 2022, to allow more time for members of the public and other stakeholders to develop and submit their comments.

The NRC hosted several public meetings throughout the country in order to provide information to help stakeholders prepare formal comments on the proposed rule and draft regulatory guidance. These public meetings were held on March 21 and March 31, 2022, in Rockville, MD; April 12, 2022, in Chicago, IL; April 19, 2022, in Atlanta, GA; May 4, 2022, in San Luis Obispo, CA; and May 9, 2022, in Plymouth, MA. Summaries of these public meetings are available in ADAMS, as provided in the “Availability of Documents” section of this document. The feedback from the public comment submissions and associated public meetings informed the development of this final rule.

## V. Public Comment Analysis

The NRC prepared a summary and analysis of public comments received on the proposed rule and draft regulatory guides, as referenced in the “Availability of Documents” section of this document. In response to the proposed rule and draft regulatory guides, the NRC received 2,354 comment submissions.

The public comment submittals are available from the Federal e-Rulemaking website at https://www.regulations.gov under Docket ID NRC-2015-0070. Responses to the public comments, including a summary of how this final rule or the guidance changed as a result of the public comments, can be found in the public comment analysis document. Public comments received in response to the proposed rule’s Specific Requests for Comments are also addressed in the public comment analysis document.

For more information about the associated guidance documents, see the "Availability of Guidance" section of this document.

## VI. Section-by-Section Analysis

The following paragraphs describe the specific changes in this final rule.

*Appendix G to Part 20 - Requirements for Transfers of Low-Level Radioactive Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests*

In section III, paragraph E.1., this final rule removes the word "or" and adds in its place the word "of" to correct a typographical error in the current requirement. It also removes the phrase "20 days" and adds in its place the phrase "90 days" to extend the timeframe for providing notification of receipt after the shipper transfers LLW from a licensed facility to a disposal site.

*Section 26.3 Scope*

In § 26.3, this final rule revises paragraph (a) by subdividing it into two subparagraphs, (a)(1) and (2), to include the NRC's docketing of a license holder's certifications required under §§ 50.82(a)(1) and 52.110(a).

*Section 26.825 Criminal penalties*

In § 26.825, this final rule revises paragraph (b) to remove the section number "26.3," from the list of regulations in 10 CFR part 26 that are excluded from § 26.825(a).

*Section 50.1 Basis, purpose, and procedures applicable*

In § 50.1, this final rule adds language clarifying that the regulations in 10 CFR part 50 provide for the licensing of production and utilization facilities through the termination of the associated 10 CFR part 50 licenses.

*Section 50.2 Definitions*

In § 50.2, this final rule retains the existing definition of *certified fuel handler* and adds an alternative definition for the purposes explained in section E.1 of this document.

*Section 50.8 Information collection requirements: OMB approval*

In 50.8, this final rule revises paragraph (b) to add the section number "50.200," for the approved information collection requirements in § 50.8(b).

*Section 50.36 Technical specifications*

In § 50.36, this final rule revises paragraph (c)(6) to insert "or § 52.110(a) of this chapter" following "§ 50.82(a)(1)" to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.38 Ineligibility of certain applicants*

This final rule revises § 50.38 by including the current text as paragraph (a) and adding a new paragraph (b) that states that the prohibition in paragraph (a) of this section does not apply to a person, corporation, or other entity seeking a license for a facility that is not a production or utilization facility.

*Section 50.44 Combustible gas control for nuclear power reactors*

In § 50.44, this final rule revises paragraph (b) to insert "or § 52.110(a) of this chapter" following "§ 50.82(a)(1)" to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.46 Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors*

In § 50.46, this final rule revises paragraph (a)(1)(i) to insert “or § 52.110(a) of this chapter” following “§ 50.82(a)(1)” to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.48 Fire protection*

In § 50.48, this final rule revises paragraph (f) to insert “or § 52.110(a) of this chapter” following “§ 50.82(a)(1)” to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.49 Environmental qualification of electric equipment important to safety for nuclear power plants*

In § 50.49, this final rule revises paragraph (a) by replacing incorrect reference “§ 52.110(a)(1)” with correct reference “§ 52.110(a).”

*Section 50.51 Continuation of license*

In § 50.51, this final rule removes the phrase “to authorize ownership and possession of the production or utilization facility,” for reasons discussed in section III.M of this document.

*Section 50.54 Conditions of licenses*

In § 50.54, this final rule revises footnote 2 to the table in paragraph (m)(2)(i) to indicate when licensed senior operators, licensed operators, and STAs are not required; it revises paragraph (p) to include the definitions for *change* and *decrease in the safeguards effectiveness*, revises and redesignates existing paragraphs (p)(1) and (2) as (p)(2) and (3), and redesignates paragraphs (p)(3) and (4) as paragraphs (p)(5) and (6) and adds a new paragraph (p)(1) and (4).

This final rule revises paragraph (q)(1) to clarify that the definitions are for use in paragraph (q), paragraph (q)(2) to add clarification to the applicability, paragraph (q)(3) to add applicable emergency planning requirements, and paragraph (q)(4) to add a reference to § 50.200 and adds new paragraphs (q)(8) and (9) to add the requirements for licensees after the NRC dockets their certifications required for decommissioning under § 50.82(a)(1) or § 52.110(a).

Paragraph (t) is revised by replacing "." with "or" in the second sentence of paragraph (t)(1)(ii), adding new subparagraph (t)(1)(iii) to clarify the interval at which the licensee's emergency preparedness plan must be reviewed after the NRC has docketed the certifications required for decommissioning, and adding new paragraph (t)(3) to state that the review requirement is no longer required once all fuel is in dry cask storage.

This final rule revises paragraph (w)(4)(ii) and (iii) to add the words "or § 52.110 of this chapter" following "§ 50.82" to improve consistency in regulatory treatment for COLs and operating licenses and by adding new paragraphs (w)(5) and (6) to include the financial protection requirements for production or utilization facilities undergoing decommissioning.

Paragraph (y) is being revised to insert "or § 52.110(a)" following "§ 50.82(a)(1)" and to restructure the paragraph and list the individuals providing approval for a licensee taking action that departs from a license condition or a TS in an emergency.

Paragraph (bb) is removed and reserved.

*Section 50.59 Changes, tests, and experiments*

In § 50.59, this final rule revises paragraph (b) by replacing incorrect reference "§ 50.110" with correct reference "§ 52.110(a)" and revises paragraph (d)(3) to include the exception for when the records of changes requirement in paragraph (d)(3) applies.

*Section 50.60 Acceptance criteria for fracture prevention measures for lightwater nuclear power reactors for normal operation*

In § 50.60, this final rule revises paragraph (a) to insert "or § 52.110(a) of this chapter" following "50.82(a)(1)" to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.61 Fracture toughness requirements for protection against pressurized thermal shock events*

In § 50.61, this final rule revises paragraph (b)(1) to insert "or § 52.110(a) of this chapter" following "50.82(a)(1)" to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.62 Requirements for reduction of risk from anticipated transients without scram (ATWS) events for light-water-cooled nuclear power plants*

In § 50.62, this final rule revises paragraph (a) to insert "or § 52.110(a) of this chapter" following "§ 50.82(a)(1)" to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.65 Requirements for monitoring the effectiveness of maintenance at nuclear power plants*

In § 50.65, this final rule revises paragraph (a)(1) by replacing incorrect reference "§ 52.110(a)(1)" with correct reference "§ 52.110(a)".

*Section 50.71 Maintenance of records, making of reports*

In § 50.71, this final rule revises paragraph (c) by including the current text as paragraph (c)(1) and adding new paragraph (c)(2) to add records requirements for

licensees for whom the NRC has docketed the certifications required for decommissioning.

Paragraph (e)(4) is revised to insert “or § 52.110(a) of this chapter” following “§ 50.82(a)(1)” to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 50.75 Reporting and recordkeeping for decommissioning planning*

In § 50.75, this final rule revises paragraph (a) by clarifying the availability of funds to decommission a facility as defined in § 50.2. Paragraph (b)(1) is revised by replacing “financial assurance for decommissioning” with “reasonable assurance that funds will be available to decommission” and other clarifying and conforming changes; paragraph (b)(3) is revised by removing the phrase “as acceptable to the NRC” from the end of the paragraph; and paragraph (b)(4) is revised to include a site-specific decommissioning cost estimate and the second sentence of current paragraph (b)(4) is moved to become a new paragraph (b)(5).

Paragraph (e)(1) is revised to include the term “reasonable assurance of funds to decommission,” and paragraphs (e)(1)(i) and (ii) are revised to include the description of “decommissioning cost” before the word “estimate” throughout each paragraph. Paragraphs (e)(1)(ii)(B) and (e)(1)(v) are revised to add a reference to § 52.110.

Paragraph (f) is amended by revising (f)(1) to change the date for the required report from “1999” to “2025” and every 3 years thereafter, to specify when any shortfall identified in a report must be covered, and to clarify when the report is required to be submitted annually and when the reporting requirement is superseded by different reporting requirements; it is further amended by removing paragraph (f)(2) and redesignating (f)(3) through (5) as (f)(2) through (4) with minor, clarifying revisions.

Paragraphs (h)(1)(iii) and (iv) and (h)(2) are revised to remove the reference to

two office directors within the NRC for the submission of written notice and replace it with the Document Control Desk. Paragraphs (h)(1)(iv) and (h)(2) are revised to add references to § 52.110(h).

*Section 50.82 Termination of license*

In § 50.82, this final rule revises paragraph (a)(2) to provide clarification as to when a licensed nuclear power reactor is no longer considered to be a utilization facility. It also revises paragraph (a)(4)(i) to state that licensees must provide, in their PSDAR, a discussion of whether the environmental impacts from site-specific decommissioning activities will be bounded by federally issued environmental review documents, and the reasons for reaching that conclusion. Paragraph (a)(4)(i) is also revised to incorporate the existing IFMP provisions in §§ 50.54(bb) and 72.218 into the PSDAR.

Paragraph (a)(6)(ii) is revised to provide clarification. Paragraph (a)(7) is revised to add actions permitted under § 72.48 to the scope of the notification requirement, to add a record retention requirement, and to provide clarification.

Paragraph (a)(8)(i)(A) is revised to remove the words “legitimate decommissioning” and replace the word “decommissioning” with “decommission.” Paragraph (a)(8)(ii) is revised to clarify paragraph (c) to § 50.75 is where the specified amount is located. Paragraph (a)(8)(iii) is removed and reserved.

Paragraph (a)(8)(v) is revised to spell out the acronym “DCE” as “decommissioning cost estimate” and to include the ability for the licensee to combine the reporting requirements of § 72.30 and § 50.82(a)(8)(vii).

Paragraph (a)(8)(vii) is revised to spell out the acronym “DCE” as “decommissioning cost estimate” and to include that if the licensee has completed its final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license with the exception of the ISFSI, then the

required report must be submitted at intervals not to exceed 3 years and may combine the reporting requirements of § 72.30.

Paragraph (a)(9) is revised to clarify that all nuclear power reactors that have loaded fuel into the reactor must submit an application for termination of license and paragraph (a)(9)(ii)(F) is revised to include the requirement to identify funding sources for license termination, spent fuel management, and ISFSI decommissioning, as applicable.

The introductory text of paragraph (b) is revised to replace the term “non-power reactor licensees” with “non-power production or utilization facility licensees and fuel reprocessing plant licensees.”

Paragraph (b)(6) is redesignated as (b)(8), new paragraph (b)(6) is added to include the criteria for when a non-power production or utilization facility or fuel reprocessing plant licensed under 10 CFR part 50 is no longer considered a production or utilization facility, and new paragraph (b)(7) is added to clarify that the NRC maintains its authority to regulate the facility’s 10 CFR part 50 license.

*Section 50.109 Backfitting*

This final rule revises § 50.109 in its entirety to provide backfitting provisions for reactors both before and during decommissioning and to require that a documented evaluation for a modification necessary to bring a facility into compliance with a license or the rules or orders of the Commission, or into conformance with the licensee’s written commitments, must include a consideration of the costs of imposing the modification.

*Section 50.120 Training and qualification of nuclear power plant personnel*

In § 50.120, this final rule revises paragraph (b)(2) to clarify the categories of personnel that are subject to the training requirement in § 50.120(b)(2) upon the

docketing of a licensee's certifications under § 50.82(a)(1) or § 52.110(a).

*Section 50.155 Mitigation of beyond-design-basis events*

In § 50.155, this final rule adds new paragraphs (h)(6), (h)(7), and (h)(8) that deem removed from each applicable nuclear power reactor license certain license conditions and withdraws an order made redundant by regulations imposing substantively identical requirements.

*Section 50.200 Power reactor decommissioning emergency plans*

This final rule adds a new subpart, "Alternative Emergency Preparedness Requirements for Decommissioning Nuclear Power Reactors," after § 50.160. It also adds a new § 50.200 that contains alternative emergency preparedness requirements for nuclear power reactor facilities in decommissioning.

*Appendix E to Part 50 - Emergency Planning and Preparedness for Production and Utilization Facilities*

This final rule revises section I., "Introduction," of appendix E to 10 CFR part 50 by removing paragraph 6.

Section IV., "Content of Emergency Plans," of appendix E to 10 CFR part 50 is revised by removing from paragraph 4 the phrases "of the later of the date" and "or December 23, 2011," from the first sentence; new paragraph 8 is added to inform licensees that the requirements of paragraphs 4, 5, and 6 of this section are no longer required once the NRC dockets the licensee's certifications required for decommissioning; paragraphs A.7., A.9., B.1., C.2., E.8.c., and I. are revised by removing the "by date" phrases; the last sentence of paragraph E.8.d. is removed; in paragraph F.2.d., the end of the 3rd sentence beginning with the word "and" is removed;

paragraph F.2.j.(v) is removed and reserved; and new paragraph F.2.k. is added to require licensees to follow the biennial exercise requirements in paragraph F.2 of appendix E to 10 CFR part 50 after the NRC dockets the certifications required for decommissioning.

*Appendix I to Part 50 - Numerical Guides for Design Objectives and Limiting Conditions for Operation To Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents*

This final rule revises section IV. of appendix I to 10 CFR part 50 by inserting "(a)" following "§ 52.110" for clarity and revises section IV.C of appendix I to 10 CFR part 50 by inserting "or § 52.110(a)" following "§ 50.82(a)(1)" to improve consistency in regulatory treatment for COLs and operating licenses.

*Section 51.53 Postconstruction environmental reports*

This final rule revises paragraph (d) to refer to an amendment approving a license termination plan under § 50.82 or § 52.110, or a DP under § 50.82.

*Section 51.95 Postconstruction environmental impact statements*

This final rule revises paragraph (d) to refer to an amendment approving a license termination plan under § 50.82 or § 52.110, or a DP under § 50.82.

*Section 52.0 Scope; applicability of 10 CFR Chapter I provisions*

In § 52.0, this final rule adds language clarifying that the regulations in 10 CFR part 52 remain effective through the termination of the associated 10 CFR part 52 licenses.

*Section 52.63 Finality of standard design certifications*

This final rule revises paragraph (b)(2) by removing the last sentence and by adding new paragraphs (b)(2)(i) and (ii) regarding the recordkeeping and retention requirements for departures from the design of a facility.

*Section 52.109 Continuation of combined license*

In § 52.109, this final rule removes the phrase “to authorize ownership and possession of the production or utilization facility” for reasons discussed in section III.M of this document.

*Section 52.110 Termination of license*

This final rule revises paragraph (b) as paragraph (b)(1) and adds paragraph (b)(2) to provide clarification as to when a facility licensed under 10 CFR part 52 is no longer considered to be a utilization facility. It also revises paragraph (d)(1) to state that licensees must provide, in their PSDAR, a discussion of whether the environmental impacts from site-specific decommissioning activities will be bounded by federally issued environmental review documents, and the reasons for reaching that conclusion. Paragraph (d)(1) is also revised to incorporate the existing IFMP provisions in §§ 50.54(bb) and 72.218 into the PSDAR.

Paragraph (f)(2) is revised to clarify the decommissioning activities licensees shall not perform. Paragraph (g) is revised to add actions permitted under § 72.48 to the scope of the notification requirement, to add a record retention requirement, and to provide clarification. Paragraph (h)(1)(i) is revised to remove the words “legitimate decommissioning” and replace the word “decommissioning” with “decommission,” paragraph (h)(2) is revised to include a more specific regulatory reference, and paragraph (h)(3) is removed and reserved. Paragraphs (h)(5) through (7) are added with

requirements for the submission of financial status reports. Paragraph (i) is revised to clarify that all nuclear power reactor licensees that have loaded fuel into the reactor must submit an application for termination of license. Paragraph (i)(2)(vi) is revised to include the requirement to identify funding sources for license termination, spent fuel management, and ISFSI decommissioning, as applicable.

*Appendix A to Part 52 - Design Certification Rule for the U.S. Advanced Boiling Water Reactor*

In Appendix A to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Appendix B to Part 52 - Design Certification Rule for the System 80 + Design*

In Appendix B to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Appendix C to Part 52 - Design Certification Rule for the AP600 Design*

In Appendix C to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Appendix D to Part 52 - Design Certification Rule for the AP1000 Design*

In Appendix C to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Appendix E to Part 52 - Design Certification Rule for the ESBWR Design*

In Appendix E to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Appendix F to Part 52 - Design Certification Rule for the APR1400 Design*

In Appendix F to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Appendix G to Part 52 - Design Certification Rule for NuScale*

In Appendix G to part 52, this final rule adds language changing the record retention requirements for licensees that have had their certifications required under § 52.110(a) docketed by the NRC.

*Section 72.13 Applicability*

This final rule revises § 72.13 by adding a new paragraph (e) to identify the sections of 10 CFR part 72 that apply to activities associated with a general license, where the licensee has elected to provide for physical protection of the spent fuel in accordance with § 72.212(b)(9)(vii)(A).

*Section 72.30 Financial assurance and recordkeeping for decommissioning*

This final rule revises § 72.30 by creating new paragraphs (b)(1)–(3) and redesignating the existing paragraphs (b)(1)–(6) as new (b)(3)(i)–(vi) to clarify the decommissioning funding plan requirements. Revisions in paragraph (c) remove the

second sentence and clarify submittal requirements.

*Section 72.32 Emergency Plan*

In § 72.32, this final rule clarifies paragraphs (a) and (c) by consolidating the current language in each paragraph and removing redundancies by using standardized language consistent with other final rule provisions.

*Section 72.44 License conditions*

This final rule revises § 72.44 by adding a sentence to paragraph (f) to indicate that licensees need not comply with the requirements of paragraph (f) once all spent fuel has been removed from the site.

*Section 72.62 Backfitting*

This final rule revises paragraph (a)(2) to clarify that the backfitting provisions under 10 CFR part 72 continue to apply during decommissioning.

*Section 72.72 Material balance, inventory, and records requirements for stored materials*

This final rule revises paragraph (d) by breaking it into three paragraphs. The last sentence of the current paragraph (d) becomes paragraph (d)(3). There is new text for paragraph (d)(2) and minor revisions for paragraph (d)(1).

*Section 72.212 Conditions of general license issued under § 72.210*

This final rule revises § 72.212 by adding new paragraphs (b)(9)(vii)(A) and (B) regarding the protection of spent fuel after the NRC dockets the decommissioning certifications. Paragraph (b)(9)(vii)(A) allows a licensee to provide for physical protection of the spent fuel under Subpart H of 10 CFR part 72 and § 73.51 as an alternative to the

requirements in paragraphs (b)(9)(i)-(vi). Paragraph (b)(9)(vii)(B) requires a licensee who elects to provide physical protection under Subpart H of 10 CFR part 72 and § 73.51 to notify the NRC of this decision using the provisions of § 50.54(p).

*Section 72.218 Termination of licenses*

This final rule revises § 72.218 by revising paragraphs (a) and (b) and removing paragraph (c). Paragraph (a) is revised to reference the decommissioning requirements in § 50.82 or § 52.110 that apply to the general license and paragraph (b) is revised to state when the general license is considered terminated.

*Section 73.51 Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste*

This final rule revises § 73.51 by removing text from paragraph (a), (a)(1), and (a)(2) and adding new paragraph (a)(3). Paragraph (a)(3) is added to require notification to the NRC under the provisions of § 72.212(b)(9)(vii) by a licensee who elects to provide physical protection under Subpart H of 10 CFR part 72.

*Section 73.54 Protection of digital computer and communication systems and networks*

This final rule revises § 73.54 by removing “cyber security” and replacing it with “cybersecurity.” It also removes the introductory text of the section, revises the introductory text of paragraphs (a), (b), and (c), and adds new paragraphs (i) and (j). The introductory text of paragraph (a) is revised to capture that the rule applies during operation and decommissioning. Minor edits are made to paragraphs (b) and (c). Paragraph (i) states that the requirements of § 73.54 no longer apply once the criteria in (i)(1) and (2) are met. Paragraph (j) provides for the removal of the cybersecurity license condition.

*Section 73.55 Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage*

This final rule revises § 73.55 by clarifying in paragraph (b)(3) that a licensee's physical protection program must be designed to prevent significant core damage until the NRC dockets the certifications required for decommissioning.

New paragraphs (b)(9)(ii)(B)(*1*), (*2*), (*2*)(*i*), and (*2*)(*ii*) are added to clarify the FFD program elements of an insider mitigation program. Paragraph (b)(9)(ii)(C) is revised by adding "until the conditions in § 73.54(i) have been satisfied; and" at the end of the sentence.

Paragraph (c)(6) is revised by replacing the text beginning with the words "that describes" through the end of the sentence with the phrase "in accordance with the requirements of § 73.54. The licensee no longer needs to maintain and implement its Cyber Security Plan once the criteria is §73.54(i) have been satisfied."

Paragraph (e)(9)(v)(A) is revised to provide clarification for when the reactor control room will not be considered a vital area.

Paragraph (j)(4)(ii) is revised to include a requirement for a system for communication with the CFH or the senior on-shift licensee representative responsible for overall safety and security of the facility if the NRC has docketed the certifications required for decommissioning.

Paragraph (p)(1)(i) is revised to add paragraphs (A) – (C) to clarify individuals allowed to approve the suspension of security measures in an emergency.

Paragraph (p)(1)(ii) is revised to add paragraphs (A) - (C) to clarify individuals allowed to approve the suspension of security measures during severe weather.

*Section 140.11 Amounts of financial protection for certain reactors*

This final rule revises § 140.11 by adding new paragraphs (a)(5), (a)(5)(i), and (a)(5)(ii) that provide the requirements for the amounts of financial protection required for certain reactors in decommissioning and by redesignating paragraph (b) as paragraph (c) and adding new paragraph (b) that states when secondary financial protection is not required for reactors in decommissioning..

*Section 140.81 Scope and purpose*

This final rule revises § 140.81 by clarifying the applicability of the requirements for an ENO to licensees in decommissioning.

## VII. Regulatory Flexibility Certification

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the NRC certifies that this rule does not have a significant economic impact on a substantial number of small entities. This final rule affects only the licensing and operation of nuclear production and utilization facilities. The companies that own these plants do not fall within the scope of the definition of “small entities” set forth in the Regulatory Flexibility Act or the size standards established by the NRC (§ 2.810, “NRC size standards”).

## VIII. Regulatory Analysis

The NRC has prepared a final regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the NRC. The regulatory analysis is available as indicated in the “Availability of Documents” section of this document.

## IX. Backfitting and Issue Finality

This section describes the backfitting and issue finality implications of this final rule and the guidance documents described in section XVIII, “Availability of Guidance,” of this document as applied to applicants and holders of pertinent NRC approvals. The

NRC's backfitting provisions for holders of construction permits and licenses under 10 CFR part 50 appear in § 50.109, "Backfitting." Issue finality provisions (analogous to the backfitting provisions in § 50.109) for applicants and holders of combined licenses are located in § 52.83, "Finality of referenced NRC approvals; partial initial decision on site suitability," and § 52.98, "Finality of combined licenses; information requests." As stated in section III, "Discussion," of this document, the changes to 10 CFR part 72 do not impose requirements on ISFSI-only licensees. Accordingly, this final rule does not constitute "backfitting" as that term is defined in § 72.62, "Backfitting."

Although the final rule creates a backfitting provision for power reactor licensees in decommissioning in new § 50.109(b), the NRC is not applying this new provision to this final rule because doing so would require that provision to be in effect before the other final rule changes. However, consistent with the Commission's policy described in section III.L of this document, the NRC is applying the existing Backfit Rule—for both operating and decommissioning power reactors—to the changes in this final rule.

*A. Current and Future Applicants and Existing Early Site Permits, Design Certifications, and Standard Design Approvals*

Applicants and potential applicants (for licenses, permits, and regulatory approvals such as design certifications) are not, with certain exceptions, the subject of either the 10 CFR part 50 backfitting provisions or any issue finality provisions under 10 CFR part 52. The backfitting and issue finality regulations include language delineating when those provisions begin; in general, except for the backfitting for decommissioning facilities provision, the backfitting and issue finality regulations begin upon the issuance of a license, permit, or approval (e.g., § 50.109(a)(1)(iii), § 52.98(a)). Furthermore, neither the 10 CFR part 50 backfitting provisions nor the issue finality provisions under 10 CFR part 52—with certain exclusions discussed below—were intended to apply to every NRC action that substantially changes the expectations of current and future

applicants, and applicants have no reasonable expectation that future requirements will not change ("Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants; Final Rule," 54 FR 15372, at 15385-15386; April 18, 1989).

The exceptions to this general principle are applicable whenever a combined license applicant references a 10 CFR part 52 license (e.g., an early site permit) or NRC regulatory approval (e.g., a design certification rule or standard design approval) with specified issue finality provisions. The issues that are resolved in an early site permit, a design certification, or a standard design approval and accorded issue finality do not include decommissioning matters that are the subject of this final rule and guidance, and the final rule and guidance do not contain design requirements. Therefore, this final rule and guidance do not affect the issue finality accorded to early site permits, design certifications, or standard design approvals. For the same reasons, the issue finality provision applicable to combined license applicants (§ 52.83) does not apply to a combined license applicant referencing either an early site permit, a design certification, or a standard design approval with respect to compliance with this final rule. Similarly, even though the issuance of a construction permit under 10 CFR part 50 generally brings the construction permit holder within the scope of backfitting, the issues that are resolved in a construction permit do not include decommissioning matters that are the subject of this final rule and guidance.

*B. Existing Licensees*

Except for a change to § 73.54 that affects the issue finality of COLs, none of the changes in this final rule constitute backfitting or affect the issue finality of a COL for existing licensees. Each change is summarized in this section, and grouped by the justification supporting the conclusion that the change does not constitute backfitting or affect the issue finality of a COL.

The issue finality provision for COLs located in § 52.98 provides, in relevant part, that the Commission may not modify, add, or delete any term or condition of a COL except in accordance with the provisions of § 50.109. If a change does not constitute backfitting, then the change does not affect the issue finality of a COL. The revision to § 73.54 extending the requirement to maintain a cybersecurity plan during Level 1 of decommissioning modifies the terms and conditions of a COL and thereby constitutes a change affecting the issue finality accorded these COL holders. Under § 52.98, the NRC must apply the provisions of § 50.109 to the § 73.54 change. The change constitutes backfitting under § 50.109. The NRC's backfit analysis justifying this backfitting action is presented in section IX.C of this document.

Of the other changes in this final rule, many do not constitute backfitting or affect the issue finality of a COL because they are non-mandatory relaxations of existing requirements. As explained in Management Directive 8.4, non-mandatory relaxations of regulations generally do not meet the definition of "backfitting" in § 50.109(a)(1). Thus, these changes do not constitute backfitting or affect the issue finality of a COL. The following changes are non-mandatory relaxations of existing requirements:

- Amending § 50.54(t)(1) so licensees in decommissioning are able to conduct EP program element reviews at intervals not to exceed 24 months (rather than the previous requirement of 12 months) without conducting an assessment against performance indicators reduces the periodicity of EP program element reviews for licensees in decommissioning but does not preclude such a licensee from continuing to conduct the reviews every 12 months.
- Adding new § 50.54(t)(3) to remove the requirement to conduct periodic EP program element reviews once all fuel is in dry cask storage eliminates the requirement for licensees with all fuel in dry cask storage to conduct periodic

EP program element reviews but does not preclude the licensee from continuing to conduct the reviews.

- Adding new paragraph IV.8 to appendix E to 10 CFR part 50 to clarify that the evacuation time estimate requirements of paragraph IV.4, paragraph IV.5, and paragraph IV.6 are no longer applicable to licensees after permanent cessation of operations and permanent removal of fuel from the reactor vessel eliminates the requirement for such licensees to maintain evacuation time estimates but does not preclude these licensees from continuing to maintain evacuation time estimates.
- Inserting a statement in § 72.44(f) that licensees complying with the 10 CFR part 72 EP requirements need not comply with the requirements of § 72.44(f) when all spent fuel has been removed from the site eliminates the requirement to comply with § 72.44(f) when all spent fuel has been removed from the site but does not preclude such licensees from continuing to comply with § 72.44(f).
- Amending § 73.55(b)(3) to remove the requirement that a licensee's physical protection program be designed to prevent significant core damage once the NRC has docketed the licensee's certifications that its reactor has permanently ceased operating and all fuel has been removed from the reactor vessel eliminates the requirement for such a licensee that its physical protection program be designed to prevent significant core damage but does not preclude the licensee's physical protection program from continuing to prevent significant core damage.
- Revising § 73.55(b)(9)(ii)(C) to clarify that no elements of a cybersecurity plan are required for the insider mitigation program once Level 2 is reached during

decommissioning does not preclude a licensee from maintaining its cybersecurity plan in Level 2.

- Revising § 73.55(e)(9)(v) so that a licensee need not designate the reactor control room as a “vital area” once the NRC has docketed the licensee’s certifications that the reactor has permanently ceased operating and all fuel has been removed from the reactor vessel, and the licensee has documented that all vital equipment has been removed from the control room and the control room does not serve as the vital area boundary for other vital areas, eliminates the requirement that such a licensee designate its reactor control room as a “vital area” after the licensee meets all the criteria in § 73.55(e)(9)(v). The licensee is not, however, required to stop designating the reactor control room as a vital area. If some vital equipment remains in the control room, or the control room serves as the vital area boundary for other vital areas, even after the licensee submits and the NRC dockets the certifications required under § 50.82(a)(1) or § 52.110(a), then the licensee must continue to designate the reactor control room as a vital area.
- Revising §§ 73.55(p)(1)(i) and 73.55(p)(1)(ii) to permit a CFH, or an individual organizationally senior to a licensed senior operator or a CFH, to approve (with input from the security supervisor or manager under § 73.55(p)(1)(ii)) the temporary suspension of security measures once the certifications required under § 50.82(a)(1) or § 52.110(a) have been submitted, but before all spent fuel has been placed in dry cask storage, does not preclude a licensee from continuing to have a licensed senior operator or an organizationally senior individual approve the temporary suspension of security measures (with input from the security supervisor or manager under § 73.55(p)(1)(ii)).

- Revising §§ 73.55(p)(1)(i) and 73.55(p)(1)(ii) to require, at a nuclear power reactor for which all spent fuel has been placed in dry cask storage, an individual designated by the facility licensee or an organizationally senior individual to approve the temporary suspension of security measures (with input from the security supervisor or manager under § 73.55(p)(1)(ii)) does not preclude a licensee from continuing to have a licensed senior operator or an organizationally senior individual approve the temporary suspension of security measures (with input from the security supervisor or manager under § 73.55(p)(1)(ii)).
- Revising § 50.54(y) to require, at a nuclear power reactor for which all spent fuel has been placed in dry cask storage, an individual designated by the facility licensee or an organizationally senior individual to approve licensee action permitted by § 50.54(x), does not preclude a licensee from continuing to have a licensed senior operator, a CFH, or an organizationally senior individual approve this licensee action.
- Amending § 26.3(a) so the requirements of 10 CFR part 26 do not apply to COL holders once the NRC has docketed their § 52.110(a) certifications eliminates the requirement for these licensees but does not preclude them from continuing to implement a FFD program under 10 CFR part 26.
- Changing § 50.54(m)(2)(i) to state that licensed senior operators and licensed operators are not required upon the NRC's docketing of the license holder's certifications required under § 50.82(a)(1) or § 52.110(a) relaxes the staffing requirement but does not preclude licensees from continuing to staff these positions.
- Amending § 50.75(f)(1) to modify the reporting frequency for reactor

decommissioning funding reports from at least once every two years to at least once every three years for licensees of operating nuclear power reactors relaxes the reporting requirement but does not preclude a licensee from continuing to comply with the previous two-year requirement and still satisfy this final rule's at-least-once-every-three-years requirement.

- Amending §§ 50.82(a)(8)(v) and 50.82(a)(8)(vii) to modify the reporting frequency for reactor decommissioning funding reports from annually to at least once every three years for licensees of nuclear power reactors that have completed a final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license with the exception of the ISFSI relaxes the reporting requirement but does not preclude a licensee from continuing to comply with the previous annual requirement and still satisfy this final rule's at-least-once-every-three-years requirement.
- Revising § 72.30(c) so that decommissioning funding plans submitted subsequent to the initial decommissioning funding plan no longer require NRC approval eliminates the requirement for NRC approval but does not preclude licensees from continuing to submit the funding plans for NRC approval.
- Amending paragraph III.E of appendix G to 10 CFR part 20 to increase from 20 days to 90 days the window of time for notification of receipt of shipments of LLW before a shipper is required to investigate, trace, and report to the NRC any shipments of LLW for which the shipper has not received a notification of receipt relaxes the requirement but does not preclude a shipper from continuing to comply with the 20-day requirement and still satisfy this final rule.

- Revising § 50.120 to clarify that training programs derived from a systems approach to training as defined in § 55.4 are not required for the categories of nuclear power plant personnel that are not needed at decommissioning plants does not preclude a licensee from continuing to implement training programs that are based on a systems approach to training for individuals who are not needed at decommissioning plants and still satisfy this final rule.

Many of the changes in this final rule do not constitute backfitting or affect the issue finality of a COL because they provide a voluntary alternative set of requirements. "Backfitting" is defined in § 50.109(a)(1) as, in relevant part, a modification of or addition to the SSCs or design of a facility, or the procedures or organization required to design, construct, or operate a facility, which results from a new or amended provision in the Commission's regulations. The following final rule changes do not require holders of 10 CFR part 50 or 10 CFR part 52 licenses to comply with the final rule changes, so the changes do not result in a modification or addition that constitutes backfitting:

- Adding § 50.200 to provide a voluntary alternative set of requirements for radiological EP at a nuclear power reactor.
- Amending §§ 72.13, 72.212(b)(9)(vii)(A), and 73.51(a) to provide an option that, once all SNF has been placed in dry cask storage, licensees can protect a general license ISFSI under § 73.51 instead of § 73.55.
- Revising § 73.55(j)(4)(ii) to provide an alternative to the requirement for maintaining continuous communications between the alarm stations and the control room. The alternative requires the licensee to maintain communications between alarm stations and the CFH or senior on-shift licensee representative, once the licensee submits and the NRC dockets the certifications that the reactor has permanently ceased operating and all fuel

has been removed from the reactor vessel. The purpose of this requirement is to ensure that the alarm stations are in continuous communications with the person responsible for overall safety and security of the facility, whether the facility is in an operating or decommissioning status. A licensee in decommissioning could maintain its control room such that its continuous communication system still communicates between the alarm stations and the control room as long as a licensed senior operator, a CFH, the senior on-shift licensee representative, or someone who can direct communications between the alarm stations and a CFH or the senior on-shift licensee representative, is continuously present in the control room. Alternatively, if the licensee does not have a control room, the licensee must maintain continuous communications between the alarm stations and the CFH or the senior on-shift licensee representative.

- Amending § 50.2 to provide an alternative definition of "certified fuel handler" to eliminate the need for licensees to submit requests for NRC approval of CFH training programs.
- Revising § 50.82(a)(8)(v) to allow licensees to combine the reports that are required by §§ 50.82(a)(8)(v), 50.82(a)(8)(vii) and 72.30(c).

The remaining changes in this final rule do not constitute backfitting or affect the issue finality of a COL, but they are neither non-mandatory relaxations of existing requirements nor voluntary alternative requirements. These changes do not result in a modification of or addition to SSCs or the design of a facility, or the procedures or organization required to design, construct, operate, or decommission a facility. Therefore, the changes do not meet the § 50.109 definitions of "backfitting" and, thus, do not constitute backfitting and do not affect the issue finality of a COL. The following final rule changes fall into this category:

- Changing § 50.54(q) to allow a licensee using the voluntary EP framework of § 50.200 to use the emergency plan change control process in § 50.54(q). The criteria to determine whether the licensee's emergency plan change requires prior NRC approval and the process to obtain that approval in § 50.54(q) are not within the scope of "backfitting" as defined in § 50.109(a)(1) because they are part of an NRC administrative process that is not required to design, construct, operate, or decommission a facility. In addition, the procedures a licensee might use to decide whether to change its emergency plan are not required to design, construct, operate, or decommission a facility.
- Adding a new paragraph k to 10 CFR part 50, appendix E, section IV.F.2, to state that licensees in decommissioning need to follow the biennial exercise requirements of section IV.F.2. This has been the requirement for these licensees, so this change to the regulations does not change a requirement.
- Removing obsolete dates for certain one-time actions that were required as part of the 2011 EP Final Rule and other obsolete dates. The one-time actions are complete, and licensees continue to meet the requirements past the deadlines.
- Changing § 72.32(c) to clarify that an ISFSI licensee can rely on its 10 CFR part 50 emergency plan to meet the requirements of § 72.32 when the nuclear power reactor is under construction, operating, or in decommissioning. Other provisions of § 72.32 allow an ISFSI licensee with a reactor emergency plan to use that emergency plan to meet the applicable requirements for an ISFSI emergency plan.
- Revising § 50.54(p) to add definitions of "change" and "decrease in

safeguards effectiveness" and require that reactor licensees include with the report required by the new § 50.54(p)(3) a summary of the analysis performed to determine that the change does not decrease the safeguards effectiveness of the security plan. These final rule revisions do not require a licensee to use the § 50.54(p) security plan change process; the revisions relate to how a licensee uses that change process. The criteria to determine whether the licensee's plan change requires prior NRC approval, the process to obtain that approval, and the recordkeeping and reporting requirements for changes that do not require prior NRC approval in § 50.54(p) are not within the scope of "backfitting" as defined in § 50.109 because they are part of an NRC administrative process that is not required to design, construct, operate, or decommission a facility. In addition, the procedures a licensee might use to decide whether to change its security plan are not required to design, construct, operate, or decommission a facility. Changes to licensee procedures to address NRC administrative requirements resulting from this final rule do not constitute changes to procedures required to design, construct, operate, or decommission a facility within the meaning of § 50.109.

- Revising §§ 73.54 and 73.55(c)(6) so the cybersecurity requirements in § 73.54 continue to apply to licensees through Level 1 of decommissioning. Each 10 CFR part 50 licensee has a license condition requiring the licensee to maintain its cybersecurity plan, and this license condition remains in effect during decommissioning until the NRC removes it. Thus, the changes to §§ 73.54 and 73.55(c)(6) do not change the requirement for 10 CFR part 50 licensees.
- Changing § 73.55(b)(9)(ii)(B) to provide minimum requirements for the FFD elements of operating and decommissioning 10 CFR part 50 and 10 CFR part

52 licensees' insider mitigation programs. These licensees are already required to comply with the insider mitigation program requirements of § 73.55(b)(9), so the final rule changes clarify existing requirements.

- Enabling the NRC to impose criminal penalties for willful violations of, attempts to violate, or conspiracies to violate § 26.3 by removing § 26.3 from § 26.825(b), thereby including § 26.3 within the scope of § 26.825(a).
- Changing § 50.54(m)(2)(i) to state that STAs are not required upon the NRC's docketing of the license holder's certifications required under § 50.82(a)(1) or § 52.110(a).
- Revising § 50.75(h) to require certain notifications be sent directly to the NRC's Document Control Desk and not to the Director, Office of Nuclear Reactor Regulation, or Director, Office of Nuclear Material Safety and Safeguards, as applicable.
- Deleting § 50.75(f)(2) because the language of § 50.75(f)(1) fully encompasses the language of paragraph (f)(2) and, therefore, paragraph (f)(2) is unnecessary.
- Amending § 50.75(f)(1) to clarify that when a licensee identifies a shortfall in the decommissioning funding report required by § 50.75(f)(1), the licensee must identify additional financial assurance to cover the shortfall in the next report. Licensees are already required to provide reasonable assurance of decommissioning funding on an ongoing basis. This change does not change this obligation; the final rule clarifies how reasonable assurance of funds will be available for the decommissioning process.
- Clarifying § 50.75(b), (e), and (f) to improve readability and use consistent terminology.

- Changing §§ 50.82(a)(9)(ii)(F) and 52.110(i)(2)(vi) to require licensees to identify the specific sources of funds for “remaining decommissioning costs,” including sources of funds for license termination, spent fuel management, and ISFSI decommissioning, as applicable. Licensees are already required to provide reasonable assurance that funding sources will be available to cover remaining decommissioning costs on an ongoing basis. This change does not change this obligation.
- Adding paragraphs (h)(5) through (h)(7) to § 52.110, with site-specific decommissioning cost estimate reporting requirements that are identical to the requirements in § 50.82(a)(8)(v) through (vii).
- Changing § 72.30(b) to clarify the requirements for an applicant for a specific licensee and a holder of a general license to submit decommissioning funding plans for NRC review and approval. Before this final rule, applicants and holders of licenses under 10 CFR part 72 had to submit decommissioning funding plans for NRC review and approval. The amendments to the regulations do not change these obligations.
- Revising §§ 140.11(a)(5) and 50.54(w)(5) to allow nuclear power reactor licensees in decommissioning to reduce the offsite liability and onsite property insurance amounts, respectively, that they are required to maintain; § 140.81 to include plants in decommissioning within the scope of § 140.81, thereby clarifying the applicability of the requirements for an ENO to reactors in decommissioning; and § 50.54(w) to require a prompt notification to the Commission of any material change in proof of onsite property insurance filed with the Commission under 10 CFR part 50. Changes to 10 CFR part 140 are not subject to the 10 CFR part 50 backfitting provisions and the issue finality

provisions in 10 CFR part 52 because the Price-Anderson Act requires licensees to have offsite financial protection. Changes to the onsite insurance requirements in § 50.54(w) do not fall within the purview of the 10 CFR part 50 backfitting provisions or the issue finality provisions in 10 CFR part 52. In the backfitting discussion for the 1987 final rule, “Changes in Property Insurance Requirements for NRC Licensed Nuclear Power Plants” (52 FR 28963, 28972; August 5, 1987), the Commission stated that requiring an increase in property damage insurance does not meet the definition of “backfitting.” The Commission took similar positions on backfitting in subsequent rulemakings to amend § 50.54(w) (e.g., 54 FR 11161, March 17, 1989; 55 FR 12163, April 2, 1990).

- Amending §§ 50.82(a)(4)(i) and 52.110(d)(1) to require that licensees provide in the PSDAR a discussion of whether the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate federally issued environmental review documents, the licensee’s reasons for reaching that conclusion, and a description of any activities that will not be so bounded.
- Amending §§ 50.82(a)(4)(i) and 52.110(d)(1) to allow licensees to use appropriate federally issued environmental review documents prepared in compliance with NEPA, ESA, NHPA, or other environmental statutes instead of only EISs.
- Revising §§ 50.82(a)(4)(ii) and 52.110(d)(2) to clarify the NRC’s noticing requirements with respect to the PSDAR.
- Changing §§ 50.82(a)(6)(ii) and 52.110(f)(2) to clarify that any potentially significant environmental impact must be bounded by appropriate federally

issued environmental review documents prepared in compliance with NEPA, ESA, NHPA, or other environmental statutes.

- Amending §§ 50.82(a)(8)(i)(A) and 52.110(h)(1)(i) to remove the term "legitimate."
- Removing § 50.82(a)(8)(iii) because § 50.82(a)(4)(i) fully encompasses the requirement at § 50.82(a)(8)(iii), and removing § 52.110(h)(3) because § 52.110(d)(1) fully encompasses the requirement at § 52.110(h)(3).
- Amending 10 CFR part 51 to reflect the changes made in the 1996 Final Rule that nuclear power reactor licensees are not required to submit license amendment requests for authorization to perform decommissioning activities or store spent fuel.
- Changing record retention requirements in §§ 50.59(d)(3), 50.71(c), 52.63(b)(2), and 72.72(d); Part 50, Appendix B, Criterion XVII; and Section X.A.3 of 10 CFR Part 52, Appendices A through G, to eliminate certain recordkeeping requirements and the requirement to keep certain duplicate records.
- Revising §§ 50.54(bb), 50.82, 52.110, and 72.218 to merge the IFMP provisions into the PSDAR and clarify the content of the spent fuel management information required to be included in the PSDAR, which licensees are already required to submit to the NRC.
- Changing § 72.218 to remove spent fuel management provisions that the NRC is moving to § 50.82 and to clarify provisions concerning termination of 10 CFR part 72 general licenses.
- Amending §§ 50.82 and 52.110 to clarify when a facility licensed under 10 CFR part 50 or 10 CFR part 52 is not considered a production or a utilization

facility and, therefore, the foreign ownership, control, or domination of a production or utilization facility prohibition in § 50.38 no longer applies.

- Amending § 50.82(b) to add the criteria for when a non-power production or utilization facility or fuel reprocessing plant is no longer a production or a utilization facility. The only 10 CFR part 50 licensees considered within the scope of the 10 CFR part 50 backfitting provision are nuclear power reactor licensees.
- Revising §§ 50.82(a) and 50.82(b), and § 52.110(b), to clarify the continuation of the NRC's statutory authority over the existing 10 CFR part 50 or 10 CFR part 52 license, and to state which regulations still apply to the licensee, after the performance of decommissioning activities that lead to the licensed facility no longer meeting the definition of a utilization or a production facility.
- Amending §§ 50.1, 50.51, 52.0, and 52.109 to clarify that the regulations in 10 CFR part 50, and the similar regulations in 10 CFR part 52, provide not only for the licensing of utilization and production facilities but also for their decommissioning and the termination of their associated licenses, including when the facility no longer meets the definition of a utilization or production facility.
- Revising §§ 50.82(a)(9) and 52.110(i) to clarify that only nuclear power reactor licensees that have loaded fuel into their reactors must submit license termination plans. The revision does not change this requirement; the rule only clarifies that nuclear power reactor licensees that have not loaded fuel into their reactors do not need to submit license termination plans.
- Removing license conditions and withdrawing an order in § 50.155(h)(6)-(8)

does not change any substantive requirements because the license conditions and order are substantively redundant with NRC regulations issued after the license conditions and orders were issued.

- Changing § 72.32(a) to clarify the emergency plan requirements for an applicant for a specific license under 10 CFR part 72. As discussed in section IX.A, "Current and Future Applicants and Existing Early Site Permits, Design Certifications, and Standard Design Approvals," of this document, applicants generally are outside the scope of the 10 CFR part 50 backfitting provisions and 10 CFR part 52 issue finality provisions. For the same reasons, applicants for a specific license ISFSI are outside the scope of the backfitting provision in § 72.62.
- Changing § 50.109 to clarify application of the 10 CFR part 50 backfitting provisions to NRC actions constituting backfitting or affecting the issue finality of nuclear power reactor licensees in decommissioning, revising § 50.109 to require a documented evaluation to include a consideration of the costs of imposing the backfit if the basis for backfitting is bringing a facility into compliance with a license or the rules or orders of the Commission or into conformance with the licensee's written commitments, and changing § 72.62 to clarify that the backfit regulations in 10 CFR part 72 apply during the decommissioning of an ISFSI or a monitored retrievable storage facility. The changes to backfitting provisions are changes to requirements imposed on the NRC, not on a licensee, so the changes are outside the scope of backfitting and issue finality.

## *C. Backfit Analysis*

### *1. Introduction and Background*

As part of this final rule, the NRC is modifying the cybersecurity requirements in

§§ 73.54 and 73.55(c)(6). This final rule ensures that the cybersecurity requirements continue to apply to nuclear power reactor licensees that have submitted their § 50.82(a)(1) or § 52.110(a) certifications until such time that all spent fuel in the SFP has sufficiently decayed (i.e., at least 10 months for BWRs and 16 months for PWRs after the date of permanent cessation of operations, or an NRC-approved alternative spent fuel decay period).

These amendments constitute a change affecting issue finality for 10 CFR part 52 COL holders, as defined in § 52.98. Before the effective date of this final rule, these licensees are not required to maintain their cybersecurity programs past the date that they are no longer authorized to operate the reactor. Because the requirement for these licensees to maintain their cybersecurity program into the decommissioning phase extends the duration that a COL holder is required to maintain a cybersecurity program, that extension constitutes a new or changed requirement for that licensee and, thus, affects that COL's issue finality.

*2. Detailed Description of the Change Affecting Issue Finality*

Section 73.54 contains the cybersecurity requirements for nuclear power reactors. The NRC established these requirements as part of the 2009 Power Reactor Security Requirements final rule. The 2009 version of the preamble to § 73.54 stated, in part, that by November 23, 2009, each nuclear power reactor licensee "currently licensed to operate" must submit to the NRC a CSP for review and approval. That preamble further stated that the requirements in § 73.54 were applicable to current "applicants for an operating license or combined license" and mandated such applicants to amend their applications to include a CSP. In addition, every 10 CFR part 50 license for a nuclear power reactor that was operating in 2009 contains a license condition to have and maintain a Commission-approved CSP. These license conditions were issued when the NRC approved each licensee's CSP that was submitted to the NRC as

required by the Power Reactor Security Requirements final rule. The Tennessee Valley Authority's 10 CFR part 50 operating license for Watts Bar Nuclear Plant, Unit 2, issued in 2015, also contains a license condition to have and maintain a CSP.

As an initial step in the decommissioning process, a nuclear power reactor licensee must submit written certifications that it has decided to permanently cease operations and has permanently removed all fuel from its reactor vessel, in accordance with §§ 50.82(a)(1)(i) and 50.82(a)(1)(ii) for nuclear power reactors licensed under 10 CFR part 50, or §§ 52.110(a)(1) and 52.110(a)(2) for 10 CFR part 52 combined license holders. As stated in §§ 50.82(a)(2) and 52.110(b), upon the NRC's docketing of these certifications, the license no longer authorizes operation of the reactor or the emplacement of fuel into or retention of fuel in the reactor vessel. In a December 5, 2016, memorandum to the Commission, the NRC staff explained that § 73.54 no longer applies to nuclear power reactor licensees once they have submitted, and the NRC has docketed, these certifications.

As discussed in the "Technical Basis for Graded Approach" section of this document, the NRC has concluded that after 10 months for BWRs and 16 months for PWRs, the spent fuel in the SFP will have decayed and cooled sufficiently such that the fuel cannot heat up to clad ignition temperature within 10 hours under adiabatic conditions. The NRC has determined that until the fuel has decayed and cooled sufficiently, nuclear power reactor licensees must maintain reasonable assurance that their critical digital assets remain protected against cyber attacks. As such, this final rule modifies the cybersecurity requirements in §§ 73.54 and 73.55(c)(6) to ensure that the cybersecurity requirements continue to apply to licensees of decommissioning nuclear power reactors until the spent fuel has decayed and cooled sufficiently (either through the application of a 10-month (BWR) or 16-month (PWR) decay period or an NRC-approved site-specific decay period). This final rule also removes the CSP license

condition from the 10 CFR part 50 licenses at the applicable 10- or 16-month interval, as described in section III.C of this document.

The changes to §§ 73.54 and 73.55(c)(6) in this final rule do not constitute backfitting for currently operating or recently shutdown 10 CFR part 50 reactor licensees. Their CSP license condition remains in effect until the termination of the license, or the NRC removes the condition from the license (e.g., if the licensee submits a license amendment request to remove the CSP requirements from the license and the NRC approves it). The NRC has determined that the requirements of the CSP license conditions are not necessary after the spent fuel in the SFP has sufficiently cooled. This final rule codifies, during Level 1 of decommissioning, the already-imposed requirements of the CSP license conditions. These requirements continue to provide adequate protection of the public health and safety and common defense and security, and continue to support the effective operation of licensees' security and EP programs during the time when a draindown scenario can credibly lead to a zirconium fire. (See section 3 and section 4 of this backfit analysis for an additional cost/benefit discussion.) Therefore, this final rule does not impact these licensees' overall requirement to maintain a cybersecurity program, but instead enables the automatic removal of cybersecurity requirements once fuel in the SFP has sufficiently cooled. Thus, the changes established by this final rule do not impose a new or changed requirement as the licensees are already implementing the requirement as part of their cybersecurity program license conditions.

Conversely, this rulemaking constitutes a change affecting the issue finality for 10 CFR part 52 COL holders. Each currently approved COL includes a license condition to provide the NRC with the licensee's Operational Program Implementation Schedule. The operational programs (which include development and implementation of a security program, including a cybersecurity program) are requirements in the regulations and not

separately identified as license conditions. As a result, a COL does not require the licensee to maintain the cybersecurity program throughout the duration of its license. Before the effective date of this final rule, COL holders are required to maintain a cybersecurity program only as long as § 73.54 is applicable to them. Because § 73.54 no longer applies to the licensee once it is not authorized to operate a nuclear power reactor, and a nuclear power reactor licensee is not authorized to operate a nuclear power reactor during decommissioning, COL holders are not required to maintain their CSP during decommissioning. This final rule, which requires licensees to maintain their cybersecurity program for 10 months (BWR) or 16 months (PWR) beyond the date of permanent cessation of operations (or for an NRC-approved alternative spent fuel decay period), extends the duration over which a COL holder will be required to maintain a cybersecurity program. This extension constitutes a new or changed requirement for that licensee.

Under § 52.98, the Commission cannot modify any term or condition of an issued combined license except in accordance with the provisions of § 52.103 or § 50.109, as applicable. This final rule's amendment of the cybersecurity requirements constitutes a change affecting the issue finality of the COLs issued at the time of the final rule's effective date. The provisions of § 52.103 do not apply to this final rule, so the NRC must show that the amendment meets the requirements of § 50.109 to justify proceeding with this amendment. Because none of the exceptions to the requirement to prepare a backfit analysis in § 50.109(a)(4) applies to this rulemaking, § 50.109(a)(3) requires the NRC to prepare a backfit analysis that demonstrates that the amendment results in a substantial increase in the overall protection of the public health and safety or the common defense and security, and that the direct and indirect costs of implementation are justified in view of this increased protection.

*3. Benefits: Substantial Increase in Public Health and Safety and Common*

*Defense and Security*

The NRC identified qualitative (non-quantifiable) benefits that will occur when the change affecting issue finality is implemented.

The NRC identified two qualitative benefits to the common defense and security and public health and safety that will be realized when the final rule's changes to §§ 73.54 and 73.55(c)(6) are implemented. Specifically, the NRC finds that extending the duration over which the licensee must maintain cybersecurity requirements will:

- Constitute a substantial increase in protection to common defense and security by ensuring that a compromise of digital systems cannot adversely impact the effective operation of licensees' physical security programs; and
- Constitute a substantial increase in public health and safety by ensuring that a compromise of digital systems cannot adversely impact the effective operation of EP systems in the event of a zirconium fire scenario.

*Effective Operation of the Physical Security Program*

The NRC has previously determined that attacks on the SFP are credible and have the potential to lead to an unacceptable impact to common defense and security. Specifically, a physical attack by either an external force or malicious insiders could directly lead to a draindown scenario and subsequent zirconium fire.

As established in §§ 73.54 and 73.55(c)(6), cybersecurity is an essential element of a licensee's physical security program that enables the licensee to effectively protect its site against the design-basis threat of radiological sabotage defined in § 73.1, in accordance with § 73.55(b). Specifically, a physical attack that is augmented with a coincident cyber attack would, in many cases, have a higher chance of success over a purely physical attack. Thus, although there is no cyber attack that can directly lead to a draindown scenario, a cyber attack can be combined with a physical attack on the SFP to improve the physical attack's likelihood of success.

Given a facility without adequate cybersecurity controls in place, several mechanisms exist that could improve the effectiveness of a physical attack on the SFP. For example, a cyber attack could aid a physical assault on the SFP by an external attacker by:

- Disabling perimeter detection to delay or prevent onsite response to the physical assault prior to the attacker gaining entry to the SFP,
- Disrupting onsite and offsite security-related communication to reduce the effectiveness of the licensee's response to the physical assault, and
- Disabling access control doors and gates to enable the attacker expedited physical access to the SFP.

In addition, inadequate cybersecurity controls on facilities' access control systems could enable an attacker to inject information into a licensee's access control system in a manner that would allow unauthorized individuals to obtain unescorted access into the protected or vital areas of the facility. This could allow one or more attackers direct access to the SFP, which could then be exploited to sabotage the SFP in a manner that would result in a draindown scenario.

This factor, combined with the severity of the consequences of a draindown scenario and subsequent zirconium fire that could result from a successful physical attack, demonstrates that maintaining cybersecurity requirements during the period when a draindown scenario could reasonably result in a zirconium fire (i.e., prior to the fuel in the SFP sufficiently cooling) represents a substantial increase in security.

*Effective Operation of Emergency Preparedness Systems*

As discussed in the "Technical Basis for Graded Approach" and "Emergency Preparedness" sections of this document, although the spectrum of credible accidents and operational events requiring an emergency response is reduced at a decommissioning nuclear power reactor as compared to that for an operating nuclear

power reactor, reliable EP functions are still required to ensure public health and safety in the event of a zirconium fire scenario.

As established in §§ 73.54 and 73.55(c)(6), cybersecurity is an essential element of a licensee's physical security program that, in part, ensures that a compromise of digital systems cannot adversely impact EP functions. For example, in the event of a zirconium fire scenario, the licensee's cybersecurity program prevents a cyber attack from adversely impacting the licensee's ability to:

- Notify state, local, and Federal personnel of the emergency;
- Request and communicate with offsite support;
- Assess and classify the emergency conditions;
- Disseminate information to the public during an emergency; and
- Conduct a radiological accident assessment.

The NRC determined that this factor demonstrates that maintaining cybersecurity requirements to ensure that a compromise of digital systems cannot adversely impact the operation of EP functions until the time at which an SFP draindown would likely be mitigated prior to a zirconium fire scenario (i.e., once the fuel in the SFP has sufficiently cooled) represents a substantial increase in public health and safety.

*4. Costs*

The NRC identified quantitative costs (i.e., costs that are amenable to quantitative evaluation) that will be incurred when the final rule's changes affecting issue finality are implemented.

Based on a review of feedback received during recent inspections of the full implementation of licensees' cybersecurity programs, the NRC estimates that the cost to implement a cybersecurity program for a decommissioning nuclear power reactor is approximately $300,000 per site per year. As previously stated, the final rule change

affecting issue finality extends the duration that a licensee must maintain its cybersecurity program for 10 (BWR) or 16 (PWR) months. Thus, the cost associated with this extension is approximately $250,000 (BWR) or $400,000 (PWR).

The NRC expects that this change will affect only two PWRs, Units 3 and 4 at the Vogtle Electric Generating Plant (Vogtle). Assuming that the Vogtle licensee decommissions its reactors 80 years after commencing operations, then the total cost associated with this change affecting issue finality will be approximately $2,000 using a 7 percent discount rate.

*5. Determination of Substantial Benefits Justifying Costs of the Proposed Change Affecting Issue Finality*

The NRC finds that the final rule change affecting issue finality provides a substantial increase in protection to public health and safety and common defense and security by ensuring that a compromise of digital systems cannot adversely impact the effective operation of Vogtle's security and EP programs during the time when a draindown scenario can credibly lead to a zirconium fire. The NRC finds that this substantial increase justifies the $2,000 in costs that is expected to accrue to the licensee.

*6. Conclusion*

On the basis of this analysis, the NRC determines that the change affecting issue finality resulting from the cybersecurity portion of this final rule is justified under § 50.109(a)(3).

*7. Evaluation of Factors in § 50.109(c)(1) through (9)*

In performing this analysis, the NRC considered the nine factors in § 50.109(c), as follows:

*Statement of the specific objectives that the backfit is designed to achieve*

The two objectives for the cybersecurity portion of the "Regulatory Improvements

for Production and Utilization Facilities Transitioning to Decommissioning" rulemaking are:

- To ensure the effectiveness of the physical protection program during the period over which an SFP draindown could realistically result in a zirconium fire scenario; and
- To ensure the effectiveness of EP functions during the period over which an SFP draindown may not be mitigatable prior to the draindown resulting in a zirconium fire.

Note that the change affecting issue finality is only applicable to nuclear power reactors licensed under 10 CFR part 52 as of the effective date of this final rule.

*General description of the activity that will be required by the licensee or applicant in order to complete the backfit*

The NRC is modifying the cybersecurity requirements in §§ 73.54 and 73.55(c)(6) to ensure that the cybersecurity requirements continue to apply to licensees of decommissioning nuclear power reactors until such time that all spent fuel in the SFP has sufficiently decayed (i.e., 10 months for BWRs and 16 months for PWRs since the date of permanent cessation of operations, or an NRC-approved alternative spent fuel decay period). The change affecting issue finality is only applicable to nuclear power reactors licensed under 10 CFR part 52 as of the effective date of this final rule.

*Potential change in the risk to the public from the accidental offsite release of radioactive material*

The rulemaking is intended to reduce the risk of offsite releases as a result of breaches in security at nuclear power plants, and to ensure the functionality of EP functions in the case of a zirconium fire scenario. However, the reduction in risk to the public from offsite releases of radioactive materials has not been fully quantified because there is insufficient information and modeling to support such quantification.

*Potential impact on radiological exposure of facility employees*

The rulemaking provides added assurance that nuclear industry workers are not subjected to unnecessary radiological exposures as the result of a breach in security that causes a zirconium fire leading to a release of radiation that security and other site personnel are exposed to as the result of their response activities. Further, the rulemaking ensures that EP functions, including evacuation procedures, are not adversely impacted by a cyber attack during the period when a draindown scenario could reasonably result in a zirconium fire, thus ensuring that nuclear industry workers are not subjected to unnecessary radiological exposures in the case of a zirconium fire scenario.

*Installation and continuing costs associated with the backfit, including the cost of facility downtime or the cost of construction delay*

The backfit analysis to support the change affecting issue finality resulting from this final rule includes the NRC's estimate of the total costs for maintaining a licensee's cybersecurity program until the fuel in the SFP has sufficiently cooled to adequately ensure that an SFP draindown does not result in a zirconium fire scenario. The estimated one-time industry net cost associated with the change affecting issue finality is approximately $2,000.

*The potential safety impact of changes in plant or operational complexity, including the relationship to final and existing regulatory requirements*

The cybersecurity portion of this final rule does not impose any requirements beyond those in place while the nuclear power reactor is operational. As such, this rule is not expected to have an effect on facility complexity.

*The estimated resource burden on the NRC associated with the backfit and the availability of such resources*

This rulemaking may result in a minor increase in the expenditure of agency

resources, due to the potential for cybersecurity inspections to be conducted after the licensee has ceased operations and before the fuel in the SFP has sufficiently cooled to allow the licensee to exit Level 1 of decommissioning (i.e., 10 months for BWRs and 16 months for PWRs since the date of permanent cessation of operations, or an NRC-approved alternative spent fuel decay period).

*The potential impact of differences in facility type, design or age on the relevancy and practicality of the backfit*

The NRC expects the change to the cybersecurity requirements to affect only two reactor units, both of which are PWRs.

*Whether the backfit is interim or final and, if interim, the justification for imposing the backfit on an interim basis*

The change affecting issue finality is final.

*D. Regulatory Guidance*

As described in the "Availability of Guidance" section of this document, the NRC is issuing four regulatory guides that provide guidance on the methods acceptable to the NRC for complying with aspects of this final rule. The RGs apply to all current holders of operating licenses under 10 CFR part 50 and COLs under 10 CFR part 52. Issuance of the RGs does not constitute backfitting under § 50.109 and does not otherwise constitute a change affecting issue finality under 10 CFR part 52. As discussed in the "Implementation" section of each RG, the NRC has no current intention to impose the RGs on current holders of an operating license or COL.

For the same reasons provided under the "Current and Future Applicants" section of this backfit analysis that explain why this final rule does not constitute backfitting or a change affecting issue finality for applicants, applying the RGs to applications for operating licenses or COLs would not constitute backfitting as defined in § 50.109 and would not otherwise constitute a change affecting issue finality under 10

CFR part 52.

## X. Cumulative Effects of Regulation

Cumulative Effects of Regulation (CER) consists of the challenges licensees may face in addressing the implementation of new regulatory positions, programs, and requirements (e.g., rulemaking, guidance, generic letters, backfits, inspections). The CER may manifest in several ways, including the total burden imposed on licensees by the NRC from simultaneous or consecutive regulatory actions that can adversely affect the licensee's capability to implement those requirements, while continuing to operate its facility in a safe and secure manner.

The goals of the NRC's CER effort were met throughout the development of this final rule. The NRC engaged external stakeholders at public meetings and by soliciting public comments on the proposed rule and associated draft guidance documents. The NRC published the proposed rule on March 3, 2022, and the comment period was open until May 17, 2022. On May 17, 2022, the NRC extended the public comment period by an additional 105 days to August 30, 2022. The NRC hosted several public meetings throughout the country including meetings on March 31, 2022, in Rockville, MD; April 12, 2022, in Chicago, IL; April 19, 2022, in Atlanta, GA; May 4, 2022, in San Luis Obispo, CA; and May 9, 2022, in Plymouth, MA. Summaries of these public meetings are available in ADAMS, as provided in the "Availability of Documents" section of this document.

Although some of the changes in this rulemaking create an alternative regulatory framework for decommissioning, which is primarily optional for licensees, the NRC included in the *Federal Register* notice for the proposed rule a request for feedback related to CER. Specifically, the NRC requested feedback on the implementation and potential unintended consequences of the proposed rule, as well as the NRC's estimates of the cost and benefits of the proposed rule. The NRC received two comments in

response to the CER questions in the proposed rule, but neither resulted in a change to the final rule. A summary of the comments and the NRC's responses to the comments are available as indicated in the "Availability of Documents" section of this document.

## XI. 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).

## XII. National Environmental Policy Act

The NRC has determined that this final rule includes some actions that are of the types described in paragraph (c) of § 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review." The NRC has previously determined that these types of actions do not have a significant impact on the environment and has categorically excluded them from the requirement to prepare an environmental analysis. Specifically, the NRC has determined that some amendments in this proposed rule are the types of actions described in the § 51.22(c) exclusions noted in Table 4. Therefore, neither an EIS nor an EA has been prepared for these portions of the final rule.

**Table 4—Application of 10 CFR 51.22 Categorical Exclusions to the Final Requirements**

| Regulation | Applicable 10 CFR 51.22 paragraph |
|---|---|
| 10 CFR part 26 | (c)(1), (c)(3) |
| 10 CFR 50.2 | (c)(2), (c)(3) |
| 10 CFR 50.54(bb) | (c)(3) |
| 10 CFR 50.59(d) | (c)(3) |
| 10 CFR 50.71(c) | (c)(3) |
| 10 CFR 50.75(f) | (c)(3) |

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| Elimination of 10 CFR 50.75(f)(2) | (c)(2) |
| 10 CFR 50.82(a) | (c)(2), (c)(3) |
| 10 CFR 50.109 | (c)(2) |
| 10 CFR part 50, appendix A | (c)(3) |
| 10 CFR part 20, appendix G | (c)(3) |
| 10 CFR 51.53 | (c)(3) |
| 10 CFR 51.95 | (c)(3) |
| 10 CFR 52.63 | (c)(3) |
| 10 CFR 52.110 | (c)(2) |
| 10 CFR 72.72 | (c)(3) |
| 10 CFR 72.218 | (c)(3) |
| 10 CFR part 140 | (c)(1) |

*Final Finding of No Significant Impacts*

As described in the EA for this final rule, for those portions of the final rule not categorically excluded under § 51.22, the Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A, "National Environmental Policy Act—Regulations Implementing Section 102(2)," of 10 CFR part 51, that this rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an EIS is not required. The basis of this determination reads as follows: The NRC has prepared an EA for the portions of the proposed rule not categorically excluded under § 51.22. Based on the EA, the NRC concludes that this final rule would not have significant environmental impacts because the changes would be administrative or procedural in natural and would have no nexus to the physical environment or would have no significant impact on the environment.

The NRC requested the views of stakeholders, including the States, on this regulatory action and the associated EA at multiple stages of the rulemaking as described in section 4, "Agencies and Persons Consulted," of the EA. During the public

comment period for the proposed rule, one comment from multiple State Attorneys General was received on the draft EA and draft Finding of No Significant Impact (FONSI). The NRC considered the comment but did not make changes to its environmental analysis based on the input.

The determination of the EA for this final rule is that there will be no significant offsite impact to the public from this action. The EA is available as indicated under the "Availability of Documents" section of this document.

## XIII. Paperwork Reduction Act

This final rule contains new or amended collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). The collections of information were approved by the Office of Management and Budget, approval numbers 3150-0014, -0146, -0011, -0151, -0132, -0002.

The burden to the public for the information collections is estimated to average -3,658 hours per response (-77.5 hours for 10 CFR part 20, 0 hours for 10 CFR part 26, -3,114.5 hours for 10 CFR part 50, 0 hours for 10 CFR part 52, -436 hours for 10 CFR part 72, and -30 hours for 10 CFR part 73), including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection.

The information collections result in changes in the recordkeeping and reporting burden relative to existing rules by creating a regulatory framework for production and utilization facility licensees transitioning to decommissioning and amending existing regulations that relate to the decommissioning of production and utilization facilities. Decommissioning nuclear power reactor licensees and the NRC have expended substantial resources preparing and processing licensing actions for nuclear power reactors during their transition period to decommissioning status.

Licensees that are currently transitioning to decommissioning have been

requesting NRC review and approval of licensing actions, which are informed by the low risk of an offsite radiological release posed by a decommissioning reactor. Specifically, the licensees are seeking NRC approval of exemptions and license amendments to revise requirements to reflect the reduced operations and risks posed by a permanently shutdown and defueled reactor. This final rule will, on balance, reduce the paperwork burden imposed on production and utilization facility licensees transitioning to decommissioning by establishing a graded approach to the requirements imposed on these facilities. The graded approach will adjust the level of analysis, documentation, and actions necessary to comply with safety requirements and criteria commensurate with several factors, including the magnitude of any credible hazard involved, and the balance between radiological and nonradiological hazards as applicable to the level within the decommissioning process. The NRC expects that the changes in this final rule will enhance the efficiency of the decommissioning process and reduce the overall burden on licensees.

Information is used by the NRC to ensure production and utilization facilities choosing to utilize the alternative, graded approach to decommissioning comply with safety requirements and criteria commensurate with the level of risk posed by the facility, while ensuring adequate protection of the health and safety of the public. Responses to this collection of information are required for both those licensees choosing to comply with the regulatory framework for production and utilization facility licensees transitioning to decommissioning established under the final rule and licensees complying with existing regulations that relate to the decommissioning of production and utilization facilities. Confidential and proprietary information submitted to the NRC is protected in accordance with NRC regulations in paragraph (a) of § 9.17, “Agency records exempt from public disclosure,” and paragraph (b) of § 2.390, “Public inspections, exemptions, requests for withholding.”

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

- **Federal Rulemaking Website:** Go to https://www.regulations.gov and search for Docket ID NRC-2015-0070.
- **Mail comments to:** FOIA, Library, and Information Collections Branch, (T6-A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by email to Infocollects.Resource@nrc.gov, and to the OMB reviewer at: OMB Office of Information and Regulatory Affairs (3150-0014, 3150-0146, 3150-0011, 3150-0151, 3150-0132, and 3150-0002) Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; email: oira_submission@omb.eop.gov.

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.

## XIV. Congressional Review Act

This final rule is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

## XV. Criminal Penalties

For the purposes of section 223 of the Atomic Energy Act of 1954, as amended (AEA), the NRC is issuing this final rule that amends or adds §§ 26.3, 50.54, 50.59, 50.71, 50.75, 50.82, 50.200, 52.110, 72.30, 72.72, 72.212, 72.218, 73.51, 73.54, 73.55, and 140.11, as well as appendix G to 10 CFR part 20, appendix A to 10 CFR part 50, and appendix E to 10 CFR part 50, under one or more of section 161b, section 161i, or section 161o of the AEA. Willful violations of these provisions will be subject to criminal enforcement. Criminal penalties as they apply to the regulations in 10 CFR

parts 20, 26, 50, 52, 72, 73 and 140 are discussed in §§ 20.2402, 26.825, 50.111, 52.303, 72.86, 73.81 and 140.89, respectively.

## XVI. Compatibility of Agreement State Regulations

Under the "Agreement State Program Policy Statement" approved by the Commission on October 2, 2017, and published in the *Federal Register* on October 18, 2017 (82 FR 48535), NRC program elements (including regulations) are placed into compatibility Categories A, B, C, D, or NRC; or adequacy category Health and Safety (H&S). Compatibility Category A program elements are those program elements that are basic radiation protection standards and scientific terms and definitions that are necessary to understand radiation protection concepts. An Agreement State should adopt Category A program elements in an essentially identical manner in order to provide uniformity in the regulation of agreement material on a nationwide basis. Compatibility Category B program elements are those program elements that apply to activities that have direct and significant effects in multiple jurisdictions. An Agreement State should adopt Category B program elements in an essentially identical manner. Compatibility Category C program elements are those program elements that do not meet the criteria of Category A or Category B, but do contain the essential objectives that an Agreement State should adopt 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 should adopt the essential objectives of the Category C program elements. Compatibility Category D program elements are those program elements that do not meet any of the criteria of Category A, B, or C and, therefore, do not need to be adopted by Agreement States for purposes of compatibility.

Compatibility Category NRC program elements are those program elements that address areas of regulation that cannot be relinquished to the Agreement States

under the Atomic Energy Act of 1954, as amended, or provisions of 10 CFR. These program elements should not be adopted by the Agreement States. Adequacy Category H&S program elements are program elements that are required because of a particular health and safety role in the regulation of agreement state material within the State and should be adopted in a manner that embodies the essential objectives of the NRC program.

Almost all of the changes in this final rule are Compatibility Category NRC program elements that cannot be relinquished to the Agreement States. The compatibility categories for rule changes other than areas of exclusive NRC authority, thereby providing consistency among Agreement State and NRC requirements, are designated in the following table:

**Table 5—Compatibility Table**

| Section | Change | Subject | Compatibility | |
|---|---|---|---|---|
| | | | Existing | New |
| Appendix G to 10 CFR part 20, paragraph III.E.1 | Amend | Requirements for transfers of low-level radioactive waste intended for disposal at licensed land disposal facilities and manifests | B | B |

## XVII. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. In this final rule, the NRC will revise the regulations associated with decommissioning in 10 CFR parts 20, 26, 50, 51, 52, 72, 73, and 140. This action does not constitute the establishment of a standard that contains generally applicable requirements.

## XVIII. Availability of Guidance

The NRC is issuing new and revised guidance for the implementation of the requirements in this final rule.

1. RG 1.159, “Assuring the Availability of Funds for Decommissioning Production or Utilization Facilities,” is Revision 3 to the existing RG 1.159.

2. RG 1.184, “Decommissioning of Nuclear Power Reactors,” is Revision 2 to the existing RG 1.184.

3. RG 1.185, “Standard Format and Content for Post-Shutdown Decommissioning Activities Report,” is Revision 2 to the existing RG 1.185.

4. RG 1.235, “Emergency Planning for Decommissioning Nuclear Power Reactors,” is a new regulatory guide.

You may access information and comment submissions related to the guidance documents by searching on https://www.regulations.gov under Docket ID NRC-2015-0070.

Regulatory Guide 1.159 provides guidance to applicants and licensees of production or utilization facilities concerning methods for complying with the requirements regarding providing adequate funding assurance for decommissioning. Revision 3 to RG 1.159 revises the document to provide guidance on this final rule’s modification of the decommissioning funding status reporting period for power reactors licensed under 10 CFR part 50 or 10 CFR part 52 from biennial to triennial. Additionally, the revision clarifies the guidance for non-power production or utilization facilities and fuel reprocessing plants.

Regulatory Guide 1.184 describes methods and procedures that are acceptable to the NRC staff for implementing the decommissioning regulations that relate to both the initial activities and major phases of the decommissioning process. Revision 2 to RG 1.184 revises the document to provide guidance on this final rule’s modifications to the

recordkeeping requirements during decommissioning; the changes to staffing requirements, including the revised definition of a CFH; and other clarifications and improvements to align the final guidance with best practices and lessons learned from recent decommissioning experience. This revision also makes changes to reflect that ENTOMB is no longer considered a feasible decommissioning option for U.S. nuclear power reactors because it does not meet the required regulatory timeframe for unrestricted release.

Regulatory Guide 1.185 identifies the type of information that the PSDAR must contain and establishes a standard format for the PSDAR. Revision 2 to RG 1.185 revises the document to provide guidance based on the NRC's experience reviewing PSDAR submittals to address common areas of decommissioning that frequently require clarification or that could be enhanced as part of the overall process, including the need for early communication among the NRC staff, licensees who may soon enter decommissioning, and surrounding communities; insufficient information in environmental reports; the need for early detection of spills; discussions involving the decommissioning strategy and timeline; plans for public involvement opportunities during decommissioning; discussions involving the plans for storage of spent fuel; and estimates of decommissioning costs. The revised guidance also includes a discussion of how licensees can incorporate the information that was formerly provided as part of the IFMP into the PSDAR.

Regulatory Guide 1.235 provides guidance on implementing a graded approach to EP (i.e., PSEP, PDEP, and IOEP) during the transition to decommissioning associated with the requirements in § 50.200 of this final rule.

## XIX. 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 |
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| **Final Rule Documents** | |
| Federal Register Notice Issuing Rule (this document) | ML23258A206 |
| Responses to Public Comments | ML23258A201 |
| Regulatory Analysis | ML23258A202 |
| Environmental Assessment and FONSI | ML23258A203 |
| Information Collection Analysis | ML23296A149 |
| **Regulatory Guidance Documents** | |
| Regulatory Guide 1.159, Revision 3, "Assuring the Availability of Funds for Decommissioning Production or Utilization Facilities" | ML23072A029 |
| Regulatory Guide 1.184, Revision 2, "Decommissioning of Nuclear Power Reactors" | ML23061A053 |
| Regulatory Guide 1.185, Revision 2, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report" | ML23072A082 |
| Regulatory Guide 1.235, "Emergency Planning for Decommissioning Nuclear Power Reactors" | ML23072A045 |
| **Other References** | |
| "Bellefonte Nuclear Plant, Units 1 and 2—Withdrawal of Construction Permit Nos. CPPR-122 for Unit 1 and CPPR-123 for Unit 2," dated September 14, 2006 | ML061810505 |
| "Energy Northwest Nuclear Project No. 1—Termination of Construction Permit CPPR-134," dated February 8, 2007 | ML070220011 |
| "Power Reactor Transition from Operations to Decommissioning: Lessons Learned Report," dated October 31, 2016 | ML16085A029 |
| "Status of Regulatory Exemptions for Decommissioning Plants," dated August 16, 2002 | ML030550706 |
| ANSI standard N45 2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records" | https://www.ansi.org/ |
| COMSECY-13-0030, "Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel," dated November 12, 2013 | ML13329A918 (Package) |
| Crystal River Unit 3 - Issuance of Amendment to the Facility Operating License Regarding Changes to the Administrative Controls Section of the Technical Specifications, dated July 11, 2014 | ML14097A145 |

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| Documentation of Evolution of Security Requirements at Commercial Nuclear Power Plants with Respect to Mitigation Measures for Large Fires and Explosions, dated February 4, 2010 | ML092990438 (Package) |
| Draft Regulatory Basis for Public Comment—Regulatory Improvements for Power Reactors Transitioning to Decommissioning, dated March 2017 | ML17047A413 |
| EPA-400-R-92-001, "Manual of Protective Action Guides And Protective Actions For Nuclear Incidents," issued May 1992 | https://www.epa.gov/sites/production/files/2016-03/documents/pags.pdf |
| EPA-400/R-17/001, "PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents," issued January 2017 | https://www.epa.gov/radiation/protective-action-guides-pags |
| *Federal Register* notice—"Washington Public Power Supply System, Washington Nuclear Project, Unit 3; Order Revoking Construction Permit No. CPPR-154," dated January 29, 1999 | 64 FR 4725 |
| *Federal Register* notice—Advance Notice of Proposed Rulemaking, "Regulatory Improvements for Decommissioning Power Reactors," dated November 19, 2015 | 80 FR 72358 |
| *Federal Register* notice—Draft Policy Statement, "Use of Decommissioning Trust Funds Before Decommissioning Plan Approval," dated February 3, 1994 | 59 FR 5216 |
| *Federal Register* notice—Draft Regulatory Basis, "Regulatory Improvements for Power Reactors Transitioning to Decommissioning," dated March 15, 2017 | 82 FR 13778 |
| *Federal Register* notice—Exemption; issuance, "Maine Yankee Atomic Power Company, Connecticut Yankee Atomic Power Company, and The Yankee Atomic Electric Company," dated September 24, 2013 | 78 FR 58571 |
| *Federal Register* notice—Final ITAAC Hearing Procedures, "Final Procedures for Conducting Hearings on Conformance With the Acceptance Criteria in Combined Licenses," dated July 1, 2016 | 81 FR 43266 |
| *Federal Register* notice—Final Policy Statement, "Commission Policy Statement on Deferred Plants," dated October 14, 1987 | 52 FR 38077 |
| *Federal Register* notice—Final Rule, "Applicability of License; Conditions and Technical Specifications in an Emergency," dated April 1, 1983 | 48 FR 13966 |

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| *Federal Register* notice—Final Rule, "Backfitting of Production and Utilization Facilities; Construction Permits and Operating Licenses," dated March 31, 1970 | 35 FR 5317 |
| *Federal Register* notice—Final Rule, "Changes in Property Insurance Requirements for NRC Licensed Nuclear Power Plants," dated August 5, 1987 | 52 FR 28963 |
| *Federal Register* notice—Final Rule, "Consideration of Potassium Iodide in Emergency Plans," dated January 19, 2001 | 66 FR 5427 |
| *Federal Register* notice—Final Rule, "Creditors' Rights; and Transfer, Surrender, and Termination of Licenses," dated October 10, 1961 | 26 FR 9546 |
| *Federal Register* notice—Final Rule, "Decommissioning of Nuclear Power Reactors," dated July 29, 1996 | 61 FR 39278 |
| *Federal Register* notice—Final Rule, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Reactors," dated April 18, 1989 | 54 FR 15372 |
| *Federal Register* notice—Final Rule, "Emergency Planning and Preparedness," dated July 13, 1982 | 47 FR 30232 |
| *Federal Register* notice—Final Rule, "Emergency Planning," dated August 19, 1980 | 45 FR 55402 |
| *Federal Register* notice—Final Rule, "Emergency Preparedness for Small Modular Reactors and Other New Technologies," dated November 16, 2023 | 88 FR 80050 |
| *Federal Register* notice—Final Rule, "Enhancements to Emergency Preparedness Regulations," dated November 23, 2011 | 76 FR 72559 |
| *Federal Register* notice—Final Rule, "Extension of Time for the Implementation of the Decontamination Priority and Trusteeship Provisions of Property Insurance Requirements," dated March 17, 1989 | 54 FR 11161 |
| *Federal Register* notice—Final Rule, "Financial Assurance Requirements for Decommissioning Nuclear Power Reactors," dated September 22, 1998 | 63 FR 50465 |
| *Federal Register* notice—Final Rule, "Fitness for Duty Programs," dated March 31, 2008 | 73 FR 16966 |
| *Federal Register* notice—Final Rule, "General Requirements for Decommissioning Nuclear Facilities," dated June 27, 1988 | 53 FR 24018 |

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| *Federal Register* notice—Final Rule, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” dated August 27, 2007 | 72 FR 49352 |
| *Federal Register* notice—Final Rule, “Mitigation of Beyond-Design-Basis Events,” dated August 9, 2019 | 84 FR 39684 |
| *Federal Register* notice—Final Rule, “Power Reactor Security Requirements,” dated March 27, 2009 | 74 FR 13926 |
| *Federal Register* notice—Final Rule, “Requirements for Licensee Actions Regarding the Disposition of Spent Fuel Upon Expiration of Reactor Operating Licenses,” dated August 31, 1984 | 49 FR 34688 |
| *Federal Register* notice—Final Rule, “Retention Periods for Records; Final Rule,” dated May 27, 1988 | 53 FR 19240 |
| *Federal Register* notice—Final Rule, “Revision of Backfitting Process for Power Reactors,” dated June 6, 1988 | 53 FR 20603 |
| *Federal Register* notice—Final Rule, “Revision of Backfitting Process for Power Reactors,” dated September 20, 1985 | 50 FR 38097 |
| *Federal Register* notice—Final Rule, “Stabilization and Decontamination Priority and Trusteeship Provisions,” dated April 2, 1990 | 55 FR 12163 |
| *Federal Register* notice—Policy Statement, “Agreement State Program Policy Statement; Revision to Policy Statement; Correction,” dated October 18, 2017 | 82 FR 48535 |
| *Federal Register* notice—Policy Statement, “Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents,” dated October 23, 1979 | 44 FR 61123 |
| *Federal Register* notice—Policy Statement, “Revision of Backfitting Process for Power Reactors,” dated September 28, 1983 | 48 FR 44173 |
| *Federal Register* notice—Policy Statement, “Safety Goals for the Operation of Nuclear Power Plants; Policy Statement; Correction and Republication,” dated August 21, 1986 | 51 FR 30028 |
| *Federal Register* notice—Preliminary Draft Regulatory Analysis, “Regulatory Improvements for Power Reactors Transitioning to Decommissioning,” dated May 9, 2017 | 82 FR 21481 |
| *Federal Register* notice—Proposed Rule, “Decommissioning of Nuclear Power Reactors,” dated July 20, 1995 | 60 FR 37374 |

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| *Federal Register* notice—Proposed Rule, "Emergency Planning," dated December 19, 1979 | 44 FR 75167 |
| *Federal Register* notice—Proposed Rule, "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning," dated March 3, 2022 | 87 FR 12254 |
| *Federal Register* notice—Proposed Rule, Extension of Comment Period, "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning," dated May 17, 2022 | 87 FR 29840 |
| *Federal Register* notice—Regulatory Basis, "Regulatory Improvements for Power Reactors Transitioning to Decommissioning," dated November 27, 2017 | 82 FR 55954 |
| Homeland Security Presidential Directive 5, "Management of Domestic Incidents," dated February 28, 2003 | https://www.dhs.gov/publication/homeland-security-presidential-directive-5 |
| IMC 2561, "Decommissioning Power Reactor Inspection Program," dated April 14, 2003 | ML031270502 |
| IMC 2690, "Inspection Program for Storage of Spent Reactor Fuel and Reactor-Related Greater-than-Class C Waste at Independent Spent Fuel Storage Installations and for 10 CFR Part 71 Transportation Packagings," dated December 15, 2020 | ML20338A192 |
| Information Notice 2014-14, "Potential Safety Enhancements to Spent Fuel Pool Storage," dated November 14, 2014 | ML14218A493 |
| Issuance of Amendment No. 142 to Facility Operating License No. DPR-3 – Yankee Nuclear Power Station (Rowe) (TAC No. M83024), dated August 5, 1992 | ML17283A069 |
| Issuance of Amendment No. 190 for Facility Operating License No. NPF-1 to Possession-Only License for Trojan Nuclear Plant (TAC No. M85647), dated May 5, 1993 | ML18095A126 |
| James A. FitzPatrick Nuclear Power Plant - Approval of the Certified Fuel Handler Training and Retraining Program, dated October 17, 2016 | ML16259A347 |
| Kewaunee Power Station - Approval of Certified Fuel Handler Training Program, dated May 12, 2014 | ML14104A046 |
| Levy, Units 1 and 2 - Notification of Termination of Project, dated November 1, 2017 | ML17311A143 |
| Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," dated September 20, 2019 | ML18093B087 |

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| Memorandum, “Cyber Security Requirements for Decommissioning Nuclear Power Plants,” dated December 5, 2016 | ML16172A284 |
| Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Emergency Response, Planning, and Preparedness, dated December 7, 2015 | ML15344A371 |
| NEI 99-01, Revision 6, “Development of Emergency Action Levels for Non-Passive Reactors,” issued November 2012 | ML12326A805 |
| NEI 06-12, Revision 2, “B.5.b Phase 2 & 3 Submittal Guideline,” dated December 2006 | ML070090060 |
| NRC Letter, “Order Requiring Compliance with Key Radiological Protection Mitigation Strategies,” dated August 28, 2006 | ML062300304 |
| NRC Letter, “Rescission or Partial Rescission of Certain Power Reactor Security Orders Applicable to Nuclear Power Plants,” dated November 28, 2011 | ML111220447 |
| NRC Letter; Safety Evaluation, “Browns Ferry Nuclear Plant, Units 1, 2, and 3 – Conforming License Amendments to Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026 and the Radiological Protection Mitigation Strategies Required by Commission Order EA-06-137,” dated August 16, 2007 | ML072270181 |
| NRC Letter; Safety Evaluation, “Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 – Conforming License Amendments to Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026,” dated July 11, 2007 | ML071920056 |
| NRC Regulatory Issue Summary 2008-26, “Clarified Requirements of Title 10 of the Code of Federal Regulations (10 CFR) Section 50.54(y) When Implementing 10 CFR Section 50.54(x) to Depart from a License Condition or Technical Specification,” dated October 29, 2008 | ML080590124 |
| NSIR/DPR-ISG-02, “Interim Staff Guidance: Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants,” dated May 11, 2015 | ML14106A057 |

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| NUREG-0396, “Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants,” dated December 1978 | ML051390356 |
| NUREG-0586, Supplement 1, Volumes 1 and 2, “Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities: Regarding the Decommissioning of Nuclear Power Reactors,” issued November 2002 | ML023470327 (package) |
| NUREG-0654/FEMA-REP-1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” issued November 1980 | ML040420012 |
| NUREG-0654/FEMA-REP-1, Revision 2, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants: Final Report,” issued December 2019 | ML19347D139 |
| NUREG-0696, “Functional Criteria for Emergency Response Facilities,” dated February 1981 | ML051390358 |
| NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition,” Section 19.4, “Strategies and Guidance to Address Loss of Large Areas of the Plant Due to Explosions and Fires,” Revision 0, dated June 2015 | ML13316B202 |
| NUREG-0933, “Resolution of Generic Safety Issues,” issued December 2011 | https://www.nrc.gov/sr0933/Section%203.%20New%20Generic%20Issues/082r3.html |
| NUREG-1353, “Regulatory Analysis for the Resolution of Generic Issue 82, ‘Beyond Design Basis Accidents in Spent Fuel Pools,’” issued April 1989 | ML082330232 |
| NUREG-1738, “Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants,” issued February 2001 | ML010430066 |
| NUREG-2161, “Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor,” issued September 2014 | ML14255A365 |
| Order EA-02-026, “Order for Interim Safeguards and Security Compensatory Measures,” dated February 25, 2002 | ML020510637 (letter)<br>ML020510635 (order) |

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| Order EA-06-137, “Order Modifying Licenses,” dated June 20, 2006 | ML061600076 |
| Order EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” dated March 12, 2012 | ML12054A735 |
| Order EA-12-051, “Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation,” dated March 12, 2012 | ML12054A679 |
| Oyster Creek Nuclear Generating Station; Clinton Power Station, Unit 1; and Quad Cities Nuclear Power Station, Units 1 and 2 - Approval of Certified Fuel Handler Training and Retraining Program, dated September 6, 2016 | ML16222A787 |
| Oyster Creek Nuclear Generating Station - Issuance of Amendment Regarding Changes to the Administrative Controls Section of the Technical Specifications, dated March 7, 2017 | ML16235A413 |
| Presidential Memorandum, “Plain Language in Government Writing,” issued June 10, 1998 | 63 FR 31885 |
| Presidential Policy Directive (PPD)-8, “National Preparedness,” issued March 30, 2011 | https://www.dhs.gov/presidential-policy-directive-8-national-preparedness |
| Rancho Seco Nuclear Generating Station Amendment No. 117 for Facility Operating License No. DPR-54 to Possession Only License (TAC No. M76825), dated March 17, 1992 | ML17283A071 |
| RG 1.159, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors,” dated August 1990 | ML003740066 |
| RG 1.184, Revision 1, “Decommissioning of Nuclear Power Reactors,” dated October 2013 | ML13144A840 |
| RG 1.185, Revision 1, “Standard Format and Content for Post-Shutdown Decommissioning Activities Report,” dated June 2013 | ML13140A038 |
| RG 1.219, Revision 1, “Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors,” dated July 2016 | ML16061A104 |
| SECY-93-127, “Financial Protection Required of Licensees of Large Nuclear Power Plants During Decommissioning,” dated May 10, 1993 | ML12257A628 |

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| SECY-98-253, “Applicability of Plant-Specific Backfit Requirements to Plants Undergoing Decommissioning,” dated November 4, 1998 | ML992870107 |
| SECY-00-0145, “Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning,” dated June 28, 2000 | ML003721626 |
| SECY-01-0100, “Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools,” dated June 4, 2001 | ML011450420 |
| SECY-14-0118, “Request by Duke Energy Florida, Inc., for Exemptions from Certain Emergency Planning Requirements,” dated October 29, 2014 | ML14219A444 |
| SECY-15-0005, “Recommendation to Sunset the Decommissioning Trust Fund Spot-Check Program,” dated January 15, 2015 | ML14210A554 |
| SECY-15-0014, “Anticipated Schedule and Estimated Resources for a Power Reactor Decommissioning Rulemaking,” dated January 30, 2015 – Redacted | ML15082A089 |
| SECY-21-0108, “Summary of Staff Biennial Review and Findings of the 2021 Decommissioning Funding Status Reports from Operating and Decommissioning Power Reactor Licensees,” dated December 16, 2021 | ML21285A219 (Package) |
| SRM-COMSECY-13-0030, “Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel,” dated May 23, 2014 | ML14143A360 |
| SRM-SECY-93-127, “Financial Protection Required of Licensees of Large Nuclear Power plants during Decommissioning,” dated July 13, 1993 | ML003760936 |
| SRM-SECY- 98-253, “Applicability of Plant-Specific Backfit Requirements to Plants Undergoing Decommissioning,” dated February 12, 1999 | ML003753746 |
| SRM-SECY-99-168, “Staff Requirements—SECY-99-168—Improving Decommissioning Regulations for Nuclear Power Plants,” dated December 21, 1999 | ML003752190 |
| SRM-SECY-00-0145, “Staff Requirements—SECY-00-0145—Integrated Rulemaking Plan for Nuclear Power Plant Decommissioning,” dated September 27, 2000 | ML003754381 |

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| SRM-SECY-14-0118, “Request by Duke Energy Florida, Inc., for Exemptions from Certain Emergency Planning Requirements,” dated December 30 2014 | ML14364A111 |
| Summary of Public Meeting May 8–10, 2017, on the “Regulatory Improvements for Power Reactors Transitioning to Decommissioning Rulemaking,” dated November 15, 2017 | ML17157B211 |
| Summary of Public Meeting March 21, 2022, on the “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning” Rulemaking – Proposed Rule, dated October 4, 2022 | ML22277A001 |
| Summary of Public Meeting March 31, 2022, on the “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning” Rulemaking – Proposed Rule, dated October 4, 2022 | ML22277A003 |
| Summary of Public Meeting April 12, 2022, on the “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning” Rulemaking – Proposed Rule, dated October 4, 2022 | ML22277A005 |
| Summary of Public Meeting April 19, 2022, on the “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning” Rulemaking – Proposed Rule, dated October 4, 2022 | ML22277A007 |
| Summary of Public Meeting May 4, 2022, on the “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning” Rulemaking – Proposed Rule, dated October 4, 2022 | ML22277A009 |
| Summary of Public Meeting May 9, 2022, on the “Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning” Rulemaking – Proposed Rule, dated October 4, 2022 | ML22277A011 |
| Technical Evaluation for the Endorsement of NEI 99-01, Revision 6, dated March 28, 2013 | ML12346A463 |
| Transmittal of Reports to Inform Decommissioning Plant Rulemaking for User Need Request NSIR-2015-001, dated May 31, 2016 | ML16110A416 (package) |
| V. C. Summer, Units 2 and 3 - Request for Withdrawal of COLs, dated December 27, 2017 | ML17361A088 |

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| Vermont Yankee - Issuance of Amendment to Renewed Facility Operating License Re: Changes to the Administrative Controls Section of the Technical Specifications, dated December 22, 2014 | ML14217A072 |
| Vermont Yankee Nuclear Power Station - Approval of Certified Fuel Handler Training and Retraining Program, dated October 1, 2014 | ML14162A209 |

## List of Subjects

**10 CFR Part 20**

Byproduct material, Criminal penalties, Hazardous waste, Licensed material, Nuclear energy, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Packaging and containers, Penalties, Radiation protection, Reporting and recordkeeping requirements, Source material, Special nuclear material, Waste treatment and disposal.

**10 CFR Part 26**

Administrative practice and procedure, Alcohol abuse, Alcohol testing, Appeals, Chemical testing, Drug abuse, Drug testing, Employee assistance programs, Fitness for duty, Management actions, Nuclear power plants and reactors, Privacy, Protection of information, Radiation protection, Reporting and recordkeeping requirements.

**10 CFR Part 50**

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

**10 CFR Part 51**

Administrative practice and procedure, Environmental impact statements, Hazardous waste, Nuclear energy, Nuclear materials, Nuclear power plants and

reactors, Reporting and recordkeeping requirements.

**10 CFR Part 52**

Administrative practice and procedure, Antitrust, Combined license, Early site permit, Emergency planning, Fees, Incorporation by reference, Inspection, Issue finality, Limited work authorization, 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 72**

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

**10 CFR Part 73**

Criminal penalties, Exports, Hazardous materials transportation, Imports, Incorporation by reference, Nuclear energy, Nuclear materials, Nuclear power plants and reactors, Penalties, Reporting and recordkeeping requirements, Security measures.

**10 CFR Part 140**

Criminal penalties, Extraordinary nuclear occurrence, Insurance, Intergovernmental relations, Nuclear materials, Nuclear power plants and reactors, Penalties, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 20, 26, 50, 51, 52, 72, 73, and 140:

**PART 20 – STANDARDS FOR PROTECTION AGAINST RADIATION**

1. The authority citation for part 20 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 11, 53, 63, 65, 81, 103, 104, 161, 170H, 182, 186, 223, 234, 274, 1701 (42 U.S.C. 2014, 2073, 2093, 2095, 2111, 2133, 2134, 2201, 2210h, 2232, 2236, 2273, 2282, 2021, 2297f), Energy Reorganization Act of 1974, secs. 201, 202 (42 U.S.C. 5841, 5842); Low-Level Radioactive Waste Policy Amendments Act of 1985, sec. 2 (42 U.S.C. 2021b); 44 U.S.C. 3504 note.

**Appendix G to Part 20 [Amended]**

2. In appendix G to part 20, amend paragraph E.1. of section III by:

a. Removing the word “or” and adding in its place the word “of”, and

b. Removing the phrase “20 days” and adding in its place the phrase “90 days”.

* * * * *

**PART 26 – FITNESS FOR DUTY PROGRAMS**

3. The authority citation for part 26 continues to read as follows:

**Authority:** Atomic Energy Act of 1954, secs. 53, 103, 104, 107, 161, 223, 234, 1701 (42 U.S.C. 2073, 2133, 2134, 2137, 2201, 2273, 2282, 2297f); Energy Reorganization Act of 1974, secs. 201, 202 (42 U.S.C. 5841, 5842); 44 U.S.C. 3504 note.

4. In § 26.3, revise paragraph (a) to read as follows:

**§ 26.3 Scope.**

(a)

(1) Each holder of an operating license for a nuclear power reactor under part 50 of this chapter that receives the license after March 31, 2008, and holders of a combined license under part 52 of this chapter after the Commission has made the finding under § 52.103(g) of this chapter must implement the FFD program before the receipt of special nuclear material in the form of fuel assemblies.

(2) Each holder of an operating license for a nuclear power reactor under part 50 of this chapter and each holder of a combined license under part 52 of this chapter for which the Commission has made the finding under § 52.103(g) of this chapter must comply with the requirements of this part, except for subpart K of this part, until the

NRC's docketing of the license holder's certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter.

*  *  *  *  *

**§ 26.825 [Amended]**

5. In § 26.825(b), remove the number "26.3".

**PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES**

6. The authority citation for part 50 is revised to read as follows:

**Authority**: Atomic Energy Act of 1954, secs. 11, 53, 63, 81, 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, 2073, 2093, 2113, 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; Sec. 109, Pub. L. 96–295, 94 Stat. 783.

7. Revise § 50.1 to read as follows:

**§ 50.1 Basis, purpose, and procedures applicable.**

The regulations in this part are promulgated by the Nuclear Regulatory Commission pursuant to the Atomic Energy Act of 1954, as amended (68 Stat. 919), and Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242), to provide for the licensing of production and utilization facilities through the termination of the associated 10 CFR part 50 licenses. This part also gives notice to all persons who knowingly provide to any licensee, applicant, contractor, or subcontractor, components, equipment, materials, or other goods or services, that relate to a licensee's or applicant's activities subject to this part, that they may be individually subject to NRC enforcement action for violation of § 50.5.

8. In § 50.2, revise the definition for *Certified fuel handle*r to read as follows:

**§ 50.2 Definitions.**

*  *  *  *  *

*Certified fuel handler* means, for a nuclear power reactor facility, either

(1) A non-licensed operator who has qualified in accordance with a fuel handler training program approved by the Commission; or

(2) A non-licensed operator who meets the following criteria:

(i) Has qualified in accordance with a fuel handler training program that meets the same requirements as training programs for non-licensed operators required by § 50.120, and

(ii) Is responsible for decisions on:

(A) Safe conduct of decommissioning activities;

(B) Safe handling and storage of spent fuel; and

(C) Appropriate response to plant emergencies.

*  *  *  *  *

**§ 50.8 [Amended]**

9. In § 50.8(b), add “50.200,” after “50.160,”.

**§ 50.36 [Amended]**

10. In § 50.36(c)(6), add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

11. Revise § 50.38 to read as follows:

**§ 50.38 Ineligibility of certain applicants.**

(a) Any person who is a citizen, national, or agent of a foreign country, or any corporation, or other entity which the Commission knows or has reason to believe is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government, shall be ineligible to apply for and obtain a license.

(b) The prohibition of paragraph (a) of this section does not apply to a person, corporation, or other entity seeking a license for a facility that meets the criteria of

§ 50.82(a)(2)(ii), § 50.82(b)(6), or § 52.110(b)(2) of this chapter.

**§ 50.44 [Amended]**

12. In § 50.44(b) introductory text, add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**§ 50.46 [Amended]**

13. In § 50.46(a)(1)(i), add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**§ 50.48 [Amended]**

14. In § 50.48(f) introductory text, add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**§ 50.49 [Amended]**

15. In § 50.49(a), remove “§ 52.110(a)(1)” and add in its place “§ 52.110(a)”.

**§ 50.51 [Amended]**

16. In § 50.51, in paragraph (b) introductory text, remove the words “to authorize ownership and possession of the production or utilization facility,”.

17. In § 50.54:

a. Amend paragraph (m)(2)(i) by:

i. Designating the table;

ii. Revising the heading of the newly designated table; and

iii. Revising footnote 2 to the table;

b. In paragraph (o), remove “52.110(a)(1)” and add in its place “52.110(a)”;

c. Redesignate paragraphs (p)(3) and (4) as paragraphs (p)(5) and (6);

d. Redesignate paragraphs (p)(1) and (2) as paragraphs (p)(2) and (3) and revise newly redesignated paragraphs (p)(2) and (3);

e. Add new paragraph (p) introductory text and paragraphs (p)(1) and (4);

f. Revise paragraphs (q)(1) introductory text and (q)(2), (3), and (4);

g. Add paragraphs (q)(8) and (9);

h. In paragraph (t)(1)(ii), remove the period from the second sentence and add in its place the word “or,”;

i. Add paragraphs (t)(1)(iii) and (t)(3);

j. In paragraph (w) introductory text, remove the words “under this part”;

k. In paragraphs (w)(4)(ii) and (iii), add the words “or § 52.110 of this chapter” after the words “§ 50.82” wherever they appear;

l. Add paragraphs (w)(5) and (6);

m. Revise paragraph (y),

n. Remove and reserve paragraph (bb).

The revisions and additions read as follows:

**§ 50.54 Conditions of licenses.**

* * * * *

(m) * * *

(2) * * *

(i) * * *

Table 1 to paragraph (m)(2)(i) - Minimum Requirements[1] Per Shift for On-Site Staffing of Nuclear Power Units by Operators and Senior Operators Licensed Under 10 CFR part 55

* * * * *

[2] For the purpose of this table, a nuclear power unit is considered to be operating when it is in a mode other than cold shutdown or refueling as defined by the unit’s technical specifications. Licensed senior operators, licensed operators, and shift technical advisors are not required upon the NRC’s docketing of the facility license holder’s certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter.

* * * * *

(p) *Security plans* —

(1) Definitions for the purpose of this paragraph, (p):

(i) *Change* means an action that results in modification of, addition to, or removal

from, the licensee's security plans. All changes are subject to the provisions of this section except where the applicable regulations establish specific criteria for accomplishing a particular change.

(ii) *Decrease in safeguards effectiveness* means a change or series of changes to an element or component of the security plans referenced in paragraph (p)(2) of this section that reduces or eliminates the licensee's ability to meet the performance objectives and capabilities of the applicable physical protection program or system required by part 73.

(2) The licensee may not make a change which would decrease the effectiveness of a physical security plan, or guard training and qualification plan, or cyber security plan prepared under § 50.34(c) or § 52.79(a) of this chapter, or part 73 of this chapter, or of the first four categories of information (Background, Generic Planning Base, Licensee Planning Base, Responsibility Matrix) contained in a licensee safeguards contingency plan prepared under § 50.34(d) or § 52.79(a) of this chapter, or part 73 of this chapter, as applicable, without prior approval of the Commission. A licensee desiring to make such a change shall submit an application for amendment to the licensee's license under § 50.90.

(3) The licensee may make changes to the security plans referenced in paragraph (p)(2) of this section, without prior Commission approval if the changes do not decrease the safeguards effectiveness of the plan. The licensee shall maintain records of changes to the plans made without prior Commission approval for a period of 3 years from the date of the change, and shall submit, as specified in § 50.4 or § 52.3 of this chapter, a report containing a description of each change within 2 months after the change is made. The licensee shall include a summary of the analysis completed to determine that the change does not decrease the safeguards effectiveness of the plan.

(4) The licensee shall prepare and maintain safeguards contingency plan

procedures in accordance with appendix C of part 73 of this chapter for effecting the actions and decisions contained in the Responsibility Matrix of the safeguards contingency plan. Prior to the safeguards contingency plan being put into effect, the licensee shall have:

(i) All safeguards capabilities specified in the safeguards contingency plan available and functional;

(ii) Detailed procedures developed according to appendix C to part 73 of this chapter available at the licensee's site; and

(iii) All appropriate personnel trained to respond to safeguards incidents as outlined in the plan and specified in the detailed procedures.

(5) The licensee shall provide for the development, revision, implementation, and maintenance of its safeguards contingency plan. The licensee shall ensure that all program elements are reviewed by individuals independent of both security program management and personnel who have direct responsibility for implementation of the security program either:

(i) At intervals not to exceed 12 months; or

(ii) As necessary, based on an assessment by the licensee against performance indicators, and as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that potentially could adversely affect security, but no longer than 12 months after the change. In any case, all elements of the safeguards contingency plan must be reviewed at least once every 24 months.

(6) The review must include a review and audit of safeguards contingency procedures and practices, an audit of the security system testing and maintenance program, and a test of the safeguards systems along with commitments established for response by local law enforcement authorities. The results of the review and audit, along with recommendations for improvements, must be documented, reported to the

licensee's corporate and plant management, and kept available at the plant for inspection for a period of 3 years.

*  *  *  *  *

(q) *Emergency plans* -

(1) Definitions for the purpose of this paragraph (q):

*  *  *  *  *

(iii) *Emergency planning function* means a capability or resource necessary to prepare for and respond to a radiological emergency.

*  *  *  *  *

(2)

(i) Except as provided in paragraph (q)(2)(ii) or (q)(8) of this section, a holder of a license under this part, or a combined license under part 52 of this chapter after the Commission makes the finding under § 52.103(g) of this chapter, shall follow and maintain the effectiveness of an emergency plan that meets the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

(ii) A holder of a license under this part for a non-power production or utilization facility, a holder of a license under this part for a small modular reactor or a non-light water reactor, or a holder of a combined license under part 52 of this chapter after the Commission makes the finding under § 52.103(g) of this chapter for a small modular reactor or a non-light-water reactor, shall follow and maintain the effectiveness of either an emergency plan that meets the requirements in § 50.160 or an emergency plan that meets the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

(3)

(i) Except as provided in paragraph (q)(3)(ii) of this section, the licensee may

make changes to its emergency plan without NRC approval only if the licensee performs and retains an analysis demonstrating that the changes do not reduce the effectiveness of the plan and the plan, as changed, continues to meet the applicable requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b) or the applicable requirements of § 50.200 or § 72.32 of this chapter.

(ii) A non-power production or utilization facility, small modular reactor, or non-light-water reactor licensee may make changes to its emergency plan without NRC approval only if the licensee performs and retains an analysis demonstrating that the changes do not reduce the effectiveness of the plan and the plan, as changed, continues to meet the requirements in § 50.160; the requirements in appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b); or the applicable requirements of § 50.200 or § 72.32 of this chapter.

(4) The changes to a licensee's emergency plan that reduce the effectiveness of the plan as defined in paragraph (q)(1)(iv) of this section may not be implemented without prior approval by the NRC. A licensee desiring to make such a change shall submit an application for an amendment to its license. In addition to the filing requirements of §§ 50.90 and 50.91, the request must include all emergency plan pages affected by that change and must be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the licensee's emergency plan, as revised, will continue to meet the requirements in § 50.160, § 50.200, or appendix E to this part and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

* * * * *

(8) Upon the NRC's docketing of the nuclear power reactor licensee's certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter:

(i) Licensees must follow and maintain the effectiveness of an emergency plan

that meets the requirements of § 50.200(a) or paragraph (q)(2) of this section

(ii) If the fuel assembly with the highest burnup from the final offload that is transferred to the spent fuel pool has a burnup of less than or equal to 72 gigawatt days per metric ton of heavy metal (GWd/MTHM) and has zirconium cladding, then after at least 10 months (for a boiling-water reactor) or 16 months (for a pressurized-water reactor) have elapsed since the date of permanent cessation of operations, licensees must follow and maintain the effectiveness of an emergency plan that meets the planning standards of § 50.200(b) and the requirements in § 50.200(c) or paragraph (q)(8)(i) of this section.

(A) In lieu of the 10- or 16-month spent fuel decay period in paragraph (q)(8)(ii) of this section, a licensee may submit under § 50.90 a request for NRC approval of an alternative spent fuel decay period.

(B) If the fuel assembly with the highest burnup transferred to the spent fuel pool at the time of shutdown exceeds a burnup of 72 GWd/MTHM or does not have zirconium cladding, then the licensee must submit under § 50.90 a request for NRC approval of an alternative spent fuel decay period.

(C) In support of the request submitted in paragraph (q)(8)(ii)(A) or (B) of this section, the licensee must include an analysis demonstrating that the alternative spent fuel decay period ensures that the spent fuel would not heat up to 900 °C in less than 10 hours under adiabatic heat-up conditions.

(iii) When all the spent fuel is in dry cask storage, licensees must follow and maintain the effectiveness of an emergency plan that meets the standards in § 72.32(a)(1) through (16) of this chapter, or paragraph (q)(8)(ii) of this section.

(iv) Licensees need not comply with the requirements of this section when all spent fuel has been removed from the site.

(9) The following provisions apply to emergency plan changes to be implemented

after the NRC's docketing of the nuclear power reactor licensee's certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter:

(i) Initial plan changes made under paragraph (q)(3) of this section to comply with the requirements of § 50.200 or § 72.32(a) of this chapter as permitted by paragraph (q)(8)(i), (ii), or (iii) of this section are not reductions in effectiveness of the plan and do not need to be submitted to the NRC for prior approval. These plan changes must be submitted to the NRC at least 60 days prior to implementation, as specified in § 50.4. Subsequent plan changes must be made under paragraph (q)(3) or (4) of this section, or licensees may follow the change process under § 72.44(f) of this chapter if the emergency plan meets the requirements in § 72.32(a) of this chapter.

(ii) When a licensee determines under 10 CFR 50.59(c)(1) that a particular plant system, instrument, or component is no longer required to be operable, or receives NRC prior approval under 10 CFR 50.59(c)(2) that the plant system, instrument, or component is no longer required to be operable, then the licensee may make a determination under paragraph (q)(3) of this section that related changes to the emergency plan, including emergency action levels, are not reductions in effectiveness.

* * * * *

(t) * * *

(1) * * *

(iii) At intervals not to exceed 24 months after the first required element review following transition to an emergency plan that meets the requirements of § 50.200(b).

* * * * *

(3) The review of the emergency preparedness program elements is no longer required once all fuel is in dry cask storage.

* * * * *

(w) * * *

(5) Each power reactor licensee for a production or utilization facility of the type described in § 50.21(b) or § 50.22 shall have and maintain financial protection in an amount of at least $50,000,000 for each reactor station site:

(i) For which the NRC has docketed the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter; and

(ii) For which at least 10 months (for a boiling-water reactor) or 16 months (for a pressurized-water reactor) have elapsed since the date of permanent cessation of operations if the fuel meets the criteria of § 50.54(q)(8)(ii), or for which an NRC-approved alternative to the 10- or 16-month spent fuel decay period, submitted under § 50.54(q)(8)(ii)(A) or (B), has elapsed.

(6) The licensee shall promptly notify the Commission of any material change in the insurance or other financial security information reported to the Commission under paragraph (w)(3) of this section.

* * * * *

(y) Licensee action permitted by paragraph (x) of this section shall be approved, prior to taking the action, by the following individuals:

(1) at an operating nuclear power reactor, a licensed senior operator or an organizationally senior individual;

(2) at a nuclear power reactor facility for which the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter have been submitted but before all spent fuel has been placed in dry cask storage, a licensed senior operator, a certified fuel handler, or an organizationally senior individual;

(3) at a nuclear power reactor facility for which all spent fuel has been placed in dry cask storage, an individual designated by the facility licensee or an organizationally senior individual.

* * * * *

(bb) [Reserved]

*  *  *  *  *

18. In § 50.59:

a. In paragraph (b), remove “§ 50.110” and add in its place “§ 52.110(a) of this chapter”; and

b. Revise paragraph (d)(3) to read as follows:

**§ 50.59 Changes, tests, and experiments.**

*  *  *  *  *

(d) *  *  *

(3) Except as specified in § 50.71(c)(2), the records of changes in the facility must be maintained until the termination of an operating license issued under this part, a combined license issued under part 52 of this chapter, or a renewed license issued under part 54 of this chapter. Records of changes in procedures and records of tests and experiments must be maintained for a period of 5 years.

**§ 50.60 [Amended]**

19. In § 50.60(a), add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**§ 50.61 [Amended]**

20. In § 50.61(b)(1), add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**§ 50.62 [Amended]**

21. In § 50.62(a), add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**§ 50.65 [Amended]**

22. In § 50.65(a)(1), remove “52.110(a)(1)” and add in its place “52.110(a)”.

23. In § 50.71, revise paragraph (c) and (e)(4) to read as follows:

**§ 50.71 Maintenance of records, making of reports.**

*  *  *  *  *

(c)

(1) Records that are required by the regulations in this part or part 52 of this chapter, by license condition, or by technical specifications must be retained for the period specified by the appropriate regulation, license condition, or technical specification. If a retention period is not otherwise specified, these records must be retained until the Commission terminates the facility license, except as specified in paragraph (c)(2) of this section, or, in the case of an early site permit, until the permit expires.

(2) Licensees for which the NRC has docketed the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter are not required to retain records associated with structures, systems, and components that have been permanently removed from service under the NRC license using an NRC-approved change process. Licensees shall continue to retain records as specified under § 50.75(g).

* * * * *

(e) * * *

(4) Subsequent revisions must be filed annually or 6 months after each refueling outage provided the interval between successive updates does not exceed 24 months. The revisions must reflect all changes up to a maximum of 6 months prior to the date of filling. For nuclear power reactor facilities that have submitted the certifications required by § 50.82(a)(1) or § 52.110(a) of this chapter, subsequent revisions must be filed every 24 months.

24. In § 50.75:

a. Revise the first sentence in paragraph (a).

b. Revise paragraphs (b)(1), (3), and (4) and add paragraph (b)(5).

c. Revise paragraph (e)(1) introductory text.

d. In paragraph (e)(1)(i):

i. Remove the phrase “formulas in § 50.75(c)” and add in its place the phrase

“table of minimum amounts in paragraph (c)”.

ii. Remove the phrase “site-specific estimate” wherever it appears and add in its place the phrase “site-specific decommissioning cost estimate”.

e. In paragraph (e)(1)(ii) introductory text, remove the phrase “site-specific estimate” wherever it appears and add in its place the phrase “site-specific decommissioning cost estimate”.

f. In paragraph (e)(1)(ii)(B), add “or § 52.110 of this chapter” after “50.82 of this part”.

g. In paragraph (e)(1)(v), add “or § 52.110 of this chapter” after “or § 50.82”.

h. Amend paragraph (f) by:

i. Revising paragraph (f)(1).

ii. Removing paragraph (f)(2).

iii. Redesignating paragraphs (f)(3) through (5) as (f)(2) through (4).

iv. Revising newly redesignated paragraph (f)(2) and paragraph (f)(3) introductory text.

i. In paragraphs (h)(1)(iii) and (iv), remove the words “Director, Office of Nuclear Reactor Regulation, or Director, Office of Nuclear Material Safety and Safeguards, as applicable,” wherever they appear in the first sentence of each paragraph and add in their place the words, “Document Control Desk as specified in § 50.4”.

j. In paragraph (h)(1)(iv), add “or § 52.110(h) of this chapter” after “§ 50.82(a)(8)” wherever it appears.

k. In paragraph (h)(2), in the first sentence, remove the words “given the Director, Office of Nuclear Reactor Regulation, or Director, Office of Nuclear Material Safety and Safeguards, as applicable,” and add in their place, the words, “given to the Document Control Desk as specified in § 50.4”.

l. In paragraph (h)(2), add “or § 52.110(h) of this chapter” after “§ 50.82(a)(8)”

wherever it appears.

The revisions and addition read as follows:

**§ 50.75 Reporting and recordkeeping for decommissioning planning.**

(a) This section establishes requirements for indicating to NRC how a licensee will provide reasonable assurance that funds will be available to decommission the facility, as defined in § 50.2. * * *

(b) * * *

(1) For an applicant for or holder of an operating license under this part, the report must contain a certification that reasonable assurance that funds will be available to decommission will be (for a license applicant), or has been (for a license holder), provided in an amount which may be more, but not less, than the amount stated in the table of minimum amounts in paragraph (c)(1) of this section, adjusted using a rate at least equal to that stated in paragraph (c)(2) of this section. For an applicant for a combined license under subpart C of part 52 of this chapter, the report must contain a certification that reasonable assurance that funds will be available to decommission will be provided no later than 30 days after the Commission publishes notice in the *Federal Register* under § 52.103(a) of this chapter in an amount which may be more, but not less, than the amount stated in the table of minimum amounts in paragraph (c)(1) of this section, adjusted using a rate at least equal to that stated in paragraph (c)(2) of this section.

* * * * *

(3) The amount must be covered by one or more of the methods described in paragraph (e) of this section.

(4) The amount stated in the applicant's or licensee's certification may be based on a site-specific decommissioning cost estimate for decommissioning the facility. The site-specific decommissioning cost estimate may be more, but not less, than the amount

stated in the table of minimum amounts in paragraph (c)(1) of this section, adjusted using a rate at least equal to that stated in paragraph (c)(2) of this section.

(5) As part of the certification, a copy of the financial instrument obtained to satisfy the requirements of paragraph (e) of this section must be submitted to NRC; provided, however, that an applicant for or holder of a combined license need not obtain such financial instrument or submit a copy to the Commission except as provided in paragraph (e)(3) of this section.

* * * * *

(e)

(1) Reasonable assurance of funds to decommission is to be provided by the following methods:

* * * * *

(f)

(1) Each power reactor licensee shall report, on a calendar-year basis, to the NRC by March 31, 2025, and at least once every 3 years thereafter on the status of its decommissioning funding provided by the financial assurance methods described in paragraph (e)(1) of this section for each reactor or part of a reactor that it owns. However, each holder of a combined license under part 52 of this chapter need not begin reporting until the date that the Commission has made the finding under § 52.103(g) of this chapter. The information in this report must include, at a minimum, the amount of decommissioning funds estimated to be required pursuant to paragraphs (b) and (c) of this section; the amount of decommissioning funds accumulated to the end of the calendar year preceding the date of the report; a schedule of the annual amounts remaining to be collected; the assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections; any contracts upon which the licensee is relying

pursuant to paragraph (e)(1)(v) of this section; any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report; and any material changes to trust agreements. If any of the preceding items is not applicable, the licensee should so state in its report. If in the report the funds projected to be available to decommission are less than the amount estimated to be required to decommission, then the next decommissioning funding status report for licensees that are not "electric utilities" as defined in § 50.2, or the decommissioning funding status report two reports later for licensees that are electric utilities, may not have a shortfall. Once a licensee has determined that it is within 5 years of permanent cessation of operations, or if it is involved in a merger or an acquisition, it shall submit this report annually. After the licensee submits its site-specific decommissioning cost estimate required by § 50.82(a)(4)(i) or § 52.110(d)(1) of this chapter, the reporting requirements of § 50.82(a)(8)(v) (for 10 CFR part 50 licensees) or § 52.110(h)(5) of this chapter (for 10 CFR part 52 licensees) apply.

(2) Each power reactor licensee shall at or about 5 years prior to the projected end of operations submit a preliminary site-specific decommissioning cost estimate which includes an up-to-date assessment of the major factors that could affect the cost to decommission.

(3) Each non-power reactor licensee shall at or about 2 years prior to the projected end of operations submit a preliminary decommissioning plan containing a site-specific decommissioning cost estimate and an up-to-date assessment of the major factors that could affect planning for decommissioning. Factors to be considered in submitting this preliminary decommissioning plan information include –

* * * * *

25. In § 50.82:

a. Revise paragraph (a)(2) and add paragraphs (2)(i) and (ii)

b. Revise paragraph (a)(4) and add paragraphs (a)(4)(i)(A) – (D)

c. Revise paragraphs (a)(4)(ii), (a)(5), (a)(6)(ii), (a)(7), (a)(8)(i)(A)

d. In paragraph (a)(8)(ii), remove the reference “§ 50.75” and replace with reference “§ 50.75(c)”.

e. Remove and reserve paragraph (a)(8)(iii).

f. Revise paragraphs (a)(8)(v), (a)(8)(vii), (a)(9) introductory text, (a)(9)(ii)(F) and (b) introductory text.

g. Redesignate paragraph (b)(6) as (b)(8) and add new paragraphs (b)(6) and (7).

The revisions and additions read as follows:

**§ 50.82 Termination of license.**

* * * * *

(a) * * *

(2)

(i) Upon the NRC’s docketing of the licensee’s certifications required under paragraph (a)(1) of this section, or when a final legally effective order to permanently cease operations has come into effect, the 10 CFR part 50 license no longer authorizes operation of the reactor or emplacement of fuel into or retention of fuel in the reactor vessel.

(ii) The facility licensed under this part is no longer a utilization facility once the licensee meets the criteria of paragraph (a)(2)(i) of this section and modifies the facility to be incapable of making use of special nuclear material without significant facility alterations necessary to restore the capability to make use of special nuclear material. The NRC maintains the authority to regulate the 10 CFR part 50 license with respect to the possession of special nuclear material, source material, and byproduct material under sections 53, 63, 81, and 161 of the Act, as applicable. Until the termination of the

10 CFR part 50 license under paragraph (a)(11) of this section, the regulations of this chapter applicable to a utilization facility continue to apply to the holder of the license unless the regulations explicitly state otherwise.

*  *  *  *  *

(4)

(i) Prior to or within 2 years following permanent cessation of operations, the licensee shall submit a post-shutdown decommissioning activities report (PSDAR) to the NRC, and a copy to the affected State(s). The PSDAR must contain:

(A) A description of the planned decommissioning activities along with a schedule for their accomplishment.

(B) A discussion of whether the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate federally issued environmental review documents, the licensee’s reasons for reaching that conclusion, and a description of any decommissioning activities whose environmental impacts will not be so bounded and will be evaluated prior to the performance of the activities.

(C) A discussion of the licensee’s planned actions for managing irradiated fuel and how those actions will be consistent with NRC requirements for licensed possession of irradiated fuel until title to, and possession of, the irradiated fuel is transferred to the Secretary of Energy. If any planned actions for managing irradiated fuel require NRC authorization, the licensee must identify them and state whether the submittals for such actions have been made, or when they will be made, to the NRC. Licensees may not start to decommission structures, systems, and components needed for moving, unloading, and shipping spent fuel that is stored in an independent spent fuel storage installation licensed under the general license provisions in § 72.210 of this chapter until the NRC has received the licensee's submittal of its PSDAR.

(D) A site-specific decommissioning cost estimate, including the projected cost of

managing irradiated fuel.

(ii) The NRC shall publish a notice in the *Federal Register* acknowledging the receipt of the PSDAR and the availability for public comment of the PSDAR. The NRC shall also schedule a public meeting in the vicinity of the licensee's facility upon receipt of the PSDAR. The NRC shall include a notice in a forum, such as local newspapers, that is readily accessible to individuals in the vicinity of the site, and in the *Federal Register* notice required by this paragraph, announcing the date, time and location of the meeting, along with a brief description of the purpose of the meeting.

(5) Licensees shall not perform any major decommissioning activities, as defined in § 50.2, until 90 days after the NRC has received the licensee's PSDAR submittal and until certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, as required under § 50.82(a)(1), have been submitted.

* * * * *

(6) * * *

(ii) Result in significant environmental impacts not bounded by appropriate federally issued environmental review documents; or

* * * * *

(7) In taking actions permitted under § 50.59 or § 72.48 of this chapter following submittal of the PSDAR, the licensee shall notify the NRC in writing and send a copy to the affected State(s), before performing any decommissioning or spent fuel management activity inconsistent with, or making any significant schedule change from, those actions and schedules described in the PSDAR, and any previously submitted irradiated fuel management plan, including changes that significantly increase the decommissioning cost or the cost of managing spent fuel. The licensee shall retain a copy of the PSDAR and any previously submitted irradiated fuel management plan as a record until termination of the operating license issued under this part.

*  *  *  *  *

(8) *  *  *

(i) *  *  *

(A) The withdrawals are for expenses for activities consistent with the definition of *decommission* in § 50.2;

*  *  *  *  *

(v) After submitting its site-specific decommissioning cost estimate required by paragraph (a)(4)(i) of this section, and until the licensee has completed its final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license or termination of its license with the exception of the ISFSI, the licensee must annually submit to the NRC, by March 31, a financial assurance status report. The report may combine the reporting requirements of § 72.30 of this chapter and § 50.82(a)(8)(vii). The report must include the following information, current through the end of the previous calendar year:

*  *  *  *  *

(vii) After submitting its site-specific decommissioning cost estimate required by paragraph (a)(4)(i) of this section, if spent fuel is on site, the licensee must annually submit to the NRC, by March 31, a report on the status of its funding for managing irradiated fuel. If the licensee has completed its final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license with the exception of the ISFSI, this report must be submitted at intervals not to exceed 3 years and may combine the reporting requirements of § 72.30 of this chapter. The report must include the following information, current through the end of the previous calendar year:

*  *  *  *  *

(9) All power reactor licensees that have loaded fuel into the reactor must submit

an application for termination of license. The application for termination of license must be accompanied or preceded by a license termination plan to be submitted for NRC approval.

* * * * *

(ii) * * *

(F) An updated site-specific estimate of remaining decommissioning costs and identification of sources of funds for license termination, spent fuel management, and ISFSI decommissioning, as applicable;

* * * * *

(b) For non-power production or utilization facility licensees and fuel reprocessing plant licensees—

* * * * *

(6) The facility licensed under this part is no longer a production or utilization facility once the following criteria are met:

(i) The NRC removes the licensee's authority to operate the facility through a license amendment; and

(ii) The licensee modifies the facility to be incapable of the production of special nuclear material, separation of the isotopes of plutonium, processing of irradiated materials containing special nuclear material, or making use of special nuclear material, without significant facility alterations necessary to restore the capability to produce special nuclear material, separate the isotopes of plutonium, process irradiated materials containing special nuclear material, or make use of special nuclear material.

(7) For a facility licensed under this part that is no longer a production or utilization facility under paragraph (b)(6) of this section, the NRC maintains the authority to regulate the 10 CFR part 50 license with respect to the possession of special nuclear material, source material, and byproduct material under sections 53, 63, 81, and 161 of

the Act, as applicable. Until the termination of the 10 CFR part 50 license under paragraph (b)(8) of this section, the regulations of this chapter applicable to a non-power production or utilization facility or fuel reprocessing plant continue to apply to the holder of the license unless the regulations explicitly state otherwise.

* * * * *

26. Revise § 50.109 to read as follows:

**§ 50.109 Backfitting.**

(a) *Backfitting for nuclear power reactor licensees prior to decommissioning*.

(1)

(i) *Definition*. Backfitting is defined as the modification of or addition to systems, structures, components, or design of a facility; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility; any of which may result from a new or amended provision in the Commission's regulations or the imposition of a regulatory staff position interpreting the Commission's regulations that is either new or different from a previously applicable staff position after:

(A) The date of issuance of the construction permit for the facility for facilities having construction permits issued after October 21, 1985;

(B) Six (6) months before the date of docketing of the operating license application for the facility for facilities having construction permits issued before October 21, 1985;

(C) The date of issuance of the operating license for the facility for facilities having operating licenses;

(D) The date of issuance of the design approval under subpart E of part 52 of this chapter;

(E) The date of issuance of a manufacturing license under subpart F of part 52 of

this chapter;

(F) The date of issuance of the first construction permit issued for a duplicate design under appendix N to this part; or

(G) The date of issuance of a combined license under subpart C of part 52 of this chapter, provided that if the combined license references an early site permit, the provisions in § 52.39 of this chapter apply with respect to the site characteristics, design parameters, and terms and conditions specified in the early site permit. If the combined license references a standard design certification rule under subpart B of 10 CFR part 52, the provisions in § 52.63 of this chapter apply with respect to the design matters resolved in the standard design certification rule, provided however, that if any specific backfitting limitations are included in a referenced design certification rule, those limitations shall govern. If the combined license references a standard design approval under subpart E of 10 CFR part 52, the provisions in § 52.145 of this chapter apply with respect to the design matters resolved in the standard design approval. If the combined license uses a reactor manufactured under a manufacturing license under subpart F of 10 CFR part 52, the provisions of § 52.171 of this chapter apply with respect to matters resolved in the manufacturing license proceeding.

(ii) *Proposed backfitting*. Except as provided in paragraph (a)(1)(iv) of this section, the Commission shall require a systematic and documented analysis pursuant to paragraph (a)(2) of this section for backfits which it seeks to impose.

(iii*) Backfit analysis*. Except as provided in paragraph (a)(1)(iv) of this section, the Commission shall require the backfitting of a facility only when it determines, based on the analysis described in paragraph (a)(2) of this section, that there is a substantial increase in the overall protection of the public health and safety or the common defense and security to be derived from the backfit and that the direct and indirect costs of implementation for that facility are justified in view of this increased protection.

(iv) *Exceptions*. The provisions of paragraphs (a)(1)(ii) and (iii) of this section are inapplicable and, therefore, backfit analysis is not required and the standards in paragraph (a)(1)(iii) of this section do not apply where the Commission or staff, as appropriate, finds and declares, with appropriated documented evaluation for its finding, either:

(A) That a modification is necessary to bring a facility into compliance with a license or the rules or orders of the Commission, or into conformance with written commitments by the licensee; or

(B) That regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security; or

(C) That the regulatory action involves defining or redefining what level of protection to the public health and safety or common defense and security should be regarded as adequate.

(v) *Mandatory backfitting*. The Commission shall always require the backfitting of a facility if it determines that such regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security.

(vi) *Documented evaluation*. The documented evaluation required by paragraph (a)(1)(iv) of this section shall include a statement of the objectives of and reasons for the modification and the basis for invoking the exception. If immediately effective regulatory action is required, then the documented evaluation may follow rather than precede the regulatory action. The documented evaluation required by paragraph (a)(1)(iv)(A) of this section must include a consideration of the costs of imposing the modification.

(vii) *Implementation*. If there are two or more ways to achieve compliance with a license or the rules or orders of the Commission, or with written licensee commitments,

or there are two or more ways to reach a level of protection which is adequate, then ordinarily the applicant or licensee is free to choose the way which best suits its purposes. However, should it be necessary or appropriate for the Commission to prescribe a specific way to comply with its requirements or to achieve adequate protection, then cost may be a factor in selecting the way, provided that the objective of compliance or adequate protection is met.

(2) *Backfit analysis factors*. In reaching the determination required by paragraph (a)(1)(iii) of this section, the Commission will consider how the backfit should be scheduled in light of other ongoing regulatory activities at the facility and, in addition, will consider information available concerning any of the following factors as may be appropriate and any other information relevant and material to the proposed backfit:

(i) Statement of the specific objectives that the proposed backfit is designed to achieve;

(ii) General description of the activity that would be required by the licensee or applicant in order to complete the backfit;

(iii) Potential change in the risk to the public from the accidental offsite release of radioactive material;

(iv) Potential impact on radiological exposure of facility employees;

(v) Installation and continuing costs associated with the backfit, including the cost of facility downtime or the cost of construction delay;

(vi) The potential safety impact of changes in plant or operational complexity, including the relationship to proposed and existing regulatory requirements;

(vii) The estimated resource burden on the NRC associated with the proposed backfit and the availability of such resources;

(viii) The potential impact of differences in facility type, design or age on the relevancy and practicality of the proposed backfit;

(ix) Whether the proposed backfit is interim or final and, if interim, the justification for imposing the proposed backfit on an interim basis.

(3) Impact on licensing actions. No licensing action will be withheld during the pendency of backfit analyses required by the Commission's rules.

(b) Backfitting for decommissioning nuclear power reactor licensees.

(1) *Scope*. Licensees that possess an approved decommissioning plan; have docketed certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel under § 50.82(a)(1) or § 52.110(a) of this chapter; have a license that was permanently modified to allow possession but not operation of its facility; or have been issued a final legally effective order to permanently cease operations and such order has come into effect, are within the scope of paragraph (b) of this section.

(2) *Definition*. For purposes of paragraph (b) of this section, backfitting is defined as the modification of or addition to systems, structures, or components, or the design of the licensee's facility, or the procedures or organization required to decommission the facility, any of which may result from a new or amended provision in the Commission's regulations or the imposition of a regulatory staff position interpreting the Commission's regulations that is either new or different from a previously applicable staff position after the date when the facility licensee met one of the criteria in paragraph (b)(1) of this section.

(3) *Proposed backfits*. Except as provided in paragraph (b)(5) of this section, the Commission shall require a systematic and documented analysis pursuant to paragraph (b)(8) of this section for backfits that it seeks to impose.

(4) *Backfit analysis*. Except as provided in paragraph (b)(5) of this section, the Commission shall require the backfitting of a facility only when it determines, based on the analysis described in paragraph (b)(9) of this section, that there is a substantial

increase in the overall protection of the public health and safety or the common defense and security to be derived from the backfit and that the direct and indirect costs of implementation for that facility are justified in view of this increased protection.

(5) *Exceptions*. The provisions of paragraphs (b)(3) and (4) of this section are inapplicable and, therefore, backfit analysis is not required and the standards in paragraph (b)(4) of this section do not apply where the Commission or staff, as appropriate, finds and declares, with appropriated documented evaluation for its finding, either:

(i) That a modification is necessary to bring a facility into compliance with a license or the rules or orders of the Commission, or into conformance with written commitments by the licensee;

(ii) That regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security; or

(iii) That the regulatory action involves defining or redefining what level of protection to the public health and safety or common defense and security should be regarded as adequate.

(6) *Mandatory backfitting*. The Commission shall always require the backfitting of a facility if it determines that such regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security.

(7) *Documented evaluation*. The documented evaluation required by paragraph (b)(5) of this section shall include a statement of the objectives of and reasons for the modification and the basis for invoking the exception. If immediately effective regulatory action is required, then the documented evaluation may follow rather than precede the regulatory action. The documented evaluation required by paragraph (b)(5)(i) of this

section must include a consideration of the costs of imposing the modification.

(8) *Implementation*. If there are two or more ways to achieve compliance with a license or the rules or orders of the Commission, or with written licensee commitments, or there are two or more ways to reach a level of protection that is adequate, then ordinarily the licensee is free to choose the way that best suits its purposes. However, should it be necessary or appropriate for the Commission to prescribe a specific way to comply with its requirements or to achieve adequate protection, then cost may be a factor in selecting the way, provided that the objective of compliance or adequate protection is met.

(9) *Backfit analysis factor*s. In reaching the determination required by paragraph (b)(4) of this section, the Commission will consider how the backfit should be scheduled in light of other ongoing regulatory activities at the facility and, in addition, will consider information available concerning any of the following factors as may be appropriate and any other information relevant and material to the proposed backfit:

(i) Statement of the specific objectives that the proposed backfit is designed to achieve;

(ii) General description of the activity that would be required by the licensee in order to complete the backfit;

(iii) Potential change in the risk to the public from the accidental offsite release of radioactive material;

(iv) Potential impact on radiological exposure of facility employees;

(v) Installation and continuing costs associated with the backfit, including the cost of decommissioning delay;

(vi) The potential safety impact of changes in major decommissioning activities, including the relationship to proposed and existing regulatory requirements;

(vii) The estimated resource burden on the NRC associated with the proposed

backfit and the availability of such resources;

(viii) The potential impact of differences in facility type and the percentage of decommissioning completed on the relevancy and practicality of the proposed backfit; and

(ix) Whether the proposed backfit is interim or final and, if interim, the justification for imposing the proposed backfit on an interim basis.

(10) *Impact on licensing actions*. No licensing action will be withheld during the pendency of backfit analyses required by the Commission's rules.

(c) *Responsibility for implementation*. The Executive Director for Operations shall be responsible for implementation of this section, and all analyses required by this section shall be approved by the Executive Director for Operations or his designee.

27. In § 50.120, revise paragraph (b)(2) to read as follows:

**§ 50.120 Training and qualification of nuclear power plant personnel.**

* * * * *

(b) * * *

(2) The training program must be derived from a systems approach to training as defined in 10 CFR 55.4, and must provide for the training and qualification of the following categories of nuclear power plant personnel or, upon the NRC's docketing of the licensee's certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter, of the following categories of personnel that are needed at such a licensee's facility:

* * * * *

28. In § 50.155, add paragraphs (h)(6), (7), and (8) to read as follows:

**§ 50.155 Mitigation of beyond-design-basis events.**

* * * * *

(h) * * *

(6) On [INSERT THE EFFECTIVE DATE OF THE FINAL RULE], Order EA-06-

137, “Order Modifying Licenses,” is withdrawn for each licensee that was issued Order EA-06-137.

(7) On [INSERT THE EFFECTIVE DATE OF THE FINAL RULE], the Mitigation Strategies License Condition is deemed removed from the power reactor license of each licensee subject to this section.

(8) On [INSERT THE EFFECTIVE DATE OF THE FINAL RULE], the license condition associated with Order EA-06-137 is deemed removed from the power reactor license of each applicable licensee subject to this section.

* * * * *

29. After § 50.160, add undesignated center heading **Alternative Emergency Preparedness Requirements for Decommissioning Nuclear Power Reactors** and § 50.200 to read as follows:

**ALTERNATIVE EMERGENCY PREPAREDNESS REQUIREMENTS FOR DECOMMISSIONING NUCLEAR POWER REACTORS**

**§ 50.200 Power reactor decommissioning emergency plans.**

(a) *Post-shutdown emergency plans (PSEP)*. If the licensee elects in § 50.54(q)(8)(i) to comply with this section, then the licensee’s onsite emergency response plans must meet the planning standards of § 50.47(b) and the requirements in appendix E to this part. For a PSEP, emergency response organization (ERO) staffing required by § 50.47(b)(2) and appendix E to this part may be commensurate with a reduced spectrum of credible accidents for a permanently shutdown and defueled power reactor facility.

(b*) Permanently defueled emergency plans (PDEP)*. If the licensee elects in § 50.54(q)(8)(ii) to comply with this section, then the licensee’s onsite emergency response plans must meet the requirements in paragraph (c) of this section and the following planning standards:

(1) Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

(2) On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified.

(3) Arrangements for requesting and effectively using assistance resources have been made, and other organizations capable of augmenting the planned response have been identified.

(4) A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee.

(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations has been established.

(6) Provisions exist for prompt communications among principal response organizations to emergency personnel.

(7) The principal points of contact with the news media for dissemination of information during an emergency are established in advance, and procedures for coordinated dissemination of information to the public are established.

(8) Adequate emergency facilities and equipment to support the emergency

response are provided and maintained.

(9) Adequate methods, systems, and equipment for assessing and monitoring actual or potential consequences of a radiological emergency condition are in use.

(10) A range of protective actions has been developed for emergency workers and the public.

(11) Means for controlling radiological exposures in an emergency are established for emergency workers.

(12) Arrangements are made for medical services for contaminated injured individuals.

(13) General plans for recovery and reentry are developed.

(14) Periodic exercises will be conducted to evaluate major portions of emergency response capabilities, periodic drills will be conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills will be corrected.

(15) Radiological emergency response training is provided to those who may be called on to assist in an emergency.

(16) Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

(c) *Content of emergency plans*.

(1) Emergency plans must contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth in this paragraph, i.e., organization for coping with radiological emergencies, assessment actions, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, and recovery.

(i) *Organizatio*n.

(A) The organization for coping with radiological emergencies must be described,

including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency. Specifically, the following must be included:

(*1*) A description of the normal plant organization.

(*2*) A description of the onsite ERO with a detailed discussion of:

(*i*) Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;

(*ii*) Plant staff emergency assignments;

(*iii*) Authorities, responsibilities, and duties of an onsite emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures.

(*3*) Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making dose projections, and a description of how these projections will be made and the results transmitted to State and local authorities, NRC, and other appropriate governmental entities.

(*4*) A description of the local offsite services to be provided in support of the licensee's emergency organization.

(*5*) Identification of assistance expected from appropriate State, local, and Federal agencies with responsibilities for coping with hostile action events. For the purposes of this section, the term "hostile action event" is defined as an action directed toward a nuclear power plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.

(B) [Reserved]

(ii) *Assessment actions*.

(A) The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials must be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within the site boundary to protect health and safety. The emergency action levels must be based on in-plant conditions and instrumentation in addition to onsite monitoring. Emergency action levels must be reviewed with the State and local governmental authorities on an annual basis.

(B) A licensee desiring to change its entire emergency action level scheme must submit an application for an amendment to its license and receive NRC approval before implementing the change. Licensees must follow the change process in § 50.54(q) for all other emergency action level changes.

(iii) *Activation of emergency organization*.

(A) The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization must be described. The communication steps to be taken to alert or activate emergency personnel under each class of emergency must be described. Emergency action levels, based not only on onsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency for notification of offsite agencies, must be described. The existence, but not the details, of a message authentication scheme must be noted for such agencies. The emergency classes defined must include:

(*1*) Notification of unusual events; and

(*2*) Alert.

(B) Licensees must establish and maintain the capability to assess, classify, and

declare an emergency condition within 60 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and must promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level. Licensees must not construe these criteria as a grace period to attempt to restore plant conditions to avoid declaring an emergency action due to an emergency action level that has been exceeded. Licensees must not construe these criteria as preventing implementation of response actions deemed by the licensee to be necessary to protect public health and safety provided that any delay in declaration does not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.

(iv) *Notification procedures*.

(A) Administrative and physical means for notifying local, State, and Federal officials and agencies must be described. This description must include identification of the State and local government agencies.

(B) A licensee must have the capability to notify responsible State and local governmental agencies as soon as possible and within 60 minutes after declaring an emergency.

(v) *Emergency facilities and equipment*. Adequate provisions must be made and described for emergency facilities and equipment, including:

(A) Equipment at the site for personnel monitoring;

(B) Equipment for determining the magnitude of and for continuously assessing the impact of the release of radioactive materials to the environment;

(C) Facilities and supplies at the site for decontamination of onsite individuals;

(D) Facilities and medical supplies at the site for appropriate emergency first aid treatment;

(E) Arrangements for medical service providers qualified to handle radiological

emergencies onsite;

(F) Arrangements for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary;

(G) Arrangements for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary;

(H) A licensee facility from which effective direction can be given and effective control can be exercised during an emergency;

(I) At least one onsite and one offsite communications system; each system must have a backup power source. All communication plans must have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication. Where consistent with the function of the governmental agency, these arrangements will include:

(*1*) Provision for communications with contiguous State and local governments. Such communications must be tested monthly.

(*2*) Provision for communications with Federal emergency response organizations. Such communications systems must be tested annually.

(*3*) Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the facility. Such communications must be tested monthly.

(vi) *Training*.

(A) The training program must provide for:

(*1*) The training of employees and exercising, by periodic drills, of emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties, and

(*2*) The participation in the training and drills by other persons whose assistance

may be needed in the event of a radiological emergency. The plan must include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:

(*i*) Directors and/or coordinators of the plant emergency organization;

(*ii*) Personnel responsible for accident assessment;

(*iii*) Radiological monitoring teams;

(*iv*) Fire control teams (fire brigades);

(*v*) Repair and damage control teams;

(*vi*) First aid and rescue teams;

(*vii*) Medical support personnel; and

(*viii*) Security personnel.

(*3*) In addition, a radiological orientation training program must be made available to local services personnel, such as local emergency services and local law enforcement personnel.

(B) The plan must describe provisions for the conduct of emergency preparedness exercises as follows: Exercises must test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, and ensure that emergency organization personnel are familiar with their duties.[1]

(*1*) Within two years of the last exercise of the onsite emergency plan performed under section IV.F.2.b of appendix E to this part, each licensee must conduct an exercise of its onsite emergency plan.

(*2*) Each licensee at each site must conduct a subsequent exercise of its onsite emergency plan every 2 years. In addition, the licensee must take actions necessary to

[1] Use of site-specific simulators or computers is acceptable for any exercise.

ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, event classification, notification of offsite authorities, assessment of the onsite impact of radiological releases, system repair, and mitigative action implementation. During these drills, activation of all of the licensee's emergency response facilities is not necessary, licensees have the opportunity to consider accident management strategies, supervised instruction is permitted, operating staff in all participating facilities have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills may focus on the onsite exercise training objectives.

(*3*) Each licensee shall enable any State or local government to participate in the licensee's drills and exercises when requested by such State or local government.

(*4*) Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise, such that NRC cannot:

(*i*) Find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency; or

(*ii*) Determine that the ERO has maintained key skills specific to emergency response.

(*5*) All exercises, drills, and training that provide performance opportunities to develop, maintain, or demonstrate key skills must provide for formal critiques in order to identify weak or deficient areas that need correction. Any weaknesses or deficiencies that are identified in a critique of exercises, drills, or training must be corrected.

(*6*) Each licensee shall use drill and exercise scenarios that provide reasonable

assurance that anticipatory responses will not result from preconditioning of participants. Exercise and drill scenarios as appropriate must emphasize coordination among onsite and offsite response organizations.

(vii) *Maintaining emergency preparedness*.

(A) Provisions to be employed to ensure that the emergency plan, its implementing procedures, and emergency equipment and supplies are maintained up to date must be described.

(B) [Reserved]

(viii) *Recovery*.

(A) Criteria to be used to determine when, following an accident, reentry of the facility would be appropriate must be described.

(B) [Reserved]

(2) [Reserved]

30. Amend Appendix E to part 50 by:

a. Removing paragraph I.6;

b. In paragraph IV.4, removing the words “of the later of the date” and “or December 23, 2011,”;

c. Adding paragraph IV.8;

d. In paragraph IV.A.7, removing the words, “By June 23, 2014, identification” and adding in their place the word, “Identification”;

e. In paragraph IV.A.9, removing the words, “By December 24, 2012, for” and adding in their place the word, “For”;

f. In paragraph IV.B.1, removing the words, “By June 20, 2012, for” and adding in their place the word, “For”;

g. In paragraph IV.C.2, removing the words, “By June 20, 2012, nuclear” and adding in their place the word, “Nuclear”;

h. In paragraph IV.E.8.c introductory text, removing the words, “By June 20, 2012, for” and adding in their place the word, “For”;

i. In paragraph IV.E.8.d, removing the last sentence;

j. In paragraph IV.F.2.d removing the words “and should fully participate in one hostile action exercise by December 31, 2015”;

k. Removing and reserving paragraph IV.F.2.j(v);

l. Adding paragraph IV.F.2.k;

m. In paragraph IV.I, removing the words, “By June 20, 2012, for” and adding in their place the word, “For”; The revisions and addition read as follows:

**Appendix E to Part 50—Emergency Planning and Preparedness for Production and Utilization Facilities**

* * * * *

IV. * * *

8. A nuclear power reactor licensee is not subject to the requirements of paragraphs 4, 5, and 6 of this section once the NRC dockets the licensee’s certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter.

* * * * *

F. * * *

2. * * *

k. For each nuclear reactor for which the NRC has docketed the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter, the nuclear reactor’s licensee must follow the biennial exercise requirements of paragraph 2 of this section.

* * * * *

**Appendix I to Part 50 [Amended]**

31. In section IV introductory text, remove “52.110” and add in its place “52.110(a)”.

32. In section IV.C, add “or § 52.110(a) of this chapter” after “§ 50.82(a)(1)”.

**PART 51—ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULATORY FUNCTIONS**

33. The authority of citation for part 51 continues to read as follows:

**Authority**: Atomic Energy Act of 1954, secs. 161, 193 (42 U.S.C. 2201, 2243); Energy Reorganization Act of 1974, secs. 201, 202 (42 U.S.C. 5841, 5842); National Environmental Policy Act of 1969 (42 U.S.C. 4332, 4334, 4335); Nuclear Waste Policy Act of 1982, secs. 144(f), 121, 135, 141, 148 (42 U.S.C. 10134(f), 10141, 10155, 10161, 10168); 44 U.S.C. 3504 note.

Sections 51.20, 51.30, 51.60, 51.80, and 51.97 also issued under Nuclear Waste Policy Act secs. 135, 141, 148 (42 U.S.C. 10155, 10161, 10168).

Section 51.22 also issued under Atomic Energy Act sec. 274 (42 U.S.C. 2021) and under Nuclear Waste Policy Act sec. 121 (42 U.S.C. 10141).

Sections 51.43, 51.67, and 51.109 also issued under Nuclear Waste Policy Act sec. 114(f) (42 U.S.C. 10134(f)).

34. In § 51.53, revise paragraph (d) to read as follows:

**§ 51.53 Postconstruction environmental reports.**

* * * * *

(d) *Postoperating license stage*. Each applicant for a license amendment approving a license termination plan under § 50.82 of this chapter or § 52.110 of this chapter or a decommissioning plan under § 50.82 of this chapter either for unrestricted use or based on continuing use restrictions applicable to the site shall submit with its application a separate document, entitled “Supplement to Applicant’s Environmental Report—Post Operating License Stage,” which will update “Applicant’s Environmental Report—Operating License Stage,” as appropriate, to reflect any new information or significant environmental change associated with the applicant’s proposed decommissioning activities or with the applicant’s proposed activities with respect to the planned storage of spent fuel. As stated in § 51.23, no discussion of the environmental impacts of the continued storage of spent fuel is required in this report. The “Supplement

to Applicant's Environmental Report—Post Operating License Stage" may incorporate by reference any information contained in "Applicant's Environmental Report—Construction Permit Stage."

* * * * *

35. In § 51.95, revise paragraph (d) to read as follows:

**§ 51.95 Postconstruction environmental impact statements.**

* * * * *

(d) *Postoperating license stage*. In connection with the amendment approving a license termination plan under § 50.82 of this chapter or § 52.110 of this chapter or a decommissioning plan under § 50.82 of this chapter either for unrestricted use or based on continuing use restrictions applicable to the site, the NRC staff will prepare a supplemental environmental impact statement for the post operating or post combined license stage or an environmental assessment, as appropriate, which will update the prior environmental documentation prepared by the NRC for compliance with NEPA under the provisions of this part. The supplement or assessment may incorporate by reference any information contained in the final environmental impact statement—for the operating or combined license stage, as appropriate, or in the records of decision prepared in connection with the early site permit, construction permit, operating license, or combined license for that facility. The supplement will include a request for comments as provided in § 51.73. As stated in § 51.23, the generic impact determinations regarding the continued storage of spent fuel in NUREG–2157 shall be deemed incorporated into the supplemental environmental impact statement or shall be considered in the environmental assessment, if the impacts of continued storage of spent fuel are applicable to the proposed action.

* * * * *

**PART 52—LICENSES, CERTIFICATIONS, AND APPROVALS FOR NUCLEAR**

**POWER PLANTS**

36. Revise the authority of citation for part 52 to read as follows:

**Authority**: Atomic Energy Act of 1954, secs. 53, 63, 81, 103, 104, 147, 149, 161, 181, 182, 183, 185, 186, 189, 223, 234 (42 U.S.C. 2073, 2093, 2113, 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.

37. In § 52.0, revise paragraph (a) to read as follows:

**§ 52.0 Scope; applicability of 10 CFR Chapter I provisions.**

(a) This part governs the issuance of early site permits, standard design certifications, combined licenses, standard design approvals, and manufacturing licenses for nuclear power facilities licensed under Section 103 of the Atomic Energy Act of 1954, as amended (68 Stat. 919), and Title II of the Energy Reorganization Act of 1974 (88 Stat. 1242) through the termination of the associated 10 CFR part 52 licenses. This part also gives notice to all persons who knowingly provide to any holder of or applicant for an approval, certification, permit, or license, or to a contractor, subcontractor, or consultant of any of them, components, equipment, materials, or other goods or services that relate to the activities of a holder of or applicant for an approval, certification, permit, or license, subject to this part, that they may be individually subject to NRC enforcement action for violation of the provisions in § 52.4.

* * * * *

38. In § 52.63, revise paragraph (b)(2) to read as follows:

**§ 52.63 Finality of standard design certifications.**

* * * * *

(b) * * *

(2) Subject to § 50.59 of this chapter, a licensee who references a design certification rule may make departures from the design of the nuclear power facility, without prior Commission approval, unless the proposed departure involves a change to

the design as described in the rule certifying the design.

(i) The licensee shall maintain records of all departures from the design of the facility and these records must be maintained and available for audit until the date of termination of the license.

(ii) Licensees for which the NRC has docketed the certifications required under § 52.110(a) are not required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

* * * * *

39. In § 52.109, remove the words “to authorize ownership and possession of the production or utilization facility,”.

40. In § 52.110:

a. revise paragraphs (b), (d), (e), (f)(2), (g), (h)(1)(i), and (h)(2),

b. remove and reserve paragraph (h)(3),

c. add paragraphs (h)(5) through (7), and

d. revise paragraph (i) introductory text and paragraph (i)(2)(vi)

The revisions and additions read as follows:

**§ 52.110 Termination of license.**

* * * * *

(b)

(1) Upon the NRC’s docketing of the licensee’s certifications required under paragraph (a) of this section, or when a final legally effective order to permanently cease operations has come into effect, the 10 CFR part 52 license no longer authorizes operation of the reactor or emplacement of fuel into or retention of fuel in the reactor vessel.

(2) The facility licensed under this part is no longer a utilization facility once the

licensee meets the criteria of paragraph (b)(1) of this section and modifies the facility to be incapable of making use of special nuclear material without significant facility alterations necessary to restore the capability to make use of special nuclear material. The NRC maintains the authority to regulate the 10 CFR part 52 license with respect to the possession of special nuclear material, source material, and byproduct material under sections 53, 63, 81, and 161 of the Act, as applicable. Until the termination of the 10 CFR part 52 license under paragraph (k) of this section, the regulations of this chapter applicable to a utilization facility continue to apply to the holder of the license unless the regulations explicitly state otherwise.

* * * * *

(d)

(1) Prior to or within 2 years following permanent cessation of operations, the licensee shall submit a post-shutdown decommissioning activities report (PSDAR) to the NRC, and a copy to the affected State(s). The PSDAR must contain:

(i) A description of the planned decommissioning activities along with a schedule for their accomplishment.

(ii) A discussion of whether the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate federally issued environmental review documents, the licensee's reasons for reaching that conclusion, and a description of any decommissioning activities whose environmental impacts will not be so bounded and will be evaluated prior to the performance of the activities.

(iii) A discussion of the licensee's planned actions for managing irradiated fuel and how those actions will be consistent with NRC requirements for licensed possession of irradiated fuel until title to, and possession of, the irradiated fuel is transferred to the Secretary of Energy. If any planned actions for managing irradiated fuel require NRC authorization, the licensee must identify them and state whether the submittals for such

actions have been made, or when they will be made, to the NRC. Licensees may not start to decommission structures, systems, and components needed for moving, unloading, and shipping spent fuel that is stored in an independent spent fuel storage installation licensed under the general license provisions in § 72.210 of this chapter until the NRC has received the licensee's submittal of its PSDAR.

(iv) A site-specific decommissioning cost estimate, including the projected cost of managing irradiated fuel.

(2) The NRC shall notice in the *Federal Register* the receipt of the PSDAR and the availability for public comment of the PSDAR. The NRC shall also schedule a public meeting in the vicinity of the licensee’s facility upon receipt of the PSDAR. The NRC shall include a notice in a forum, such as local newspapers, that is readily accessible to individuals in the vicinity of the site, and in the *Federal Register* notice required by this paragraph (d)(2), announcing the date, time and location of the meeting, along with a brief description of the purpose of the meeting.

(e) Licensees shall not perform any major decommissioning activities, as defined in § 50.2 of this chapter, until 90 days after the NRC has received the licensee’s PSDAR submittal and until certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, as required under § 52.110(a), have been submitted.

(f) * * *

(2) Result in significant environmental impacts not bounded by appropriate federally issued environmental review documents; or

* * * * *

(g) In taking actions permitted under § 50.59 or § 72.48 of this chapter following submittal of the PSDAR, the licensee shall notify the NRC in writing and send a copy to the affected State(s), before performing any decommissioning or spent fuel management

activity inconsistent with, or making any significant schedule change from, those actions and schedules described in the PSDAR, and any previously submitted irradiated fuel management plan, including changes that significantly increase the decommissioning cost or the cost of managing spent fuel. The licensee shall retain a copy of the PSDAR and any previously submitted irradiated fuel management plan as a record until termination of the combined license issued under this part.

* * * * *

(h) * * *

(1) * * *

(i) The withdrawals are for expenses for activities consistent with the definition of decommission in § 52.1;

* * * * *

(2) Initially, 3 percent of the generic amount specified in § 50.75(c) of this chapter may be used for decommissioning planning. For licensees that have submitted the certifications required under paragraph (a) of this section and commencing 90 days after the NRC has received the PSDAR, an additional 20 percent may be used. A site-specific decommissioning cost estimate must be submitted to the NRC before the licensee may use any funding in excess of these amounts.

(3) [Reserved]

* * * * *

(5) After submitting its site-specific decommissioning cost estimate required by paragraph (d)(1) of this section, and until the licensee has completed its final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license or termination of its license with the exception of the ISFSI, the licensee must annually submit to the NRC, by March 31, a financial assurance status report. The report may combine the reporting requirements of § 72.30

of this chapter and § 52.110(h)(7). The report must include the following information, current through the end of the previous calendar year:

(i) The amount spent on decommissioning, both cumulative and over the previous calendar year, the remaining balance of any decommissioning funds, and the amount provided by other financial assurance methods being relied upon;

(ii) An estimate of the costs to complete decommissioning, reflecting any difference between actual and estimated costs for work performed during the year, and the decommissioning criteria upon which the estimate is based;

(iii) Any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report; and

(iv) Any material changes to trust agreements or financial assurance contracts.

(6) If the sum of the balance of any remaining decommissioning funds, plus earnings on such funds calculated at not greater than a 2 percent real rate of return, together with the amount provided by other financial assurance methods being relied upon, does not cover the estimated cost to complete the decommissioning, the financial assurance status report must include additional financial assurance to cover the estimated cost of completion.

(7) After submitting its site-specific decommissioning cost estimate required by paragraph (d)(1) of this section, if spent fuel is on site, the licensee must annually submit to the NRC, by March 31, a report on the status of its funding for managing irradiated fuel. If the licensee has completed its final radiation survey and demonstrated that residual radioactivity has been reduced to a level that permits termination of its license with the exception of the ISFSI, this report must be submitted at intervals not to exceed 3 years and may combine the reporting requirements of § 72.30 of this chapter. The report must include the following information, current through the end of the previous calendar year:

(i) The amount of funds accumulated to cover the cost of managing the irradiated fuel;

(ii) The projected cost of managing irradiated fuel until title to the fuel and possession of the fuel is transferred to the Secretary of Energy; and

(iii) If the funds accumulated do not cover the projected cost, a plan to obtain additional funds to cover the cost.

(i) All power reactor licensees that have loaded fuel into the reactor must submit an application for termination of license. The application for termination of license must be accompanied or preceded by a license termination plan to be submitted for NRC approval.

* * * * *

(2) * * *

(vi) An updated site-specific estimate of remaining decommissioning costs and identification of sources of funds for license termination, spent fuel management, and ISFSI decommissioning, as applicable;

* * * * *

41. In Appendix A to part 52, revise paragraph X.A.3 to read as follows:

**Appendix A to Part 52—Design Certification Rule for the U.S. Advanced Boiling Water Reactor**

* * * * *

A. * * *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any periods of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a)

are not required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

* * * * *

42. In Appendix B to part 52, revise paragraph X.A.3 to read as follows:

**Appendix B to Part 52—Design Certification Rule for the System 80 + Design**

* * * * *

A. * * *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any period of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a) are not required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

* * * * *

43. In Appendix C to part 52, revise paragraph X.A.3 to read as follows:

**Appendix C to Part 52—Design Certification Rule for the AP600 Design**

* * * * *

A. * * *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any period of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a) are not

required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

*  *  *  *  *

44. In Appendix D to part 52, revise paragraph X.A.3 to read as follows:

**Appendix D to Part 52—Design Certification Rule for the AP1000 Design**

*  *  *  *  *

A. *  *  *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any period of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a) are not required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

*  *  *  *  *

45. In Appendix E to part 52, revise paragraph X.A.3 to read as follows:

**Appendix E to Part 52—Design Certification Rule for the ESBWR Design**

*  *  *  *  *

A. *  *  *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations that provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any period of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a) are not

required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

*  *  *  *  *

46. In Appendix F to part 52, revise paragraph X.A.3 to read as follows:

**Appendix F to Part 52—Design Certification Rule for the APR1400 Design**

*  *  *  *  *

A. *  *  *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any periods of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a) are not required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

*  *  *  *  *

47. In Appendix G to part 52, revise paragraph X.A.3 to read as follows:

**Appendix G to Part 52—Design Certification Rule for NuScale**

*  *  *  *  *

A. *  *  *

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations that provide the bases for the determinations required by Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any periods of renewal). Licensees for which the NRC has docketed the certifications required under § 52.110(a)

are not required to retain records of departures from the design of the facility associated solely with structures, systems, and components that have been permanently removed from service using an NRC-approved change process.

*  *  *  *  *

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

48. The authority citation for part 72 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.

49. In § 72.13, add paragraph (e) to read as follows:

**§ 72.13 Applicability.**

*  *  *  *  *

(e) The following sections apply to activities associated with a general license, where the licensee has elected to provide for physical protection of the spent fuel in accordance with § 72.212(b)(9)(vii)(A): § 72.1; § 72.2(a)(1), (b), (c), and (e); §§ 72.3 through 72.6(c)(1); §§ 72.7 through § 72.13(a) and (e); § 72.30(b), (c), (d), (e), and (f); § 72.32(c) and (d); § 72.44(b) and (f); § 72.48; § 72.50(a); § 72.52(a), (b), (d), and (e); § 72.60; § 72.62; §§ 72.72 through 72.80(f); §§ 72.82 through 72.86; §§ 72.104 through 72.106; §§ 72.122 through 72.126; §§ 72.140 through 72.176; §§ 72.180 through 72.186; § 72.190; § 72.194; §§ 72.210 through 72.220; and § 72.240(a).

50. In § 72.30, revise paragraph (b) and paragraph (c) introductory text to read as follows:

**§ 72.30 Financial assurance and recordkeeping for decommissioning.**

*  *  *  *  *

(b)

(1) Each applicant for a specific license under this part must submit, as part of its application, a decommissioning funding plan for NRC review and approval.

(2) Each holder of a general license under this part must submit, prior to the initial storage of spent fuel under § 72.212(a)(3), a decommissioning funding plan for NRC review and approval.

(3) The decommissioning funding plans required by paragraphs (b)(1) and (2) of this section must contain:

(i) Information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI or MRS.

(ii) A detailed cost estimate for decommissioning, in an amount reflecting:

(A) The cost of an independent contractor to perform all decommissioning activities;

(B) An adequate contingency factor; and

(C) The cost of meeting the § 20.1402 of this chapter criteria for unrestricted use, provided that, if the applicant or licensee can demonstrate its ability to meet the provisions of § 20.1403 of this chapter, the cost estimate may be based on meeting the § 20.1403 criteria.

(iii) Identification of and justification for using the key assumptions contained in the decommissioning cost estimate.

(iv) A description of the method of assuring funds for decommissioning from paragraph (e) of this section, including means for adjusting cost estimates and associated funding levels periodically over the life of the facility.

(v) The volume of onsite subsurface material containing residual radioactivity that

will require remediation to meet the criteria for license termination.

(vi) A certification that financial assurance for decommissioning has been provided in the amount of the cost estimate for decommissioning.

(c) At intervals not to exceed 3 years and at the time of specific license renewal, the decommissioning funding plan must be resubmitted with adjustments as necessary to account for changes in costs and the extent of contamination. The decommissioning funding plan must update the information submitted with the original or prior plan and must specifically consider the effect of the following events on decommissioning costs:

* * * * *

51. In § 72.32, revise paragraphs (a) introductory text and (c) to read as follows:

**§ 72.32 Emergency Plan.**

(a) Each application for an ISFSI that is licensed under this part which is not located on the site or within the exclusion area, as defined in 10 CFR part 100 of this chapter, of a nuclear power reactor licensed under part 50 of this chapter or part 52 of this chapter must be accompanied by an Emergency Plan that includes the following information:

* * * * *

(c) For an ISFSI that is located on the site or within the exclusion area, as defined in 10 CFR part 100, of a nuclear power reactor licensed under parts 50 or 52 of this chapter, an emergency plan that meets the requirements in any of the following shall be deemed to satisfy the requirements of this section:

(1) § 50.160 of this chapter.

(2) Appendix E to part 50 of this chapter and § 50.47(b) of this chapter.

(3) § 50.200(a) or § 50.200(b) of this chapter.

* * * * *

52. In § 72.44, revise paragraph (f) to read as follows:

**§ 72.44 License conditions.**

*  *  *  *  *

(f) A licensee shall follow and maintain in effect an emergency plan that is approved by the Commission. The licensee may make changes to the approved plan without Commission approval only if such changes do not decrease the effectiveness of the plan. Within six months after any change is made, the licensee shall submit, in accordance with § 72.4, a report containing a description of any changes made in the plan addressed to Director, Division of Fuel Management, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, with a copy to the appropriate NRC Regional Office shown in appendix D to part 20 of this chapter. Proposed changes that decrease the effectiveness of the approved emergency plan must not be implemented unless the licensee has received prior approval of such changes from the Commission. Licensees need not comply with the requirements of this paragraph when all spent fuel has been removed from the site.

53. In § 72.62, revise paragraph (a)(2) to read as follows:

**§ 72.62 Backfitting.**

(a) *  *  *

(2) Procedures or organization required to operate or decommission an ISFSI or MRS.

54. In § 72.72, revise paragraph (d) to read as follows:

**§ 72.72 Material balance, inventory, and records requirements for stored materials.**

*  *  *  *  *

(d)

(1) Except as provided in paragraph (d)(2) of this section, records of spent fuel, high-level radioactive waste, and reactor-related GTCC waste containing special nuclear material meeting the requirements in paragraph (a) of this section must be kept in

duplicate. The duplicate set of records must be kept at a separate location sufficiently remote from the original records that a single event would not destroy both sets of records.

(2) A single copy of the records described in paragraph (d)(1) of this section may be maintained in a single storage facility provided the facility meets the requirements of an NRC-approved quality assurance program for the storage of records.

(3) Records of spent fuel or reactor-related GTCC waste containing special nuclear material transferred out of an ISFSI or records of spent fuel, high-level radioactive waste, or reactor-related GTCC waste containing special nuclear material transferred out of an MRS must be preserved for a period of five years after the date of transfer.

* * * * *

55. In § 72.212, add paragraph (b)(9)(vii) to read as follows:

**§ 72.212 Conditions of general license issued under § 72.210.**

* * * * *

(b) * * *

(9) * * *

(vii)

(A) Upon NRC docketing of the certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter, and when all spent fuel has been placed in dry cask storage at the facility, the licensee may, as an alternative to the requirements of § 72.212(b)(9)(i) through (vi), provide for physical protection of the spent fuel under subpart H of this part and § 73.51 of this chapter.

(B) A licensee who elects to provide physical protection under subpart H of this part and § 73.51 of this chapter will submit their physical security plan to the NRC under § 50.54(p) of this chapter.

56. Revise § 72.218 to read as follows:

**§ 72.218 Termination of licenses.**

(a) Upon removal of the spent fuel stored under this general license from the reactor site, the licensee must decommission the ISFSI consistent with requirements in § 50.82 of this chapter or § 52.110 of this chapter, as applicable.

(b) The general license under this part is terminated upon termination of the 10 CFR part 50 or 10 CFR part 52 license under § 50.82(a)(11) of this chapter or § 52.110(k) of this chapter, respectively.

**PART 73—PHYSICAL PROTECTION OF PLANTS AND MATERIALS**

57. The authority citation for part 73 continues to read as follows:

**Authority**: Atomic Energy Act of 1954, secs. 53, 147, 149, 161, 161A, 170D, 170E, 170H, 170I, 223, 229, 234, 1701 (42 U.S.C. 2073, 2167, 2169, 2201, 2201a, 2210d, 2210e, 2210h, 2210i, 2273, 2278a, 2282, 2297f); Energy Reorganization Act of 1974, secs. 201, 202 (42 U.S.C. 5841, 5842); Nuclear Waste Policy Act of 1982, secs. 135, 141 (42 U.S.C. 10155, 10161); 44 U.S.C. 3504 note.
Section 73.37(b)(2) also issued under Sec. 301, Public Law 96–295, 94 Stat. 789 (42 U.S.C. 5841 note).

58. In § 73.51, revise paragraphs (a) introductory text, (a)(1) introductory text, and (a)(2) and add paragraph (a)(3) to read as follows:

**§ 73.51 Requirements for the physical protection of stored spent nuclear fuel and high-level radioactive waste.**

(a) *Applicability*. Notwithstanding the provisions of § 73.20, § 73.50, or § 73.67, the physical protection requirements of this section apply to each licensee that stores spent nuclear fuel and high-level radioactive waste:

(1) Under a specific license issued pursuant to part 72 of this chapter:

(i) At an independent spent fuel storage installation (ISFSI) or

(ii) At a monitored retrievable storage (MRS) installation; or

(2) At a geologic repository operations area (GROA) licensed pursuant to part 60

or 63 of this chapter; or

(3) Under a general license issued pursuant to part 72 of this chapter and upon the NRC's docketing of the certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter, when all spent fuel has been placed in dry cask storage at the facility, and a submittal has been made to the NRC under the provisions of § 72.212(b)(9)(vii)(B) of this chapter.

* * * * *

59. In § 73.54:

a. Wherever it may appear remove the phrase "cyber security" and add in its place the word "cybersecurity",

b. Remove the introductory text, revise paragraph (a) introductory text, paragraph (b) introductory text, and paragraph (c) introductory text, and

c. Add paragraphs (i) and (j).

The revisions and additions read as follows:

**§ 73.54 Protection of digital computer and communication systems and networks.**

(a) Each holder of an operating license for a nuclear power reactor under part 50 of this chapter and each holder of a combined license under part 52 of this chapter for which the Commission has made the finding under § 52.103(g) of this chapter shall provide high assurance that its digital computer and communication systems and networks are adequately protected against cyber attacks, up to and including the design basis threat as described in § 73.1.

* * * * *

(b) To accomplish the objectives in paragraph (a) of this section, the licensee shall:

* * * * *

(c) The licensee's cybersecurity program must be designed to:

*  *  *  *  *

(i) The requirements of this section no longer apply once the following criteria are satisfied:

(1) The NRC has docketed the licensee's certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter; and

(2) At least 10 months (for a boiling-water reactor) or at least 16 months (for a pressurized-water reactor) have elapsed since the date of permanent cessation of operations if the fuel meets the criteria of § 50.54(q)(8)(ii) of this chapter, or an NRC-approved alternative spent fuel decay period, submitted under § 50.54(q)(8)(ii)(A) or (B) of this chapter, has elapsed.

(j) *Removal of cybersecurity license condition*. The cybersecurity plan license condition, which requires the licensee to fully implement and maintain in effect all provisions of the Commission-approved cybersecurity plan including changes made pursuant to the authority of § 50.90 of this chapter and § 50.54(p) of this chapter, is deemed removed from the power reactor license of each applicable licensee subject to this section once the conditions in paragraph (i) of this section are satisfied.

60. In § 73.55:

a. Revise paragraph (b)(3) introductory text,

b. Add paragraphs (b)(9)(ii)(B)(*1*) and (*2*), and

c. Revise paragraphs (b)(9)(ii)(C), (c)(6), (e)(9)(v)(A), (j)(4)(ii), and (p)(1)(i) and (ii).

The revisions and additions read as follows:

**§ 73.55 Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage.**

*  *  *  *  *

(b) *  *  *

(3) The physical protection program must be designed to prevent significant core damage until the NRC has docketed the certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter. The physical protection program must also be designed to prevent spent fuel sabotage. Specifically, the program must:

* * * * *

(9) * * *

(ii) * * *

(B) * * *

(*1*) Licensees who are implementing 10 CFR part 26, regardless of whether they are required to do so, are in compliance with paragraph (b)(9)(ii)(B) of this section.

(*2*) Licensees, upon the NRC's docketing of their certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter, that elect not to comply with paragraph (b)(9)(ii)(B)(*1*) of this section must implement the following:

(*i*) A fitness for duty program in which individuals who maintain unescorted access authorization and have unescorted access to a vital area, individuals who perform certified fuel handler functions under § 50.2 of this chapter prior to all spent nuclear fuel at a site being placed in dry cask storage, individuals who perform the functions under § 26.4(a)(5) of this chapter, and individuals who perform the functions under § 26.4(g) of this chapter, are subject to the requirements in 10 CFR part 26 except for subparts I and K; and

(*ii*) A fitness for duty program in which those individuals who maintain unescorted access authorization and have unescorted access to the protected area who are not included in paragraph (b)(9)(ii)(B)(2)(i) of this section, are subject to the requirements of §§ 26.27, 26.29, 26.31(c)(1), (c)(2) and (c)(4), 26.31(d)(3), 26.33, 26.37, 26.39, 26.61(a) and (b), 26.63(d), 26.69, 26.75(a) through (g), 26.77, 26.83, 26.91, 26.99, 26.103, 26.105, 26.111, 26.153, 26.161, 26.163, 26.183, 26.185, 26.187, 26.189, 26.713, and

26.717 of this chapter.

(C) The cybersecurity program described in § 73.54 until the conditions in § 73.54(i) have been satisfied; and

* * * * *

(c) * * *

(6) *Cybersecurity Plan*. The licensee shall establish, maintain, and implement a cybersecurity plan in accordance with the requirements of § 73.54. The licensee no longer needs to maintain and implement its cybersecurity plan once the criteria in § 73.54(i) have been satisfied.

* * * * *

(e) * * *

(9) * * *

(v) * * *

(A) The reactor control room, unless the licensee has submitted and the NRC has docketed the certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter, and the licensee has documented that all vital equipment has been removed from the control room and the control room does not serve as the vital area boundary for other vital areas;

* * * * *

(j) * * *

(4) * * *

(ii) A system for communication with the control room, or, if the NRC has docketed the certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter, a system for communication with the certified fuel handler or the senior on-shift licensee representative responsible for overall safety and security of the permanently shutdown and defueled facility.

*  *  *  *  *

(p) *  *  *

(1) *  *  *

(i) In accordance with § 50.54(x) and (y) of this chapter, the licensee may suspend any security measures under this section in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. This suspension of security measures must be approved, before taking this action, by the following individuals:

(A) at an operating nuclear power reactor, a licensed senior operator or an organizationally senior individual;

(B) at a nuclear power reactor facility for which the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter have been submitted but before all spent fuel has been placed in dry cask storage, a licensed senior operator, a certified fuel handler, or an organizationally senior individual;

(C) at a nuclear power reactor facility for which all spent fuel has been placed in dry cask storage, an individual designated by the facility licensee or an organizationally senior individual.

(ii) During severe weather when the suspension of affected security measures is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the license conditions and technical specifications can provide adequate or equivalent protection. This suspension of security measures must be approved, before taking this action, by the following individuals with input from the security supervisor or manager:

(A) at an operating nuclear power reactor, a licensed senior operator or an organizationally senior individual;

(B) at a nuclear power reactor facility for which the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter have been submitted but before all spent fuel has been placed in dry cask storage, a licensed senior operator, a certified fuel handler, or an organizationally senior individual;

(C) at a nuclear power reactor facility for which all spent fuel has been placed in dry cask storage, individuals designated by the facility licensee or an organizationally senior individual.

* * * * *

**PART 140—FINANCIAL PROTECTION REQUIREMENTS AND INDEMNITY AGREEMENTS**

61. The authority citation for part 140 continues to read as follows:

**Authority**: Atomic Energy Act of 1954, secs. 161, 170, 223, 234 (42 U.S.C. 2201, 2210, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202 (42 U.S.C. 5841, 5842); 44 U.S.C. 3504 note.

62. In § 140.11, add paragraph (a)(5), redesignate paragraph (b) as paragraph (c), revise newly redesignated paragraph (c), and add new paragraph (b) to read as follows:

**§ 140.11 Amounts of financial protection for certain reactors.**

(a) * * *

(5) In the amount of at least $100,000,000, for each nuclear reactor:

(i) For which the NRC has docketed the certifications required under § 50.82(a)(1) of this chapter or § 52.110(a) of this chapter, and

(ii) For which at least 10 months (for a boiling-water reactor) or 16 months (for a pressurized-water reactor) have elapsed since the date of permanent cessation of operations if the fuel meets the criteria of § 50.54(q)(8)(ii) of this chapter, or for which an NRC-approved alternative to the 10- or 16-month spent fuel decay period, submitted under § 50.54(q)(8)(ii)(A) or (B) of this chapter, has elapsed.

(b) Secondary financial protection (in the form of private liability insurance available under an industry retrospective rating plan providing for deferred premium charges) will no longer be required once the criteria in § 140.11(a)(5)(i) and (ii) have been met.

(c) In any case where two or more nuclear reactors at the same location are licensed under parts 50, 52, or 54 of this chapter, the total financial protection required of the licensee for all such reactors (excluding any applicable secondary financial protection) is the highest amount which would otherwise be required for any one of those reactors; provided, that such financial protection covers all reactors at the location.

63. In § 140.81, revise paragraph (a) to read as follows:

**§ 140.81 Scope and purpose.**

(a) Scope. This subpart applies to applicants for and holders of operating licenses issued under part 50 of this chapter, combined licenses issued under part 52 of this chapter, or renewed licenses issued under part 54 of this chapter, for production facilities and utilization facilities, and to other persons indemnified with respect to such facilities. This subpart shall cease to apply to a power reactor licensee under part 50, part 52, or part 54 of this chapter once the licensee satisfies the criteria in § 140.11(a)(5)(i) and (ii). This subpart shall cease to apply to a licensee of a non-power production or utilization facility under part 50 of this chapter once the NRC removes the licensee’s authority to operate through a license amendment.

*  *  *  *  *

Dated: Month XX, XXXX.

For the Nuclear Regulatory Commission.

Carrie M. Safford,
Secretary of the Commission.