

Questions and Answers

Decommissioning Planning Final Rule

1. What is decommissioning?

To decommission means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits either: (1) release of the property for unrestricted use and termination of the license; or (2) release of the property under restricted use and termination of the license. Restricted conditions mean that the licensee or its successor must control access by the public, using such means as fences, guards, alarms, and signs. A key objective of the decommissioning planning rule is to require licensees to document the extent of residual radioactivity at their sites.

2. What is residual radioactivity?

As defined in existing NRC radiation protection regulations ([10 CFR 20.1003](#)), residual radioactivity means radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but it excludes background radiation from cosmic sources, naturally occurring radioactive material, and global fallout from the testing of nuclear explosive devices or from past nuclear accidents such as Chernobyl that are not under the licensee's control. Residual radioactivity also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material and previous burials at the site, even if those burials were made in accordance with NRC requirements at the time.

3. When does residual radioactivity become “significant” for decommissioning planning purposes?

The NRC considers “significant” residual radioactivity to be a quantity of radioactive material that would later require remediation during decommissioning to meet the unrestricted use criteria of [10 CFR 20.1402](#). Under these criteria, a site will be acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a total effective dose equivalent (TEDE)¹ to an average member of the critical group² that does not

¹ Under [10 CFR 20.1003](#), *total effective dose equivalent (TEDE)* means “the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures). *Effective dose* is the product of the dose absorbed by the living tissue on or in the receptor's body and a “quality factor” reflecting the fact that different types of radiation ionize tissue at different rates. This term also takes into account “all other necessary modifying factors [e.g., age and gender] at the location of interest [e.g., an organ or extremity of the subject's body].” *Effective dose equivalent* is the sum of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues that are irradiated (some organs are more susceptible to radiation damage than others). *Committed dose equivalent* accounts for the continuing internal dose from a long-lived radioactive material after it has been inhaled or ingested into the body. Committed dose equivalent is that dose to organs or tissues that will be received from an intake of radioactive material by an individual during the 50-year period following the intake. Thus, as the sum of external and committed internal effective dose equivalents, TEDE is the most comprehensive measure of radiation doses.

exceed 25 mrem (0.25 mSv) per year, and the residual radioactivity has been reduced to levels that are ALARA. This total includes doses from groundwater sources of drinking water.

A quantity of radioactive materials that constitutes “significant” residual radioactivity will be different from site to site, because the conditions that would affect the total dose calculation, such as climate, topography, soil characteristics, proximity to surface water, and subsurface geology and hydrology, differ at each site. Thus, each licensee with residual radioactivity onsite will need to determine whether this radioactivity is significant enough to require remediation before the site can be released for unrestricted use at license termination. To make this determination, licensees may compare their ground water or soil samples to pre-established benchmark values such as those in:

- NUREG 1757, *Consolidated Decommissioning Guidance*, [Volume 2](#), Appendix H, Screening criteria
- 10 CFR Part 20, Appendix B, [Table 2](#)
- License termination conditions for [previously decommissioned reactors](#)

4. What are financial assurances?

Financial assurances are arrangements provided by a licensee to ensure that adequate funds for decommissioning will be available when needed. Each NRC licensee has a regulatory obligation to decommission its facility properly. All nuclear power reactors and about 7 percent of NRC materials licensees must provide decommissioning financial assurance. This financial assurance may be in the form of funds set aside by the licensee or a guarantee that funds will be available when needed. The guarantee may be provided by a qualified third party or, upon passage of a financial test, by the licensee. The third party may be the parent company of the licensee, which is the case for about 10 percent of the NRC materials licensees who are obligated to have decommissioning financial assurance.

Nuclear power reactors have financial assurance obligations that are different from materials licensees. The minimum amount of financial assurance for reactors is defined in [10 CFR 50.75](#), and this rulemaking does not change this required minimum amount. Acceptable financial assurance mechanisms for power reactors are defined in § 50.75(e)(1). An external sinking fund (discussed in Question 19 below) is used to provide financial assurance for about 90 percent of the reactors. The remaining 10 percent of reactors have assurance through prepaid funds and/or guarantees.

5. What is the purpose of the Decommissioning Planning Rule?

The purpose of the regulation is to improve licensee planning for completing site decommissioning and terminating the license, and thereby reduce the likelihood that any currently operating facility will become a legacy site – a site with complex decommissioning issues for which the licensee lacks adequate financial assurance to complete decommissioning to radiologically safe and environmentally acceptable levels.

² Under [10 CFR 20.1003](#), *critical group* is defined as “the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances.”

6. How would you summarize what the Decommissioning Planning Rule requires?

The amended regulations require licensees to conduct their operations to minimize the introduction of residual radioactivity into the site, which includes the site's subsurface soil and ground water. Licensees also may be required to perform site surveys to determine whether significant residual radioactivity is present in subsurface soil or water. The amended regulations require licensees to keep records of these surveys with records important for decommissioning, and for materials licensees to provide additional details in their decommissioning cost estimates (DCEs). For materials licensees, the escrow account and line of credit are eliminated as approved financial assurance mechanisms, and the rule modifies other financial assurance requirements. Materials licensee must update decommissioning cost estimates annually and adjust their financial assurance accordingly. In addition, the amended regulations require decommissioning power reactor licensees to report additional information on the costs of spent fuel management and decommissioning.

7. How would the new rule change existing NRC requirements for radiation protection?

The rule amends [10 CFR 20.1406](#)(c) to clarify that, "to the extent practical," licensees must conduct their operations to "minimize" the introduction of "residual radioactivity" (a term already defined in [10 CFR 20.1003](#), as noted in Question 2 above). The new 10 CFR 20.1406 also clarifies that "site" now includes the "subsurface," which includes soil, saturated soils, and groundwater.

The clarified language in 10 CFR 1406(c) is a logical extension of current requirements in 10 CFR 20 to maintain radiation doses to workers and the public that are as low as reasonably achievable. The current [10 CFR 20.1101](#)(b) requires each licensee to use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are ALARA. To achieve doses that are ALARA during facility operations and decommissioning, these operating procedures and controls must apply to potential as well as actual radiological hazards and to methods used by the licensee to minimize and control waste generation. Based on past NRC experience, significant concentrations or quantities of unmonitored contamination have been a major contributor to a site's becoming a legacy site and potential radiological hazard.

8. How would the new rule change existing NRC requirements for radiation surveys and monitoring?

Before this final rule, [§ 20.1501](#)(a) required licensees to perform surveys necessary to comply with Part 20 requirements, including surveys "reasonable under the circumstances" to evaluate potential radiological hazards. The amended rule requires radiological surveys reasonable under the circumstances (such as scoping surveys), sufficient to understand the extent of significant residual radioactivity, including that in the subsurface. The final rule does not add any new requirements regarding site characterization.

Slow and long-lasting leaks of radioactive material into the onsite subsurface may eventually produce radiological hazards and pose a risk for creation of a legacy site if contaminant characteristics are not identified when the facility is operating. The staff views radiological hazards as including those resulting from subsurface contaminating events, when these events produce significant residual radioactivity that would later require remediation during decommissioning to meet the unrestricted use criteria of [10 CFR 20.1402](#). An effective approach to understand the extent of subsurface residual radioactivity is through the use of radiological scoping surveys.

9. What kinds of licensees are likely to be affected by the new survey and monitoring requirements for decommissioning planning?

The vast majority of NRC materials licensees do not have processes that would cause subsurface contamination. NRC's expectation is that these licensees, including those that release and monitor effluents of short-lived radionuclides to municipal sewer systems, will not be affected by the new rule. The accumulation of radionuclides at municipal waste treatment facilities was the subject of an Interagency Steering Committee on Radiation Standards (ISCORS) study (NUREG-1775, November 2003, [ML033140171](#)), which concluded that, in general, these facilities do not have sufficient concentrations of long-lived radionuclides to require additional monitoring or long-term controls. Other classes of licensees that are generally not expected to introduce significant residual radioactivity into the subsurface include broad scope academic, broad scope medical, and small research and test reactor licensees. Draft Regulatory Guide DG-4014, to be issued for public comment after this final rule, proposes an acceptable method for these licensees to evaluate the subsurface residual radioactivity. ([ML111230072](#))

Several hundred NRC materials licensees possess radioactive material and have liquid processes that could cause subsurface contamination. These licensees generally are compliant with regulations that limit effluent release to the environment over a specified time. Some of these licensees may not have documented onsite residual radioactivity, such as spills, leaks and onsite burials that may be costly to remediate during decommissioning and should be considered in arriving at an accurate DCE. There have been instances of previously unidentified soil and ground-water contamination at uranium and rare-earth metal recovery sites undergoing decommissioning in several states, notably Colorado and Pennsylvania. The NRC believes that a small number of materials licensees will need to perform additional monitoring compared to their current practices because of significant residual radioactivity at their sites.

Power reactor licensees have exhibited a high level of ALARA discipline with respect to effluent release and known spills and leaks. Current NRC regulations in [§ 20.1301](#), [§ 20.1302](#), and [§ 50.36a](#) ensure that power reactor licensees maintain adequate monitoring and surveys of radioactive effluent discharges, with annual reporting requirements outlined in § 50.36a(2) that are made available to the public on the NRC web site. The NRC inspects power reactor licensees to assess whether they have completed and are maintaining their commitments to meet the industry's voluntary Groundwater Protection Initiative (GPI). This includes inspecting licensees' environmental and effluent reports under which they are required to document onsite ground water sample results for each calendar year. This information is publicly available in ADAMS and on the [NRC web site](#) on radioactive effluents and environmental reports.

10. How many "legacy sites" are there now?

Most of the several hundred materials licenses NRC terminates each year are routine actions, and the sites require little, if any, remediation to meet NRC's unrestricted use criteria. There are other sites, however, where more complex decommissioning actions are needed. At the end of 2010, there were 6 legacy sites among the complex materials sites undergoing decommissioning.

11. If there are so few legacy sites, why is NRC refining its radiation protection rules and applying new financial reporting requirements?

The short answer is that we want to keep it that way. We want to enhance our assurance to the public that there will be no new legacy sites that could have been avoided with this more risk-informed, performance-based regulation taking advantage of all that we've learned.

Based on past NRC experience, significant concentrations or quantities of undetected and unmonitored contamination have been a major contributor to a site's becoming a legacy site and a potential radiological hazard. Two contributing factors to the accumulation of unidentified subsurface contamination are: reluctance among some licensees to spend funds during operations to perform surveys and document spills and leaks that may later affect decommissioning; and reluctance to implement procedures for waste minimization. This rule addresses both.

Appropriate surveys are essential for determining the adequacy of financial assurance for materials licensees, and need to be done periodically on a limited basis during operations when the DFP and financial assurance can be adjusted while the licensee is still generating revenue. This is far superior to the current practice at some facilities of delaying even limited survey work at the site until after the facility has been shut down.

Another factor that may contribute to future legacy sites is the delayed identification of contamination on the site. Over a long time, contamination that migrates in subsurface soil or ground water typically does not cause immediate exposure to either workers or the public that approaches the limits specified in 10 CFR Part 20. It is only after operations have ceased, when the possible results of unlimited access to the site, and associated exposure pathways (i.e., ingestion and inhalation) are being evaluated, that the volume of contamination has become apparent.

Facilities that process large quantities of licensed material, especially in fluid form, have the potential for causing significant environmental contamination. Leaks from these facilities can lead to large amounts of radioactive contamination entering the subsurface environment over an extended time. Although estimated doses from this contamination are most likely to be below the limits in 10 CFR Part 20 that would require immediate remedial actions, the accumulation of low levels of contamination over years of operation could result in the licensee's discovering, too late, that its financial assurance is inadequate to fund the extent of decommissioning needed to permit release of the site for unrestricted use. In such cases, if the licensee is unable to provide the fences, gates, guards, alarms, and other resources needed to keep access to the site restricted over many years, the costs may well fall to state or federal taxpayers, or both.

A third factor the staff considered in preparing this final rule, particularly relevant to the need to minimize the introduction of residual activity at this site, is the high cost to dispose of radioactive materials offsite. These costs are a concern even when the material contains relatively low concentrations of radioactivity. A continued trend of increasingly higher disposal costs could delay decommissioning and increase the number of environmental contamination incidents from long-term storage or onsite burial of this material at operating facilities, resulting in higher decommissioning costs.

12. Have there been any unplanned releases from licensed operating facilities to date?

Yes. In addition to the releases from materials licensee facilities that have led to their becoming legacy sites, several operating fuel cycle and other materials licensees have experienced inadvertent releases of radioactive material that could result in additional residual radioactivity at the site. In addition, several nuclear power plants have reported inadvertent and unmonitored releases of liquid tritium,³ which resulted in ground-water contamination. In some instances, the

³ Tritium (H-3) is a weak radioactive isotope of the element hydrogen that occurs both naturally and during the operation of nuclear power plants. It has a half-life of 12.3 years and emits a weak beta particle. The most common form of tritium is in water, since tritium and normal hydrogen react with

release of radioactive liquid was not recognized by the licensee until years after the release apparently began. The NRC Executive Director for Operations chartered a Task Force to conduct a lessons-learned review of these incidents. The Task Force Final Report ([ML062650312](#)) dated September 1, 2006, concluded that the levels of tritium and other radionuclides measured thus far do not present a health hazard to the public. But the Report did identify, among other things, the need to clarify existing licensee requirements to demonstrate that they have achieved public and occupational exposures that are ALARA during the life cycle of the facility, including the decommissioning phase.

13. What's being done about these unplanned releases?

To address the issue of inadvertent and unmonitored releases, the Nuclear Energy Institute (NEI) developed voluntary guidance for licensees in the industry Ground Water Protection Initiative ([ML072600295](#)). The GPI is a site-specific ground water protection program to manage situations involving inadvertent releases of licensed material to ground water and to provide timely communication to appropriate State/Local officials, with follow-up notification to the NRC as appropriate.

The NRC inspects power reactor licensees to assess whether they have completed and are maintaining their commitments to meet the GPI. This information is publicly available in ADAMS. Between August 2008 and August 2010, NRC inspected all 65 sites with operating nuclear power plants to determine whether the licensees had installed the necessary procedures and processes to respond to a leak or spill of radioactive material to groundwater. A report summarizing its findings was released in April 2011. ([ML11088A047](#)) The NRC will conduct additional inspections at all sites using a follow-up Temporary Inspection to verify full implementation of the GPI.

14. Why is NRC requiring changes in financial assurance reporting for decommissioning reactors?

§ 50.82(a) of the new rule revises the annual financial assurance reporting requirements for power reactor licensees undergoing decommissioning to provide information necessary to determine whether the licensee has financial assurance adequate to complete decommissioning. If not, the licensee will be required to provide additional financial assurance. The annual reports must identify yearly decommissioning expenditures, the remaining balance of decommissioning funds, and a cost estimate to complete decommissioning. Under 10 CFR 50.82(a)(8), the annual reports must identify the amount of funds accumulated to manage irradiated fuel, the projected cost of managing the irradiated fuel until title and possession is transferred to the Secretary of Energy, and, if necessary, a plan to obtain additional funds to cover the cost of irradiated fuel management.

Although several power reactor licensees have successfully decommissioned their reactor sites consistent with 10 CFR Part 20 requirements, in some cases, reactor decommissioning costs have exceeded the initial DCE. The Connecticut Yankee Nuclear Plant, for example, experienced higher decommissioning costs than planned, due in part to a larger volume of contaminated soil than was identified in the initial site characterization.

In the past, NRC has not required power reactor licensees to submit details of actual decommissioning costs, since each licensee's status as a regulated public utility provided

oxygen in the same way to form water. Tritium replaces one of the stable hydrogens in the water molecule, H₂O, and creates tritiated water, which is colorless and odorless.

access to cost-of-service rate recovery to help provide additional funds. A public utility also had protected access to sales revenues from its service territory to fund its obligations, even if rate recovery was limited.

Deregulation of the electric industry now permits a reactor licensee to operate as a merchant plant not subject to rate regulation and with no access to rate recovery of costs of service. When the merchant plant reactor ceases operation, the licensee may have no sales revenues. The licensee may be organized as a separate company or a subsidiary of a holding company to isolate the risks and rewards of selling electricity on the open market. Without access to rate relief, no sales revenues, and with the licensee's owner protected by limited liability, shortfalls in decommissioning funding may jeopardize timely completion of decommissioning. This final rule provides NRC regulatory authority to perform oversight to assure that the licensee anticipates potential shortfalls and takes steps to control costs to stay within its budget or obtain additional funds.

15. How does this rule affect financial assurance reporting requirements for power reactors?

Under [10 CFR 50.75\(f\)\(3\)](#) of existing rules, a power reactor licensee must provide a preliminary DCE five years before the projected end of the affected reactor's operation. This estimate must provide "an up-to-date assessment of the major factors that could affect the cost to decommission," including the cost of remediating any detected subsurface contamination that would result in radiation exposure in excess of the license termination criteria. Until that time, however, the power reactor licensee must submit a decommissioning fund status (DFS) report at least once every 2 years pursuant to 10 CFR 50.75(f). The DFS report must include the amount of decommissioning funds estimated to be required under 10 CFR 50.75(b) and (c).

Power reactor licensees may report either the amount calculated using the formulas of 10 CFR 50.75(c), or a site-specific cost estimate that may be more, but not less, than the amount calculated by the formulas. For power reactors reporting the formula amount, the cost of remediating subsurface contamination detected during operation is not required to be included. However, for site-specific cost estimates, a power reactor licensee must address any subsurface contamination that is detected and estimate the associated cost of remediation.

16. How does this rule affect financial assurance reporting requirements for non-power reactors?

Under unchanged existing rules, non-power research and test reactors (RTRs) must submit 2 years before their projected end of operations a preliminary decommissioning plan containing a DCE and "an up-to-date assessment of the major factors that could affect planning for decommissioning."

17. How does this rule affect financial assurance reporting requirements for materials licensees?

The new rule requires more detailed reporting by materials licensees of their decommissioning cost estimates (DCEs), and imposes tighter controls on the financial instruments used to provide decommissioning financial assurance. To enhance assurance that decommissioning funds will be available when needed even if the licensee is in financial distress, the rule eliminates the escrow account as an approved financial assurance mechanism for materials licensees, and the line of credit as an approved financial assurance mechanism for all licensees. No NRC licensees are currently using lines of credit for decommissioning financial assurance.

18. How does this rule affect the way reactors provide financial assurance for decommissioning?

Except for elimination of the line of credit, the new rule does not affect financial assurance methods now in use by operating reactors, including research and test reactors. It does, however, now require each power reactor licensee undergoing decommissioning to provide a more detailed DCE, and a cost estimate for managing irradiated fuel in the licensee's post-shutdown decommissioning activities report. In addition, reactor licensees that have permanently ceased operations are now subject to annual financial assurance reporting requirements that include additional detail on actual costs to date and the cost to complete decommissioning. The rule clarifies that a permanently shut down reactor licensee must provide financial assurance to cover the cost to complete decommissioning. Permanently shutdown power reactors will be required to report annually on the status of funding for managing irradiated fuel.

19. Why does this final rule eliminate lines of credit and escrow accounts as acceptable financial assurance mechanisms for decommissioning?

This final rule eliminates the line of credit option from the list of surety, insurance, or other guarantee methods that may be used to provide financial assurance for decommissioning. Although the line of credit was initially authorized to provide an alternative to licensees that elected not to use a surety or letter of credit, the NRC recognized that it posed a greater risk than the other two surety methods, because it might be subject to underlying loan covenants that could make it more vulnerable to cancellation if the licensee experienced financial difficulties. Since 1988, moreover, no NRC licensees have elected to use a line of credit to provide financial assurance for decommissioning. Because of its greater risk of cancellation and its non-use by licensees, the NRC has decided to eliminate the line of credit as an alternative for providing financial assurance for decommissioning.

While the NRC agrees that a number of options should be available to licensees subject to financial assurance requirements, the NRC must balance cost and availability with other factors, including especially the ability of the mechanism to provide funds for decommissioning when needed. The NRC concluded that an escrow account provides a lower degree of assurance as compared to a trust account. This conclusion was based on an evaluation performed by the US EPA when it decided not to allow the escrow account as a financial assurance method for hazardous waste operators. Accordingly, the NRC has removed the escrow from the list of approved mechanisms for affected materials licensees.

20. Now that the rule has eliminated escrow accounts and lines of credit as acceptable financial assurances for materials licensees, what other kinds will NRC accept?

As of December 31, 2006, there were about 300 NRC materials licensees that have a regulatory obligation to provide approved financial assurance mechanisms. An acceptable financial assurance mechanism for unrestricted use decommissioning is any of the following four types of financial instruments:

- *A prepayment of the applicable decommissioning costs.* The prepayment method for materials licensees is full payment in advance of decommissioning using an account segregated from licensee assets and outside the licensee's administrative control.⁴ About

⁴ Reactor licensees using the prepayment method are not required to have the full amount of decommissioning in the account, and they are not required to make deposits into the fund on any

11 percent of current financial assurance mechanisms for materials licensees are prepayment methods, with most of these being escrow accounts. Currently accepted prepayment mechanisms include escrow accounts (8 percent), trust funds (2 percent), certificates of deposit (1 percent), government funds (0 percent), and deposits of government securities (0 percent). This final rule eliminates all prepayment mechanisms except the trust fund.

- *A guarantee to pay the decommissioning costs issued by a qualified third party or the licensee.* The guarantee method can be used by licensees that demonstrate adequate financial strength through their annual completion of financial tests contained in appendices A, C, D, and E of 10 CFR Part 30. About 51 percent of current financial assurance mechanisms for materials licensees are guarantee methods. Currently accepted guarantee mechanisms include letters of credit (28 percent), parent company guarantees (8 percent), licensee self-guarantees (7 percent), surety bonds (8 percent), lines of credit (0 percent), and insurance policies (0 percent).
- *A statement of intent from a Federal, state or local government licensee.* The statement of intent is a commitment from a Federal, state or local government licensee that it will request and obtain decommissioning funds from its funding body, when necessary for decommissioning an NRC licensed site. It is available for use only by governmental entities. About 38 percent of the NRC materials licensees who are required to provide financial assurance use the statement of intent as a means to provide financial assurance.
- *An external sinking fund.* The external sinking fund is an approved financial assurance method that allows an NRC materials licensee to make annual deposits into the fund to accumulate the necessary funds during the time leading up to termination of operations. For materials licensees, the external sinking fund must be coupled with a surety method or insurance, such that the total amount of financial assurance covers the cost of decommissioning. No NRC materials licensees that have an obligation to provide decommissioning financial assurance use this option. Reactor licensees are not required to couple the external sinking fund with another method, but in order to rely on the external sinking fund alone, the reactor must have access to cost-of-service rate recovery or non-bypassable charges from a rate-making authority. In addition, the reactor licensee must demonstrate that the current sinking fund balance plus the amount of future earnings and authorized collections will cover the total cost of decommissioning. The reactor licensee is not required to make deposits into the fund on any particular schedule. Reactor licensees who are not public utilities, in general, are not allowed to use the external sinking fund. However, non-public utility licensees may use the prepayment method, which is similar in that it allows the licensee to take credit for future earnings. Reactor licensees may combine the external sinking fund (or the prepayment fund) with a parent company or self-guarantee method as well as a surety or insurance. This rulemaking provides materials licensees opting to use the external sinking fund with a degree of flexibility similar to that allowed for reactor licensees since 1998 (in a final rulemaking for power reactor financial assurance, the NRC allowed use of a parent company guarantee or self-guarantee with an external sinking fund ([63 FR 50465](#); September 22, 1998)).

particular schedule. Reactor licensees may take credit for future earnings on the trust fund balance, which permits them to maintain a trust fund balance less than the full cost of decommissioning.

This final rule makes conforming changes in the financial assurance requirements for materials licensees (10 CFR 30.35, 40.36, 70.25, and 72.30) to provide greater consistency with the 10 CFR Part 50 regulations.

It should be noted that this discussion of financial assurance to decommission a site pertains to the cost of decommissioning to meet the unrestricted use criteria specified in [10 CFR 20.1402](#). If a licensee can demonstrate its ability to meet the provisions of [10 CFR 20.1403](#) for restricted use, financial assurance for long-term surveillance and control must be provided before the license is terminated, using the methods specified in 10 CFR 20.1403(c).

21. What regulatory guidance will be available to help licensees comply with the rule?

NRC maintains a [public web site on decommissioning guidance](#) with links to pertinent guidance documents. [Volume 3 of NUREG-1757](#), NRC's consolidated decommissioning guidance on financial assurance for materials licensees, has been updated to address the requirements of the new rule and should be available in the same timeframe as the final rule. NRC is also issuing draft Regulatory Guide DG-4014 ([ML111230072](#)) for materials licensees on radiological surveys and monitoring during operations. It will be published for public comment in early fall , and the staff plans a workshop during the public comment period for stakeholders and interested members of the public. A final Regulatory Guide, to be designated RG 4.22, is planned for publication in the spring of 2012. Another available source of guidance is [NUREG-1748](#), *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs*. Although the main focus of this guidance is the NRC staff's environmental review process, it also contains related information that licensees may find useful in preparing for license termination.

[NUREG-1713](#), *Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors*, will need conforming changes to implement the requirements of this new rule.