



POLICY ISSUE

(Information)

December 16, 2021

SECY-21-0108

FOR: The Commissioners

FROM: John W. Lubinski, Director
Office of Nuclear Material Safety and Safeguards

SUBJECT: SUMMARY OF STAFF BIENNIAL REVIEW AND FINDINGS OF THE
2021 DECOMMISSIONING FUNDING STATUS REPORTS FROM
OPERATING AND DECOMMISSIONING POWER REACTOR
LICENSEES

PURPOSE:

The purpose of this paper is to inform the Commission of the staff's findings from its biennial review of the 2021 decommissioning funding status (DFS) reports submitted by operating power reactor licensees and power reactor licensees in decommissioning. This periodic paper aligns with the submittal of DFS reports from operating power reactor licensees that is required every two years. This paper does not address any new commitments or resource implications.

BACKGROUND:

In 1988, the U.S. Nuclear Regulatory Commission (NRC) established technical and financial requirements to ensure that decommissioning of all licensed facilities would be accomplished in a safe and timely manner and that adequate licensee funds would be available for this purpose (Volume 53 of the *Federal Register* [FR], page 24018 [53 FR 24018]; June 27, 1988). "Decommission," in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.2, "Definitions," means to remove a facility or site safely from service and reduce residual radioactivity to a level that permits: (1) release of the property for unrestricted use and

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termination of the license; or (2) release of the property under restricted conditions and termination of the license. Therefore, decommissioning, as used in NRC regulations, refers exclusively to radiological decommissioning.

In 1998, in response to the anticipated deregulation of the power-generation industry, the NRC amended the decommissioning financial assurance rules under 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning," resulting in additional methods and flexibility for reactor licensees to provide financial assurance for decommissioning (63 FR 50465; September 22, 1998). Additionally, the amended regulations established the requirements that power reactor licensees report, on a biennial basis, the status of their decommissioning funds and material changes to their external trust agreements and other financial assurance mechanisms.

In 2011, the NRC further amended its regulations to improve decommissioning planning and to reduce the likelihood that any current operating facility would become a legacy site¹ (76 FR 35512; June 17, 2011). As a result, 10 CFR 50.82, "Termination of license," requires power reactor licensees in decommissioning to provide annual DFS reports to the NRC that include information on decommissioning expenditures made during the previous calendar year, the remaining balance of decommissioning funds, and an estimate of the cost to complete decommissioning.

DISCUSSION:

NRC regulations at 10 CFR 50.75(f)(1) and 10 CFR 50.75(f)(2) (for operating power reactors) and 10 CFR 50.82(a)(8)(v) (for power reactors in decommissioning) require licensees to submit DFS reports to the NRC. DFS reports are required every 2 years from operating power reactor licensees, annually from operating power reactor licensees that are within 5 years of the projected end of their operation or involved in a merger or acquisition, and annually from power reactor licensees in decommissioning. Licensees must submit these reports by March 31 for the preceding reporting calendar year. The reports must provide specified information that will allow the agency to monitor the status of decommissioning funds for all power reactor licensees from the time they begin operating until their license is terminated.

For operating reactors, in accordance with 10 CFR 50.75(f)(1), the DFS reports must include: (1) the amount of decommissioning funds estimated to be required pursuant to 10 CFR 50.75(b) and 10 CFR 50.75(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 in regard to rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections; (5) any contracts on 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.

Under 10 CFR 50.75, the NRC also requires power reactor licensees to demonstrate reasonable assurance of funding for decommissioning. Specifically, 10 CFR 50.75(b)(1) requires applicants and licensees to certify the amount of financial assurance for decommissioning, and 10 CFR 50.75(c) states the minimum amounts of funds for

¹ As defined in the Statement of Considerations accompanying the 2011 rule, a "legacy site" is a facility that is in decommissioning status with complex issues and an owner that cannot complete the decommissioning work for technical or financial reasons.

decommissioning by reactor type. Adjustments to the certification amount are required annually over the operating life of the facility to account for escalation in the labor, energy, and waste burial components of decommissioning costs. The staff notes that while the decommissioning funding amounts certified by licensees under 10 CFR 50.75 do not represent the actual cost of plant decommissioning, they do provide assurance that licensees have available the bulk of the funds to safely decommission the facility. Additionally, 10 CFR 50.75(b)(4) states, in relevant part, that the amount of a licensee's certification "may be based on a cost estimate for decommissioning the facility" if that amount is not less than the amount in 10 CFR 50.75(c)(1). Decommissioning cost estimates are a more accurate representation of the licensee's cost to decommission as compared to the NRC-required minimum specified in 10 CFR 50.75(c). Shortfalls identified during the operating cycle and between biennial DFS reporting periods are considered to be temporary lapses in funding for decommissioning that may be remedied by use of a parent company guarantee, trust fund growth, or trust fund contributions. In any event, guidance in Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," Revision 2, issued October 2011, states that licensees must correct shortfalls identified in a biennial DFS report by the time the next report is due. Pursuant to 10 CFR 50.75(e)(2), the NRC reserves the right to review, as needed, the rate of accumulation of decommissioning funds and to take additional actions as appropriate, on a case-by-case basis, to ensure a licensee's adequate accumulation of decommissioning funds. This includes modification of a licensee's schedule for the accumulation of decommissioning funds.

For power reactors in decommissioning, in accordance with 10 CFR 50.82(a)(8)(v), the annual DFS reports must include: (1) 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; (2) 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; (3) any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report; and (4) any material changes to trust agreements or financial assurance contracts. Pursuant to 10 CFR 50.82(a)(8)(vi), if the sum of the balance of any remaining decommissioning funds, earnings on such funds calculated at not greater than a 2 percent real rate of return, and the amount provided by other financial assurance methods being relied upon does not cover the estimated cost to complete the decommissioning, the DFS report must include additional financial assurance to cover the estimated cost of completion. Additionally, in accordance with 10 CFR 50.82(c), for licensees that shut down their reactors prematurely, the collection period for any shortfall of funds will be determined on a case-by-case basis upon application by the licensee, taking into account the specific financial situation of each licensee.

Using staff guidance in Office of Nuclear Reactor Regulation Office Instruction LIC-205, "Procedures for NRC's Independent Analysis of Decommissioning Funding Assurance for Operating Nuclear Power Reactors and Power Reactors in Decommissioning," Revision 6, dated April 10, 2017,² the NRC staff reviewed the 2021³ DFS reports for completeness and compliance with 10 CFR 50.75(f)(1) and (2) and 10 CFR 50.82(a)(8)(v) and (vi). The staff's review included reports for 95 operating power reactors and 24 power reactors in decommissioning. Two tables summarizing the staff's review are enclosed. Table 1, "2021 Decommissioning Funding Status Report for Operating Power Reactor Licensees (December 31, 2020)," summarizes the information from the 95 DFS reports submitted by

² Agencywide Documents Access and Management System (ADAMS) Accession No. ML17075A095

³ The 2021 DFS reports reflect the financial status as of December 31, 2020.

operating power reactor licensees,⁴ and Table 2, “2021 Decommissioning Funding Status Report for Power Reactor Licensees in Decommissioning (December 31, 2020),” summarizes the information from the 24 DFS reports submitted by power reactor licensees in decommissioning.⁵ These tables provide the projected decommissioning trust fund (DTF) balance before decommissioning along with the NRC minimum calculated in accordance with 10 CFR 50.75(c) or the site-specific cost estimate (if available). Note that a projected DTF balance less than the NRC minimum does not necessarily indicate a shortfall, as the staff also considers several other factors, including the withdrawal rate from the DTF during decommissioning and the growth of funds over time.

Results of the NRC Staff’s Review—Operating Power Reactor Licensees

The NRC staff’s review of the 2021 DFS reports for operating power reactor licensees resulted in the following findings:

- All 95 operating power reactor licensees met the reporting requirements of 10 CFR 50.75(f) and are currently demonstrating decommissioning funding assurance.
- As of the December 31, 2020, reporting period cutoff date, the NRC did not identify any shortfalls in the 2021 DFS review cycle for the 95 operating reactors.
- On September 2, 2020, Exelon Generation Company, LLC (Exelon), submitted its intent to shut down Byron Station, Units 1 and 2, by September 30, 2021. As a result of these anticipated early shutdowns, and as indicated by the licensee in its DFS report, Byron Units 1 and 2 did not demonstrate reasonable assurance that funds were available for complete decommissioning of the units. However, as of September 15, 2021, based on the Illinois legislature passing an energy bill that includes provisions that support the continued operation of Exelon’s Byron and Dresden Nuclear Power Station, Exelon withdrew its letters⁶ of intent, resulting in the reversion to its original licensing basis termination dates, 2044 and 2046, for Byron Units 1 and 2, respectively. Therefore, Byron Units 1 and 2 have now demonstrated reasonable assurance of decommissioning funds availability as indicated in Enclosure 1.
- The 2019 DFS report review cycle included 98 operating power reactors. Since the last summary of the staff review and findings for DFS reports,⁷ three units have transitioned to a decommissioning status (Pilgrim Nuclear Power Station, Duane Arnold Energy Center, and Three Mile Island Nuclear Station, Unit 1) and are now included in the review of power reactor licensees in decommissioning.

⁴ ADAMS Accession No. ML21285A228

⁵ ADAMS Accession No. ML21285A226

⁶ Exelon Generation Letters dated September 15, 2021, “Withdrawals of Certification of Permanent Cessation of Power Operations for Byron Station, Units 1 and 2, and Previously Submitted Licensing Actions in Support of Decommissioning,” (ADAMS Accession Nos. ML21258A276) and “Withdrawal of Certification of Permanent Cessation of Power Operations for Dresden Nuclear Power Station, Units 2 and 3, and Previously Submitted Licensing Actions in Support of Decommissioning (ADAMS Accession No. ML21258A281)

⁷ SECY-20-0001, “Summary of Staff Review and Findings of the 2019 Decommissioning Funding Status Reports from Operating and Decommissioning Power Reactor Licensees,” dated December 31, 2019 (ADAMS Package Accession No. ML19346E375)

- Amounts accumulated in the DTFs for operating power reactors totaled approximately \$71.1 billion as of December 31, 2020.

Results of the NRC Staff's Review—Power Reactor Licensees in Decommissioning

The NRC staff's review of the 2021 DFS reports for power reactor licensees in decommissioning resulted in the following findings:

- All 24 power reactor licensees in decommissioning met the reporting requirements of 10 CFR 50.82(a)(8)(v) and (vi).
- All 24 power reactor licensees in decommissioning demonstrated decommissioning funding assurance by either showing a sufficient funding balance or providing additional assurances.
- Current balances in the DTFs for power reactor licensees in decommissioning totaled approximately \$12.4 billion as of December 31, 2020.

CONCLUSION:

Based on its review of the 2021 DFS reports, the NRC staff finds that all licensees are in compliance with the decommissioning funding assurance reporting requirements of 10 CFR 50.75(f)(1) and (2) for operating power reactor licensees and 10 CFR 50.82(a)(8)(v) and (vi) for power reactor licensees in decommissioning. The staff also finds that all licensees are in compliance with the decommissioning funding assurance requirements of 10 CFR 50.75 and 10 CFR 50.82, as applicable, for the 2021 DFS reporting cycle.

COORDINATION:

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

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Enclosures:

1. 2021 DFS Summary Table 1
2. 2021 DFS Summary Table 2

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 DATED: DECEMBER 16, 2021

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