

Proposed Final Section 1.3 of REGULATORY GUIDE 1.159, Revision 2, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors” (Draft was issued as DG-1229)

No change from DG-1229.

Change from RG 1.159, Revision 1 was to update references. See underlined paragraph. Revised sentence listing items outside the scope of the decommissioning process. See underlined text.

### **1.3 Decommissioning Cost Estimates**

Five decommissioning cost estimates are required to be developed and submitted for NRC review:

- (1) initial estimate that may be calculated according to 10 CFR 50.75(c), or that may be site-specific and at least equal to the decommissioning cost from 10 CFR 50.75(c);
- (2) preliminary decommissioning cost estimate at or about 5 years before the projected end of operations, in accordance with 10 CFR 50.75(f)(2);
- (3) estimate of expected costs contained in the PSDAR, in accordance with 10 CFR 50.82(a)(4)(i);
- (4) site-specific decommissioning cost estimate within 2 years following permanent cessation of operations, in accordance with 10 CFR 50.82(a)(8)(iii);
- (5) updated site-specific estimate of remaining decommissioning costs contained in the license termination plan, in accordance with 10 CFR 50.82(a)(9)(ii)(F).

The NRC developed guidance providing details on content and format for the reporting of these cost estimates and published it in Regulatory Guide 1.202, “Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors,” issued February 2005 (Ref. 8), and in NUREG-1713, “Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors,” issued December 2004 (Ref. 9).

In general, decommissioning cost estimates are provided by major activity and major decommissioning phase or time period. The cost estimate must account for the entire decommissioning work scope but not for items that are outside the scope of the decommissioning process. Examples of activities outside of decommissioning include, but are not limited to: 1) the maintenance and storage of spent fuel, 2) the design and/or construction of a spent fuel dry storage facility, 3) activities that are not directly related to supporting long-term storage of the facility, or 4) any other activities not directly related to radiological decontamination of the site. If nondecommissioning cost items are included, these items should be identified separately.

Cost estimates should provide costs for each of the following (or similar) major activities and phases with a level of detail appropriate to the type of cost estimate:

- (1) major radioactive component removal—reactor vessel and internals, steam generators, pressurizers, large-bore reactor coolant system piping, and other large components that are radioactive to a comparable degree;

- (2) radiological D&D—removal of remaining radioactive plant systems, including radiological decontamination;
- (3) management and support (undistributed costs)—costs such as labor costs of utility support staff and decommissioning contractor staff, energy costs, regulatory costs, small tools, insurance, etc.;
- (4) waste packaging/shipping—placing waste in packages and shipping to waste vendors or burial site;
- (5) waste burial or waste vendor—waste burial charges, including waste vendors' processing fees;
- (6) contingency—allowance for unexpected costs.

Cost estimates should also include the assumptions, references, and bases for unit costs used in developing the estimates, as well as a description of how inflation is accounted for in the cost estimate. The cost estimate should be provided in current-year dollars. Escalation of the waste disposition costs is considered separately from the general inflation rate applicable to labor, material, and energy costs. Regulatory Position 1.2 discusses escalation factors.

Proposed Final Section 2.1.5 of REGULATORY GUIDE 1.159, Revision 2, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors” (Draft was issued as DG-1229)

Change from DG-1229 was to add a reference to Commission policy requiring adequate financial assurance at all times during the life of the facility, to remove guidance that utility licensees should address decommissioning funding in every rate case, add guidance on good faith effort to obtain rate relief, and rewrite for clarity.

Change from RG 1.159, Revision 1: in addition to changes to DG-1229, increased frequency of covering shortfalls for merchant plant licensees from 2 years to 1 year, and for utility licensees from every 6 years to every 5 years.

**2.1.5** A licensee is required 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. See 61 FR 39278. Pursuant to 10 CFR 50.75(b)(1) and (b)(2), the minimum amount of financial assurance required for decommissioning must be adjusted annually, using a rate at least equal to that stated in paragraph (c)(2) of 10 CFR 50.75. The licensee should calculate the amount of the adjustment as of December 31 of each year. If the amount of financial assurance provided by the licensee does not equal or exceed the minimum required amount of financial assurance recalculated on December 31, then the licensee must adjust the amount of financial assurance it provides, such that it meets or exceeds the required amount.

The adjustment in the amount being provided should occur by March 31 of each year, based on the amount of financial assurance as recalculated by the licensee on December 31 of the preceding year. The staff will normally evaluate the amount of financial assurance provided by the licensee in conjunction with the decommissioning funding status report required biennially, or annually in some cases, pursuant to 10 CFR 50.75(f).

However, under the provisions of 10 CFR 50.75(e)(2), the staff reserves the right to review, as needed, the rate of accumulation of decommissioning funds and, either independently or in cooperation with the FERC and the licensee’s State PUC, take additional actions on a case-by-case basis, including modification of the licensee’s schedule for the accumulation of funds.

A licensee that may rely exclusively on an external sinking fund to provide financial assurance under the circumstances defined in 10 CFR 50.75(e)(ii)(A) or (B), that is, where the total cost of decommissioning is provided through rates established by cost-of-service ratemaking or non-bypassable charges, may make a good-faith effort to obtain rate relief to cover its shortfall. A licensee meeting these criteria should inform its rate regulator by March 31 of each year when a shortfall in financial assurance has occurred as of December 31 of the preceding year. The information should include the NRC minimum financial assurance requirement, the actual amount of the licensee’s decommissioning financial assurance, and the amount of additional cost recovery needed to meet the NRC amount. The licensee should request its rate regulator to schedule a review of decommissioning cost recovery by the end of the year. A copy of the information and request should be included in the licensee’s decommissioning fund status report in the years that the report is required. The licensee is expected to obtain rate relief as necessary to meet the minimum requirement of 10 CFR 50.75(c), but in any case, within 5 years.

Proposed Final Section 2.2.8 of REGULATORY GUIDE 1.159, Revision 2, “Assuring the Availability of Funds for Decommissioning Nuclear Reactors” (Draft was issued as DG-1229)

No change from DG-1229.

Changes from RG 1.159, Revision 1:

- Section 2.2.8.1. Delete sentence, “A reasonable time may be used to make up any deficit, consistent with good-faith efforts to obtain rate relief.” See strikethrough text.
- Section 2.2.8.2. Add phrase, “that will provide the total amount of funds necessary for decommissioning.” See underlined text.
- Section 2.2.8.4. Add sentence, “The allowed credit during the period of safe storage must reflect any withdrawals from decommissioning funds during this period, such as withdrawals to pay for annual costs to maintain the facility in a safe storage condition.” See underlined text.
- Add subsection numbers 2.2.8.1 through 2.2.8.7.

**2.2.8** Annual deposits in an external sinking fund, including projected earnings, should attempt to approximate the total amount remaining to be accumulated, divided by the remaining years of the license, as determined by the initial and updated certification amount specified in 10 CFR 50.75(c)(1) and (2).

**2.2.8.1** Arithmetic precision is not required for fund accumulation rates. If, during the course of collecting funds, a licensee has accumulated significantly greater decommissioning funds than anticipated, it may reduce its remaining contributions commensurately. Likewise, if a licensee is significantly behind in collections, increased contributions should be used to make up the deficit. ~~A reasonable time may be used to make up any deficit, consistent with good faith efforts to obtain appropriate rate relief.~~ However, licensees should avoid undue reliance upon contributions weighted in constant dollars toward the end of projected facility operating life. Additionally, the NRC staff considers reliance on an estimated tax deduction for decommissioning expenses, at the time such expenses are incurred, to be a form of internal reserve and thus not allowed under 10 CFR 50.75(e). If sufficient rate relief by a State PUC or FERC is ultimately not obtained, the licensee’s stockholders will be expected to cover decommissioning costs through reduced return on equity. Projected rates of earnings on an external sinking fund during plant operation should reasonably approximate the historical real rate of earnings (i.e., after inflation and taxes) obtained by a given type of investment.

**2.2.8.2** For decommissioning funds that are prepaid or in external sinking fund accounts, the regulations in 10 CFR 50.75(e)(i) and (ii) allow a credit for projected earnings of up to a 2 percent annual real rate of return (i.e., nominal rate less inflation and taxes) from the time of the future funds’ collection as a factor in calculating the total amount of funds that would be sufficient to pay decommissioning costs. This allowed credit may be greater than 2 percent if a licensee is subject to a rate-setting authority that will provide the total amount of funds necessary for decommissioning and the authority has specifically presumed a higher rate. The period of time for which the credit may be taken is determined by whether a generic formula or a site-specific estimate with a specified safe-storage period is used as the basis for estimating decommissioning costs, as discussed below.

**2.2.8.3** For licensees that use a generic formula for decommissioning cost estimates, during the period of plant operation this credit may be taken for the remaining years left on the operating license, and an additional pro-rata credit may be taken into the presumed immediate dismantlement period (i.e., the first 7 years after shutdown), as long as such credit reflects the expected cash flow of

expenditures during this period. If license renewal for a plant has been approved by the NRC, the licensee may take the credit during the extended license period.

- 2.2.8.4** A licensee that uses a site-specific estimate may take the allowed credit through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate. This decommissioning period includes the period of safe storage, final dismantlement, and license termination. The allowed credit during the period of safe storage must reflect any withdrawals from decommissioning funds during this period, such as withdrawals to pay for annual costs to maintain the facility in a safe storage condition.
- 2.2.8.5** When a licensee adjusts the cost estimate for decommissioning annually, pursuant to 10 CFR 50.75(b)(2), the adjusted estimate less amounts already accumulated should form the basis of future collections, which can take into account the allowed credit. Funds already accumulated, plus scheduled fund contributions, in the case of those licensees authorized to utilize external sinking funds, plus projected earnings on these funds, should be sufficient to pay decommissioning costs at the time termination of operation is expected, allowing for extending the real rate of return credit into the decommissioning period, as noted above.
- 2.2.8.6** Actual earnings on existing funds may be used to calculate the need for future funds. However, pursuant to 10 CFR 50.75(f)(3), when a licensee is within 5 years of the projected end of operations and submits its preliminary decommissioning cost estimate, the licensee may take up to a 2 percent earnings credit (or a higher credit, if specifically presumed by a rate-setting authority) over a storage period, as long as the storage period and its cost implications for total decommissioning costs are specifically addressed in the preliminary decommissioning cost estimate.
- 2.2.8.7** Licensees who operate multiple modular reactors at a single site may take credit for earnings in such a manner that the assumptions for earnings credit track the cash flows for decommissioning expenses for each module.

## Proposed additional definitions for RG 1.159

**decommissioning financial assurance** – The system of regulation used by the NRC to assure that funds are available when needed for decommissioning. It also refers to the total amount of assurance provided using one or more of the methods specified in 10 CFR 50.75(e). When referring to the total amount of financial assurance, it is the sum of funds accumulated in a segregated account outside the licensee's control; plus the amount of any guarantees provided; plus the projected amounts of earnings on the accumulated funds; plus projected ratepayer collections by utilities; plus projected non-bypassable charges authorized by a rate regulatory agency; plus, for government licensees, the amount provided by a statement of intent; plus projected payments from certain contractual obligations that meet NRC requirements; plus projected earnings on collections, payments, and non-bypassable charges. If applicable, financial assurance may include other methods if the NRC determines that they provide a level of assurance equivalent to the methods of 10 CFR 50.75(e). A licensee is required to provide financial assurance at all times during the life of the facility through termination of the license, that adequate funds will be available to complete decommissioning. (61 FR 39278)

**shortfall** – Where the amount of financial assurance provided by the licensee is less than the amount of financial assurance required, the difference is the shortfall.