

October 24, 1997

SECY-97-251

FOR: The Commissioners

FROM: L. Joseph Callan /s/  
Executive Director for Operations

SUBJECT: PROPOSED RULE ON NUCLEAR POWER REACTOR DECOMMISSIONING COSTS

PURPOSE: To request Commission approval to publish in the Federal Register a proposed rule on nuclear power reactor decommissioning cost requirements.

BACKGROUND:

The staff presented a rulemaking plan (SECY-95-223) to the Commission on September 1, 1995, that discussed several actions relating to amending nuclear power reactor decommissioning cost regulations. Subsequently, in a December 20, 1995, memorandum to the Executive Director for Operations (EDO), Chairman Jackson directed the staff to delay work on the rulemaking until additional data could be obtained and studied. However, Chairman Jackson did "encourage the staff to pursue amendments to the regulations that would permit site-specific funding amounts as described in SECY-95-223." In response to the memorandum, the staff submitted on May 1, 1996, SECY-96-095, "Proposed Rule on Nuclear Power Reactor Decommissioning Costs." The EDO proposed to withdraw the rule on May 13, 1996, because of the evolving policies on radiological decommissioning standards and industry restructuring and deregulation, as well as the lack of a good data base on decommissioning costs. The Commission concurred in the EDO's request on May 29, 1996. In a June 30, 1997, Staff Requirements Memorandum (COMSECY-97-014), the staff was directed to update the proposed rule that would allow for site-specific decommissioning cost estimates, higher or lower

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NOTE: TO BE MADE PUBLICLY  
WHEN THE FINAL SRM IS MADE AVAILABLE

The Commissioners

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than the estimates derived from the generic formulas in 10 CFR 50.75. The attached Federal Register notice (Attachment 1) is in response to COMSECY-97-014.

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DISCUSSION:

Present decommissioning cost regulations call for applicants and licensees to certify that financial assurance will be provided in an amount that may be more than, but not less than, the amounts specified in 10 CFR 50.75(c). These values were based on Pacific Northwest National Laboratory (PNNL) studies completed in 1978 for the reference PWR and in 1980 for the reference BWR. Since completion of the PNNL studies, changes have occurred in decommissioning technology and the disposal of radioactive waste. As a result, the minimum required values in 10 CFR 50.75(c)(1) and (2) may not be representative of the current technology and site-specific data. Further, site-specific decommissioning cost estimates have been developed for a substantial number of power reactor licensees since the original PNNL studies were completed. Recent PNNL studies contain estimates that are considerably lower than most site-specific licensing decommissioning cost estimates. The site-specific estimates, from limited data, are for the most part also lower than the minimum decommissioning cost values provided in 10 CFR 50.75(c). Therefore, given the above and the lack of decommissioning cost data from larger BWR's and PWR's, the staff is proposing this regulation amendment.

Further, the staff has contracted with PNNL to pursue studies of actual decommissioning cost experience at the Trojan site. The contractor is scheduled to provide its results to the staff next August. Relevant data from other plants being decommissioned are also being studied. Upon receipt and analysis of these data and the reports being asked for in the proposed rulemaking on Financial Assurance for the Decommissioning of Nuclear Power Reactors, the staff will recommend to the Commission whether to provide additional guidance on the adequacy of decommissioning funds. Possible options include the issuance of a regulatory guide, or a rulemaking to revise the formulas contained in 10 CFR 50.75(c).

Given the above uncertainty, the staff is proposing this rulemaking to increase applicants' and licensees' flexibility by allowing them to submit site-specific decommissioning cost estimates that may be lower than the generic values contained in 10 CFR 50.75(c). The proposed rule may provide savings to some applicants or licensees who are currently collecting funds for decommissioning based on these formulas. Alternatively, it continues to allow applicants and licensees to collect more funds to cover a higher estimate of required funding for decommissioning than that stated in 10 CFR 50.75(c). Using a site-specific cost estimate would provide an applicant or licensee greater flexibility in dealing with site-specific issues such as differences in decommissioning methodology, expected waste volumes, and anticipated labor efforts to perform specific tasks. Moreover, applicants and licensees would be able to use a PC-based code, which was developed by a contractor for the NRC, to incorporate site-specific conditions into their cost estimate. Cost updates for decommissioning would still be required for the site-specific cost estimates, just as they presently are for the constant dollar amounts specified in 10 CFR 50.75, but they would not be required to use the formula in 10 CFR 50.75(c)(2).

This proposed rule would not require an applicant or licensee to perform any additional analysis or to estimate its decommissioning costs in any specified way different from that set forth in the current regulation. However, the proposed rule would permit an applicant or licensee the option of submitting a site-specific cost estimate that is lower, as well as higher, than the NRC's generic formula amount. Since the proposed change to the regulations would not impose any requirement on applicants or licensees, but simply afford a new option for estimating decommissioning costs, this action would not constitute a backfit.

As a result, the staff is proposing to publish the attached notice of proposed rulemaking (Attachment 1).

#### RESOURCES:

Implementation of this rule will require no additional contract support funds, but may require effort to perform additional validation of submitted data from the licensees who choose the new option. These resources, expected to be less than 1 FTE are not in the budget but will be absorbed through the licensing office reprogramming.

#### COORDINATION:

The Office of the General Counsel has no legal objection to this paper. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource implications and has no objections. The Office of the Chief Information Officer has reviewed this paper for information technology and information management implications and concurs in it.

#### RECOMMENDATION:

That the Commission:

1. Approve the notice of proposed rulemaking for publication.
2. Certify that this rule, if promulgated, will not have a negative economic impact on a substantial number of small entities in order to satisfy requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b).3.

#### Note:

- a. The rulemaking would be published in the Federal Register for a 75-day public comment period;
- b. A draft regulatory analysis will be available in the Public Document Room (Attachment 2);
- c. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification regarding economic impact on small entities and the reasons for it as required by the Regulatory Flexibility Act;

- d. Copies of the Federal Register notice of proposed rulemaking will be distributed to all affected Commission licensees. The notice will be sent to other interested parties upon request.
- e. A public announcement will be issued (Attachment 3);
- f. The appropriate Congressional committees will be informed (Attachment 4); and
- g. While the proposed rule does contain a new information collection requirement -- the requirement to submit its decommissioning cost estimate if an applicant or licensee opts to make a site-specific estimate -- OGC has determined that this is sufficiently insignificant not to trigger the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, approval number 3150-0011.

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Executive Director  
for Operations

Attachments: As stated (4)

- d. Copies of the Federal Register notice of proposed rulemaking will be distributed to all affected Commission licensees. The notice will be sent to other interested parties upon request.
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**RECORD NOTE:** A draft copy of the proposed rule was sent to OIG for information on: MARCH 1996.

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NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

RIN 3150-AF40

Nuclear Power Reactor Decommissioning Costs

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its regulations relating to financial assurance for the decommissioning of nuclear power reactors by allowing applicants and licensees the option of submitting site-specific decommissioning cost analyses to justify decommissioning funding levels below the generic values currently codified as minimum levels. Applicants and licensees may currently elect to establish decommissioning funds above the generic levels specified in the NRC's regulations. The proposed action is intended to offer nuclear power reactor applicants and licensees greater flexibility in estimating up-front decommissioning costs based on current technology and site-specific data which is not provided for in the NRC's generic formulas.

DATES: Submit comments by [insert a date to allow 75 days public comment], 1997.

Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES: Comments may be sent to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff.

Deliver comments to 11545 Rockville Pike, Rockville, Maryland, between 7:45 am and 4:15 pm on Federal workdays.

You may also provide comments via the NRC's interactive rulemaking web site through the NRC home page (<http://www.nrc.gov>). This site provides the availability to upload comments as files (any format), if your web browser supports that function. For information about the interactive rulemaking site, contact Ms. Carol Gallagher, (301) 415-5905; e-mail [CAG@nrc.gov](mailto:CAG@nrc.gov).

Certain documents related to this rulemaking, including comments received, may be examined at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. These same documents may also be viewed and downloaded electronically via the interactive rulemaking website established by NRC for this rulemaking.

FOR FURTHER INFORMATION CONTACT: Brian J. Richter, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301)415-6221, e-mail [bjr@nrc.gov](mailto:bjr@nrc.gov).

## SUPPLEMENTARY INFORMATION

### Background

The NRC has determined that there would be a benefit in revising its financial assurance requirements for the decommissioning of nuclear power reactors to provide additional flexibility in establishing decommissioning funding levels. Recent studies have shown that site-specific cost estimates for decommissioning often vary significantly from the generic values provided in 10 CFR 50.75. Therefore, the NRC is proposing to amend its regulations relating to nuclear power reactor decommissioning costs to allow applicants and licensees the option of submitting site-specific decommissioning cost analyses to justify decommissioning funding levels below the generic minimum values currently codified at 10 CFR 50.75(c). Applicants and licensees may currently elect to establish decommissioning funds based on amounts above the generic minima. The intended effect of this proposed action is to offer nuclear power reactor applicants

and licensees greater flexibility in estimating decommissioning costs based on current technology and site-specific data.

### Current requirements

Requirements pertaining to financial assurance for the decommissioning of nuclear power reactors are contained in 10 CFR 50.75 which, among other things, specifies generic decommissioning costs currently codified as minimum levels for pressurized water reactors (PWRs) and boiling water reactors (BWRs). Applicants and licensees may currently elect to establish decommissioning funds above the generic levels. The requirements further call for the certification by each electric utility applicant or licensee that financial assurance for decommissioning will be provided in an amount, adjusted annually, which may be more but not less than the amounts stated in that section. An inflation formula is also provided (that accounts for the cost of labor, energy, and waste burial) for applicants and licensees to use in performing annual updates of their cost estimates for decommissioning.

### Regulatory problem to be resolved

The present 10 CFR 50.75 was issued in 1988 and contains 1986 dollar-adjusted estimates based on Pacific Northwest National Laboratory (PNNL) studies completed in 1978 for the reference PWR (NUREG/CR-0130) and in 1980 for the reference BWR (NUREG/CR-0672).<sup>1</sup> In preparing these reports, PNNL performed detailed technical studies of

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<sup>1</sup>NUREG/CR-0130, "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station," 2 volumes, June 1978; and NUREG/CR-0672, "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station," 2 volumes, June 1980. Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555-0001; telephone (202)634-3273; fax (202)634-3343. Copies may be purchased at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone (202)512-1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield,

decommissioning costs, using the information available at that time. In situations when data was scarce, assumptions were used to obtain representative estimates of the decommissioning costs. There were no sensitivity studies done based on the variability of various parameters used in the analysis. Consequently, the codified values may be either above or below the funding level necessary to decommission a given facility.

During the years since the initial decommissioning cost estimates were conducted, a number of changes have occurred in decommissioning technology and in the availability and cost of low-level waste disposal. For example, when the PNNL studies were conducted, waste disposal was not considered a problem. It was assumed that low-level waste could be disposed of easily and at reasonable costs and that spent fuel would be reprocessed. Because of the current high cost of low-level waste disposal, licensees have made significant efforts to reduce projected decommissioning waste volume. As a result of these efforts and developments in decommissioning technology, the NRC staff contracted with PNNL to reassess the cost estimates for decommissioning the reference PWR and BWR plants (Trojan and WNP-2, respectively) on a site-specific basis using current technology for decommissioning cost analyses.

These latest PNNL cost estimates<sup>2</sup>, which were published as drafts for public comment, contain estimates that are considerably lower than most site-specific licensee decommissioning cost estimates. The site-specific estimates, from limited data, are for the most part also lower than the minimum decommissioning cost values provided in 10 CFR 50.75(c). For example, the latest PNNL cost estimates, when low-level waste is assumed to be sent to the disposal facility at Barnwell, South Carolina, show a cost to decommission approximately 40% lower than the values provided in 10 CFR 50.75(c). In addition, there is a lack of data from actual

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<sup>2</sup>NUREG/CR-5884, "Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station," 2 volumes, November 1995; and NUREG/CR-6174, "Revised Analyses of Decommissioning for the Reference Boiling Water Reactor Power Station," 2 volumes, July 1996.

site-specific decommissioning activities involving larger BWR's and PWR's operating for significant periods of time. However, the NRC staff has undertaken a study to collect such data. Upon receipt and analysis of these data and the reports being asked for in the proposed rulemaking on Financial Assurance for the Decommissioning of Nuclear Power Reactors, the staff will recommend whether it will be necessary to provide additional guidance on the adequacy of decommissioning funds. Possible options include the issuance of a regulatory guide, or a rulemaking to revise the formulas contained in 10 CFR 50.75(c).

Therefore, rather than change the generic decommissioning funding levels and the formulas in 10 CFR 50.75(c), which the NRC would not consider doing until after assessing the data from the above study, the Commission has elected to amend the regulations to allow applicants and licensees to submit a site-specific estimate, which may be lower, or higher, than the generic values provided in 10 CFR 50.75(c). Using a site-specific cost estimate would provide an applicant or licensee greater flexibility in dealing with site-specific issues such as differences in decommissioning methodology, expected waste volumes, and anticipated labor efforts to perform specific tasks. This has the potential to provide a significant reduction of burden to some applicants and licensees.

#### Decommissioning Cost Estimates

Applicants and licensees who do not wish to use the generic cost estimates for decommissioning provided in 10 CFR 50.75 would have the option of using the Cost Estimating Computer Program (CECP) developed by PNNL for the NRC, or other site-specific methods. CECP may be used to obtain site-specific decommissioning cost estimates. This program is contained in NUREG/CR-6054, "Estimating Pressurized Water Reactor Decommissioning Costs: A User's Manual for the PWR Cost Estimating Computer Program (CECP) Software," November 1995, or NUREG/CR-6270, "Estimating Boiling Water Reactor Decommissioning

Costs: A User's Manual for the BWR Cost Estimating Computer Program (CECP) Software,"<sup>3</sup> June 1996. An applicant or licensee may also wish to prepare a site-specific cost estimate for decommissioning using a methodology different from the CECP.

The applicant or licensee should document the cost estimate in a comprehensive and clearly organized manner so that the NRC staff can review the methodology and basis used to prepare the estimate. The decommissioning estimate should cover all required decommissioning activities and reference sources of information used in determining the cost components of decommissioning. These cost components should include labor, management oversight, equipment, supplies, waste disposal, license fees, taxes, contractor overhead, and profit. The applicant or licensee must also provide details supporting any assumptions, as well as the basis for those assumptions, used in preparing the estimate. The level of detail should be sufficient to identify unit costs, quantities and sizes of components, low-level waste volumes, contaminated surface areas, and labor.

Applicants and licensees should calculate their decommissioning estimates and annual updates in current-year dollars. If costs are calculated in another year's dollars, the applicant or licensee should adjust the estimates to current-year dollars and indicate the assumptions used to make the adjustment.

Some applicants and licensees include estimates for such factors as the cost of storing spent fuel and the cost of returning the site to its original state beyond what must be spent to remove the radioactive material, which is commonly known as the "green field" cost. Such costs are not required by the NRC as part of the decommissioning cost estimates. However, should an applicant or licensee include such factors in their estimates, the NRC expects the decommissioning, spent fuel storage and management, and "green field" costs to be separated.

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<sup>3</sup>Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555-0001; telephone (202)634-3273; fax (202)634-3343. Copies may be purchased at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone (202)512-1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161.

## Finding of No Significant Environmental Impact: Availability

This action is being proposed to give applicants and licensees the option of submitting site-specific decommissioning cost analyses to justify decommissioning funding levels below the generic values currently codified as minimum levels. Applicants and licensees may currently elect to establish decommissioning funds above the generic levels. The proposed action is intended to offer nuclear power reactor applicants and licensees greater flexibility in estimating decommissioning costs based on current technology and site-specific data which is not provided for in the NRC's generic formulas.

This revision to the NRC's regulations simply permits applicants and licensees to submit estimates of decommissioning funding that they believe more realistically and accurately reflect the anticipated costs of decommissioning their nuclear power plants. Allowances of site-specific cost estimates would not lead to any increase in the effect on the environment of the decommissioning activities considered in the final rule published on June 27, 1988 (53 FR 24018) as analyzed in the Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586, August 1988).<sup>4</sup> Therefore, promulgation of this rule would not introduce any impacts on the environment not previously considered by the NRC. The Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR Part 51, that this proposed rule would not be a major Federal action significantly affecting the quality of the human environment, and therefore an environmental impact statement is not required. No other agencies or persons were contacted in making this determination, and the NRC staff is not aware of any other documents related to the environmental impact of this action. The foregoing

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<sup>4</sup>Copies of NUREG-0586 are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555-0001; telephone (202)634-3273; fax (202)634-3343. Copies may be purchased at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone (202)512-1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161.

constitutes the environmental assessment and finding of no significant impact for this proposed rule.

#### Paperwork Reduction Act Statement

While the proposed rule does contain a new information collection requirement -- the requirement to submit its decommissioning cost estimate if an applicant or licensee opts to make a site-specific estimate -- this is sufficiently insignificant to trigger the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget (OMB), approval number 3150-0011.

#### Public Protection Notification

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

#### Regulatory Analysis

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The draft analysis is available for inspection in the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC. Single copies of the analysis may be obtained from Brian J. Richter, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301)415-6221, e-mail bjr@nrc.gov.

The Commission requests public comment on the draft analysis. Comments on the draft analysis may be submitted to the NRC as indicated under the ADDRESSES heading.

### Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996, Pub. L. No. 104-121 (March 29, 1996), the Commission certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule affects only the licensing and operation of nuclear power plants. The entities 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 Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

### Backfit Analysis

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this proposed rule, and therefore, that a backfit analysis is not required for this proposed rule because this amendment does not involve any provisions that would impose a backfit as defined in 10 CFR 50.109(a)(1). Specifically, these changes do not impose any requirement on applicants or licensees, but are strictly voluntary.

### List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, 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. 553, the NRC is proposing to adopt the following amendment to 10 CFR Part 50.

#### PART 50--DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

1. The authority citation for Part 50 continues to read as follows:

AUTHORITY: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 50.10 also issued under secs. 101, 185, 68 Stat. 955 as amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80 - 50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. In § 50.75, paragraph (b) and the introductory text of paragraph (c) are revised to read as follows:

§ 50.75 Reporting and recordkeeping for decommissioning planning.

\* \* \* \* \*

(b) Each electric utility applicant for or holder of an operating license for a production or utilization facility of the type and power level specified in paragraph (c) of this section shall submit a decommissioning funding report, as required by 10 CFR 50.33(k) of this part, containing a certification that financial assurance for decommissioning will be provided in an amount either based on a site-specific cost estimate for decommissioning the facility, adjusted annually, or in an amount as stated in the table in paragraph (c)(1) of this section, adjusted annually using a rate at least equal to that stated in paragraph (c)(2) of this section. Financial assurance for decommissioning shall be provided by one or more of the methods described in paragraph (e) of this section as acceptable to the Commission. If the applicant or licensee chooses to base its decommissioning cost estimate on a site-specific cost estimate that is lower than the applicable amount stated in 10 CFR 50.75(c), the applicant or licensee shall submit copies of its estimate and each update to the NRC. As part of the certification, a copy of the financial instrument obtained to satisfy the requirements of paragraph (e) of this section is to be submitted to NRC.

(c) Table of optional amounts (January 1986 dollars) to demonstrate reasonable assurance of funds for decommissioning by reactor type and power level, P (in MWt);

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Dated at Rockville, Maryland, this \_\_\_\_ day of \_\_\_\_\_, 1997.

For the Nuclear Regulatory Commission.

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John C. Hoyle,  
Secretary of the Commission.

REGULATORY ANALYSIS FOR  
AMENDING NUCLEAR POWER REACTOR  
DECOMMISSIONING COSTS

The NRC has determined that it would be beneficial to revise NRC's financial assurance requirements for the decommissioning of nuclear power reactors to provide additional flexibility in establishing decommissioning funding levels. Recent studies have shown that site-specific cost estimates for decommissioning often vary significantly from the generic values provided in 10 CFR 50.75. Therefore, the NRC is proposing to amend its regulations relating to nuclear power reactor decommissioning costs by allowing applicants and licensees the option of submitting site-specific decommissioning cost analyses to justify decommissioning funding levels below the generic values currently codified as minimum levels. Applicants and licensees may currently elect to establish decommissioning funds above the generic levels.

I. Statement of the Problem and Objective

The present 10 CFR 50.75 was issued in 1988 and contains 1986 dollar-adjusted estimates based on Pacific Northwest National Laboratory (PNNL) studies completed in 1978 for the reference PWR (NUREG/CR-0130) and in 1980

for the reference BWR (NUREG/CR-0672).<sup>5</sup> In preparing these reports, PNNL performed detailed technical studies of decommissioning costs, using the information available at that time. In situations when data was scarce, assumptions were used to obtain representative estimates of the decommissioning costs. There were no sensitivity studies done based on the variability of various parameters used in the analysis. Consequently, the codified values may be either above or below the funding level necessary to decommission a given facility.

During the years since the initial decommissioning cost estimates were conducted, a number of changes have occurred in decommissioning technology and in the availability and cost of low-level waste disposal. For example, when the PNNL studies were conducted, waste disposal was not considered a problem. It was assumed that low-level waste could be disposed of easily and at reasonable costs and that spent fuel would be reprocessed. Because of the current high cost of low-level waste disposal, licensees have made significant efforts to reduce projected decommissioning waste volume. As a result of these efforts and developments in decommissioning technology, the NRC staff contracted with PNNL to reassess the cost estimates for decommissioning the

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<sup>5</sup>NUREG/CR-0130, "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station," 2 volumes, June 1978; and NUREG/CR-0672, "Technology, Safety and Costs of Decommissioning a Reference Boiling Water Reactor Power Station," 2 volumes, June 1980. Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555-0001; telephone (202)634-3273; fax (202)634-3343. Copies may be purchased at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone (202)512-1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161.

reference PWR and BWR plants (Trojan and WNP-2, respectively) on a site-specific basis using current technology for decommissioning cost analyses.

These studies displayed a considerable disparity among the PNNL results, licensee decommissioning cost estimates, and minimum decommissioning cost values provided in § 50.75(c). For example, the latest PNNL cost estimates, when low-level waste is assumed to be sent to the disposal facility at Barnwell, South Carolina, show a cost to decommission approximately 40 percent lower than the values provided in § 50.75(c). Because of the lack of data from actual site-specific decommissioning activities, the staff has elected to amend the regulations to allow applicants and licensees to submit a lower site-specific estimate rather than change the values in § 50.75(c) at the present. Using a site-specific cost estimate would provide an applicant or licensee greater flexibility in dealing with site-specific issues such as differences in decommissioning methodology, expected waste volumes, and anticipated labor efforts to perform specific tasks. This has the potential to provide a significant reduction of burden to some applicants and licensees.

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to this proposed rule, and therefore, that a backfit analysis is not required for this proposed rule because this amendment does not involve any provisions that would impose a backfit as defined in 10 CFR 50.109(a)(1).

## II. Identification and Preliminary Analysis of Alternative Approaches

Current rule requirements pertaining to financial assurance for the decommissioning of nuclear power reactors are contained in 10 CFR 50.75 which, among other things, specifies minimum generic decommissioning costs for PWRs and BWRs. The requirements further call for the certification by each electric utility applicant and licensee that financial assurance for decommissioning will be provided in an amount, which may be more but not less than the amounts stated in that section. An inflation formula is also provided (that accounts for the cost

of labor, energy, and waste burial) for applicants and licensees to use in performing annual updates of their cost estimates for decommissioning. These requirements as specified in 10 CFR 50.75 constitute the baseline or no-action alternative.

The proposed amendment would allow applicants and licensees the option of submitting site-specific cost estimates for decommissioning that are lower than those derived from the generic formula amounts. In the staff's preliminary review, other alternative actions were considered. Most notably, the staff considered incorporating lower decommissioning estimates in the regulation, thereby reducing the likelihood that applicants and licensees would need to develop lower site-specific estimates. However, given that a blanket reduction in decommissioning estimates may result in some plants having lower estimates than they would actually require at their end of life, that option was dropped from consideration for the time being. This is based on the Commission's view that the necessity of providing the requisite levels of financial assurance must be maintained.

### III. Estimation and Evaluation of Values and Impacts

Presently, 10 CFR 50.75, "Reporting and Recordkeeping for Decommissioning Planning" does not allow applicants and licensees to submit site-specific decommissioning cost estimates if they are lower in value than the estimates stated in 10 CFR 50.75(c). However, lower site-specific estimates may be submitted to the NRC by an exemption request, as stated in 10 CFR 50.12, "Specific Exemptions." The proposed rule would allow applicants and licensees the option of submitting site-specific cost analyses that may be lower, or higher, than the generic minimum values stated in 10 CFR 50.75(c).

There are several potential impacts to applicants and licensees resulting from the proposed rule. One is that applicants and licensees would avoid the procedural and administrative burdens associated with an exemption request. However, the costs to an applicant or licensee of having to perform the site-specific cost estimate remain the same

whether an exemption is required or not. The proposed rule enhances regulatory efficiency with the elimination of the need for submitting an exemption request, and NRC's review and approval or denial of it.

Should more site-specific cost estimates be submitted having values lower than those provided by the present 10 CFR 50.75(c), cost savings would accrue to applicants and licensees and possibly to their rate-payers.

There also are several possible impacts to the NRC. One is that NRC would not have to review exemption requests, and make findings based on the exemption standards in 10 CFR 50.12 for the lower estimates. However, another likely impact to the NRC would be the additional burden of having to review more site-specific cost estimates than would have been submitted without the rule.

The quantification of the impacts follows. If one assumes that an exemption request would take about 1 staff-week of additional effort on the part of an applicant or licensee and that an average applicant or licensee staff hourly rate in the preparation of an exemption request is \$70, the savings per applicant or licensee of not having to prepare an exemption request is about \$2,800. NRC would also benefit by not having to review exemption requests. If one assumes that the NRC staff would require 1 additional staff week, at \$70 per staff hour<sup>6</sup>, the NRC savings for each exemption request not submitted would also be \$2,800. Therefore, the total savings from the elimination of one exemption request would be about \$5,600.

Alternatively, should the proposed rule result in an applicant or licensee submitting a site-specific cost estimate, that it would not have submitted under the existing rule, it is assumed that the preparation would require about a staff-year of industry effort and 2 staff weeks of NRC

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<sup>6</sup>NRC labor rates presented here differ from those developed under NRC's license fee recovery program (10 CFR Part 170). For regulatory analysis purposes, labor rates are developed under strict incremental cost principles wherein only variable costs that are directly related to the implementation and operation and maintenance of the proposed requirement are included. This approach is consistent with general cost-benefit methodology. Alternatively, NRC labor rates for fee recovery purposes are appropriately designed for full cost recovery of the services rendered and as such include non-incremental costs (e.g., overhead and administrative and logistical support costs).

staff review time. These correspond to values of about \$125,000 and \$5,600 for the industry and NRC respectively. However, under the existing rule, applicants and licensees are required to submit a preliminary decommissioning plan containing a cost-estimate for decommissioning "at or about 5 years prior to the projected end of operation." This part of § 50.75 would remain unchanged by this proposed amendment. Assuming a 20-year remaining life of plant, the site-specific estimate would then need to be performed, on average in 15 years. Assuming a 5 percent real interest rate, and a 15-year difference, the cost differences between the performance of the site-specific cost estimate

now and 15 years hence are about \$65,000 for an applicant or licensee and about \$2,900 for the NRC.

Under the existing rule, generic decommissioning cost estimates can range in value from around \$150 million to \$420 million. In terms of a sensitivity analysis, a revised site-specific estimate that is assumed to lower the estimate by one percent would result in savings of approximately \$1.5 million to \$4.2 million. Assuming an average remaining life of plant of about 20 years, and a 5 percent real interest rate, the annual savings would range from about \$45,000 to \$125,000. If a revised site-specific estimate were to lower the estimate by 2 percent, the resulting total savings would range from \$3 million to \$8.4 million, with the corresponding annual savings on a per-reactor basis ranging from \$90,000 to \$250,000.

#### IV. Presentation of Results

Impacts of this proposed rulemaking would result from: a decrease in the number of exemptions submitted, the submission of additional site-specific cost estimates, and a smaller amount of money needed for decommissioning. From the estimates provided above, it was shown that savings from exemptions of \$2,800 each could accrue to the NRC and to an applicant or licensee, given the stated assumptions. The costs of an applicant or licensee

submitting and the NRC reviewing an additional cost estimate would be \$65,000 and \$2,900 respectively. Lastly, the analysis shows that an applicant or licensee can save approximately \$45,000 to \$125,000 annually for each 1 percent decrease in their total decommissioning cost estimate. Thus, if the decreased cost

estimate resulted in a 2 percent decrease, the annual impact would then be a benefit of \$90,000 to \$250,000 for the applicant or licensee.

To estimate the total industry impact, one needs to multiply the total number of applicants and licensees assumed to take advantage of this option by the average savings. If one assumes a quarter of the licensees could save \$100,000 annually, the annual impact would result in an annual savings of about \$2,750,000. A key component of the analysis, however, is that given the proposed rule is optional, any applicant or licensee who takes advantage of the revision would only do so if it were to its advantage.

PER-REACTOR BENEFITS (COSTS) OF  
SITE-SPECIFIC COST ESTIMATES

	<u>Industry</u>	<u>NRC</u>
Each additional site-specific cost estimate	(\$65,000)	(\$2,900)
Decreased annual cost estimate per 1% decrease in decommissioning amount	\$45,000 to \$125,000	-
Decreased annual cost estimate per 2% decrease in decommissioning amount	\$90,000 to \$250,000	-

#### V. Decision Rationale for Selection of the Proposed Action

Given the proposed action is a reduction of burden and is not a requirement, an applicant or licensee would not submit a site-specific cost estimate to the NRC unless it would be to the applicant's or licensee's benefit. From the estimates shown above, it appears that applicants and

licensees would submit a site-specific estimate if they would be able to reduce their decommissioning cost estimates by greater than 1 percent.

#### VI. Implementation

The staff proposes that any rulemaking take effect 30 days after publication of the final rule in the Federal Register.

NRC PROPOSES TO AMEND RULE RELATING  
TO POWER REACTOR DECOMMISSIONING COSTS

The Nuclear Regulatory Commission proposes to change its regulations that provide financial assurance for decommissioning nuclear power reactors.

Under the proposed amendments, NRC licensees could submit site-specific decommissioning cost analyses to justify funding levels lower than the generic minimum amounts currently set out in NRC regulations. Recent studies have shown that such site-specific decommissioning cost estimates often vary significantly from the generic amounts.

Minimum amounts now specified by NRC are based on decommissioning cost studies completed in 1978 for a typical pressurized water reactor and in 1980 for a typical boiling water reactor. Because of changes in technology and radioactive waste disposal since those studies were made, the current costs may be either above or below the funding level necessary to decommission a given facility. High waste disposal costs, for example, have caused licensees to reduce significantly the projected volume of waste from decommissioning.

Full details of the proposed rule are published in the \_\_\_\_\_ edition of the Federal Register. The notice also may be accessed on the NRC Interactive Rulemaking Website.

Comments on the proposed rule should be submitted by \_\_\_\_\_ to the Secretary of the Commission, Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff. You may also provide comments via the NRC's interactive rulemaking web site through the NRC home page (<http://www.nrc.gov>). This

site provides the availability to upload comments as files (any format), if your web browser supports that function.

# # #

The Honorable Dan Schaefer, Chairman  
Subcommittee on Energy and Power  
Committee on Commerce  
United States House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

In the near future, the Nuclear Regulatory Commission (NRC) intends to publish in the Federal Register the enclosed proposed amendment to the Commission's rules in 10 CFR Part 50. The amendment, if adopted, would give licensees the option of submitting site-specific decommissioning cost analyses that may be lower than the generic minimum values.

The Commission is issuing the proposed rule for public comment and has specifically requested comments with respect to the scope, level of specificity, and methods of implementation of the rule.

Sincerely,

Dennis K. Rathbun, Director  
Office of Congressional Affairs

Enclosure:

The Commissioners

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Federal Register Notice

cc: Representative Ralph Hall

The Commissioners

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The Commissioners

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Enclosure:

Federal Register Notice

cc: Representative Ralph Hall

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The Commissioners

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The Honorable James M. Inhofe, Chairman  
Subcommittee on Clean Air, Wetlands, Private  
Property and Nuclear Safety  
Committee on Environment and Public Works  
United States Senate  
Washington, DC 20510

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The Commissioners

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Dennis K. Rathbun, Director

Office of Congressional Affairs

Enclosure:

Federal Register Notice

cc: Senator Bob Graham

The Commissioners

5

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The Commissioners

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Office of Congressional Affairs

Enclosure:

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