

# RULEMAKING ISSUE AFFIRMATION

April 20, 2012

SECY-12-0063

FOR: The Commissioners

FROM: R. W. Borchardt  
Executive Director for Operations

SUBJECT: FINAL RULE: REVISIONS TO ENVIRONMENTAL REVIEW FOR  
RENEWAL OF NUCLEAR POWER PLANT OPERATING LICENSES  
(10 CFR PART 51; RIN 3150-AI42)

## PURPOSE:

To obtain Commission approval to publish a final rule amending the environmental protection regulations for the renewal of nuclear power plant operating licenses.

## SUMMARY:

The U.S. Nuclear Regulatory Commission (NRC) staff is seeking Commission approval of the enclosed rule that will amend Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." The final rule will redefine the number and scope of the environmental impact issues that must be addressed by the NRC and applicants during license renewal environmental reviews. This rule incorporates lessons learned and knowledge gained from license renewal environmental reviews conducted by the NRC since 1996.

## BACKGROUND:

In 1986, the NRC initiated a program to develop license renewal regulations and associated regulatory guidance in anticipation of receiving applications for the renewal of nuclear power plant operating licenses. The NRC published the final rule, "Environmental Review for Renewal of Nuclear Power Plant Operating Licenses," on June 5, 1996 (61 FR 28467), which amended

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10 CFR Part 51 to add new regulations for the environmental review of nuclear power plant license renewal applications. The provisions promulgated by the June 1996 final rule include the addition of Table B-1, Appendix B to Subpart A, 10 CFR Part 51, which summarized the findings of the May 1996 *Generic Environmental Impact Statement* ("1996 GEIS") for *License Renewal of Nuclear Plants* (NUREG-1437).

In the 1996 GEIS and related rulemaking, the Commission determined that certain environmental impacts associated with the renewal of a nuclear power plant operating license were the same or similar for all plants, and as such could be treated on a generic basis. In this way, repetitive reviews of these impacts could be avoided. The Commission based its assessment on the following factors:

- (1) License renewal will involve nuclear power plants for which the environmental impacts of operation are well understood as a result of lessons learned and knowledge gained from operating experience.
- (2) Activities associated with license renewal are expected to be within this range of operating experience; thus, environmental impacts can be reasonably predicted.
- (3) Changes in the environment around nuclear power plants are gradual and predictable.

Issues and processes common to all nuclear power plants having generic environmental impacts are considered Category 1 issues. Category 2 issues are those issues that could not be generically evaluated and require a plant-specific analysis by license renewal applicants. Specifically, in accordance with 10 CFR 51.53, license renewal applicants must prepare environmental reports that provide information and analysis on all applicable Category 2 issues. An applicant submits an environmental report as part of its license renewal application. The NRC staff then considers the information from the applicant's environmental report in the preparation of each plant-specific supplemental environmental impact statement (SEIS) (the term "supplemental" is used because each SEIS is a supplement to the GEIS but is specific to a particular plant site).

The 1996 GEIS reflected the findings of a systematic inquiry into the environmental impacts of continued operations and refurbishment activities associated with license renewal. In the 1996 GEIS, the NRC identified 92 environmental impact issues. Of the 92 environmental issues analyzed, 69 issues were evaluated generically; 21 required plant-specific environmental review and assessments by license renewal applicants and the NRC; and two additional issues required plant-specific environmental assessments by the NRC prior to the issuance of a renewed license.

On July 31, 2009, the NRC published the proposed rule, "Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses" (74 FR 38117), to update the 1996 GEIS findings. These updates were based on the NRC's consideration of comments received from the public on the 1996 GEIS and its Addendum 1 (August 1999) during the public scoping period for the draft revised GEIS; a review of comments received on plant-specific SEISs to the GEIS completed since the 1996 GEIS was issued; and lessons learned and knowledge gained from previous and ongoing license renewal environmental reviews.

Concurrent with the proposed rule, the NRC issued draft guidance documents, including: the revised GEIS, dated June 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML090220654); a revised Regulatory Guide 4.2, Supplement 1, Revision 1, "Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications" (issued as Draft Regulatory Guide (DG), DG-4015), dated July 2009 (ADAMS Accession No. ML091620409); and a revised standard review plan, NUREG-1555, Supplement 1, Revision 1, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants (ESRP), Supplement 1: Operating License Renewal," dated July 2009 (ADAMS Accession No. ML090230497).

The proposed rule was published with a 165-day public comment period closing on January 12, 2010. During the comment period, the NRC conducted six public meetings across the country to solicit comments on the proposed rule, the draft revised GEIS, and related draft guidance documents. On June 21, 2011, the NRC conducted another public meeting at NRC headquarters to discuss final rule implementation.

#### DISCUSSION:

The 1996 GEIS and rule have been effective in focusing the NRC's resources on important license renewal environmental impact issues and have increased the efficiency of the environmental review process. Currently, 71 nuclear units at 41 plant sites have received renewed operating licenses using the 1996 GEIS and current rule.

#### Revised GEIS

The revised GEIS is both an update and a re-evaluation of the potential environmental impacts arising from the renewal of an operating license for a nuclear power reactor for an additional twenty years. Lessons learned and knowledge gained during previous environmental reviews provided a significant source of new information for the revised GEIS (including changes to Federal laws). In addition, public comments received during previous license renewal environmental reviews and during the scoping period for the GEIS revision were examined to validate existing environmental issues and identify new ones. In preparing the revised GEIS, the NRC considered the need to modify, add to, consolidate, or delete any of the 92 environmental issues evaluated in the 1996 GEIS. In the proposed rule and draft revised GEIS, the NRC considered in detail 78 environmental impact issues. Fifty-eight of these issues were determined to be Category 1 (generic). Of the remaining 20 issues, 19 were determined to be Category 2 (site-specific) and one, "Chronic effects of electromagnetic fields (EMFs)," remained uncategorized with respect to determining the impact level.

Based on public comments on the proposed rule and draft revised GEIS, a number of the environmental impact issues identified in the proposed rule were re-evaluated for detailed consideration in the final revised GEIS and are reflected in the changes made by this final rule. These changes are discussed in more detail in the enclosed *Federal Register* notice (FRN) (Enclosure 1) for the final rule and are briefly summarized as follows:

- "Air quality during refurbishment (non-attainment and maintenance areas)" issue was changed from a Category 2 to a Category 1 issue and renamed, "Air quality impacts (all plants)."

- “Groundwater and soil contamination” issue was changed from a Category 2 to a Category 1 issue and consolidated with “Groundwater use and quality” into a single renamed Category 1 issue, “Groundwater contamination and use (non-cooling system impacts).”
- “Thermal impacts on aquatic organisms” issue was changed to remove several Category 1 thermal impacts issues (these Category 1 issues were consolidated together with a Category 2 thermal impact issue in the proposed rule) to create a new, separate, consolidated Category 1 issue, “Infrequently reported thermal impacts (all plants),” which also includes the previously separate “Stimulation of aquatic nuisance species (e.g., shipworms)” Category 1 thermal impact issue.
- “Impingement and entrainment of aquatic organisms” issue was changed to remove a single impingement and entrainment Category 1 issue (consolidated with other impingement and entrainment issues in the proposed rule) to create a new separate Category 1 issue, “Entrainment of phytoplankton and zooplankton (all plants).”

As a result, 60 environmental impact issues were determined to be Category 1 and would not require additional plant-specific analysis unless new and significant information is identified during the license renewal environmental review. The revised GEIS, which will be published concurrently with this rule, provides information on the issues considered and the basis for the generic conclusions concerning the impact of Category 1 issues. Of the remaining 18 issues, 17 were determined to be Category 2, and 1 remained uncategorized with respect to determining the impact level. These 78 issues were evaluated in the final revised GEIS and are described in this final rule. No environmental issues identified in Table B-1 and evaluated in the 1996 GEIS were eliminated, but certain issues were consolidated or grouped based on similarities.

### Final Rule

The final rule amends 10 CFR Part 51 by revising Table B-1 to reflect:

- (1) Seventy-eight environmental impact issues in Table B-1 and the revised GEIS are arranged by resource area. This perspective is a change from the 1996 GEIS in which environmental issues were arranged by power plant systems (e.g., cooling systems, transmission lines) and activities (e.g., refurbishment). The structure of the revised GEIS conforms to the NRC’s standard format for environmental impact statements found in Appendix A to Subpart A of 10 CFR Part 51, “Format for Presentation of Material in Environmental Impact Statements.” The environmental impacts of license renewal activities, including plant operations, maintenance, and refurbishment activities, along with replacement power alternatives, are addressed in each resource area.
- (2) Sixty environmental impact issues identified in Table B-1 were evaluated generically for all nuclear power plants in the revised GEIS. These are considered Category 1 issues and do not require assessment in plant-specific environmental reviews unless new and significant information is identified during the license renewal environmental review.
- (3) Seventeen environmental impact issues identified in Table B-1 are considered Category 2 issues requiring plant-specific environmental reviews or assessments, and

one (chronic effects of electromagnetic fields) remains uncategorized with respect to determining impact level. Due to the lack of a scientific consensus on the impacts of chronic exposure to electromagnetic fields, the NRC has not categorized this issue with respect to impact level but is treating the issue uniformly, consistent with the corresponding GEIS discussion, and thus, will not require a plant-specific analysis. Once a scientific consensus is reached, the NRC will categorize the issue for license renewal.

The final rule also makes conforming changes to 10 CFR 51.53, the section that sets forth the requirements for the applicant's environmental report. In addition, other clarifying and minor changes are made to 10 CFR 51.53, 51.71, and 51.95.

### Significant Public Comments

The NRC received comments at the six public meetings held during the public comment period. In total, the NRC received approximately 1,000 comments from industry stakeholders, representatives of Federal and State agencies, and other interested parties. A discussion of each significant comment area and the NRC staff response are discussed in detail in Section IV of the enclosed FRN. A select few are briefly summarized below.

#### 1) Seismic Issues

Many commenters wanted seismic issues to be included in the rule and pointed out the importance of reassessing seismic conditions in determining the safety of operating nuclear power plants. Industry commenters disagreed and argued that seismology should not be considered as part of the issue of "Impacts of nuclear plants on geology and soils" in the proposed rule because it is an ongoing safety issue that is being addressed at all plants. The NRC staff agreed with the industry commenters that consideration of seismic conditions is an ongoing safety issue. Seismic conditions at nuclear power plants are generically discussed in the revised GEIS as part of the geologic environment, but seismology was not identified as a separate issue in the proposed rule. The NRC requires all licensees to take seismic activity into account in order to maintain safe operating conditions at all nuclear power plants. When new seismic hazard information becomes available, the NRC evaluates the new data and uses modeling techniques to determine if any changes are needed at existing plants. The NRC's routine oversight process, which includes seismic safety, remains separate from license renewal.

#### 2) Air Quality Impacts

The NRC received several comments on the issue, "Air quality (non-attainment and maintenance areas)," being listed as a Category 2 issue in the proposed rule. Under the current rule, this is a Category 2 issue. These commenters argued that air quality impacts would be small and similar for all plants because licensees are required to operate within State permit requirements. The NRC staff agreed with the commenters' arguments that air quality impacts would be small for all plants during normal (non-accident) operations and refurbishment associated with the license renewal term. Operating experience has shown that the potential impact on air quality (largely emissions from emergency generators and boilers) would be small for all plants and would not be an air quality concern even at plants located in or adjacent to nonattainment areas. In addition, operating experience has shown that refurbishment activities

have not required the large numbers of workers and extended durations conservatively predicted and analyzed in the 1996 GEIS, nor have such activities resulted in exceedances in the *de minimis* thresholds for criteria pollutants in nonattainment and maintenance areas. Consequently, the final rule reclassifies the Category 2 issue, "Air quality during refurbishment (non-attainment and maintenance areas)," to Category 1 and renames the issue, "Air quality impacts (all plants)."

### 3) Groundwater and Soil Contamination

Several commenters objected to the new Category 2 issue, "Groundwater and soil contamination," in the proposed rule and asserted that contamination from industrial practices is addressed by the U.S. Environmental Protection Agency and State regulations that monitor and address these impacts. Specifically, the use, storage, disposal, release, and/or cleanup of spilled or leaked solvents, hydrocarbons, and other potentially hazardous materials are governed by the Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act; and other environmental laws and regulations. Identified as a Category 2 issue in the proposed rule, further consideration of the "Groundwater and soil contamination" issue and public comments revealed that the potential impacts on groundwater and soil quality from common industrial practices can be addressed generically because industrial practices employed by nuclear power plants are common to all industrial facilities. As such, the NRC staff agreed with the commenters and concluded that the overall impact of industrial practices on groundwater use and quality from past and current operations is small for all nuclear power plants and is not expected to change appreciably during the license renewal term. Consequently, the final rule reclassifies the Category 2 issue, "Groundwater and soil contamination," to Category 1, combines it with the Category 1 issue, "Groundwater use and quality," and renames the combined issue, "Groundwater contamination and use (non-cooling system impacts)."

### Greenhouse Gas Emissions and Climate Change

Several comments on the proposed rule discussed the need to include a discussion of the effects of climate change on plant operations and the effect of continued operations during the license renewal period on environmental resources affected by climate change. These comments discussed that changes in climate have the potential to affect air and water resources, ecological resources, and human health, and should be taken into account when evaluating cumulative impacts over the license renewal term. The NRC staff acknowledges these concerns. Starting in 2008, the NRC began to evaluate the effects of greenhouse gas (GHG) emissions and its implications for global climate change in its site-specific environmental reviews for license renewal applications. Presently, insufficient data exists to support an impact level determination on a generic basis.

In 2009, the Commission directed the NRC staff to consider carbon dioxide and other GHG emissions in its National Environmental Policy Act analyses (CLI-09-21, November 3, 2009). In order to comply with CLI-09-21 and in response to the comments received, a new section, "GHG Emissions and Climate Change" (Chapter 4, Section 4.12.3.2), summarizing the potential cumulative impacts of GHG emissions and global climate change, has been added to the final revised GEIS. The NRC staff has not classified GHG emissions and climate change as a Category 1, Category 2, or uncategorized issue and will not require license renewal applicants to provide any information pertaining to GHG emissions and climate change in their

environmental reports (except as needed in cumulative impact assessments). However, the NRC staff will include within each SEIS an NRC-developed plant-specific analysis of any impacts caused by GHG emissions over the course of the license renewal term as well as any impacts caused by potential climate change on the affected resources during the license renewal term.

### Cumulative Effects of Regulation and Implementation Issues

Cumulative Effects of Regulation (CER) was not explicitly considered because this rulemaking predated the staff requirements memorandum (SRM) for SECY-11-0032, "Consideration of the Cumulative Effects of Regulation in the Rulemaking Process," dated October 11, 2011 (ADAMS Accession No. ML110190027). However, during the development of this rule, the NRC staff engaged external stakeholders through multiple public meetings and by soliciting public comments on the proposed rule and draft guidance documents. In response to stakeholder concerns, a public meeting was held at NRC Headquarters on June 23, 2011, to discuss the implementation date for the final rule.

A fundamental CER process discussed in SRM-SECY-11-0032 is to publish final guidance with the final rule to support effective implementation. In the spirit of CER, this rulemaking accomplished that by ensuring the draft final guidance was complete and available when the rule was provided to the Commission for deliberation (although for this rulemaking, the Commission direction to prepare the rule and guidance together predated the CER process).

### Fukushima Earthquake and Tsunami

The NRC's evaluation of the consequences of the Fukushima accident is ongoing. As such, the staff will continue to evaluate the need to make improvements to existing regulatory requirements based on additional studies and analyses of the Fukushima accident as more information is learned. To the extent that any revisions are made to NRC regulatory requirements, they would be made applicable to nuclear power reactors regardless of whether or not they have a renewed license. In the event that the NRC identifies information from the Fukushima accident that constitutes new and significant information with respect to the environmental impacts of license renewal, the NRC will discuss that information in its site-specific SEISs to the GEIS, as it does with all such new and significant information.

### AGREEMENT STATE ISSUES:

This rule is classified as compatibility category "NRC" and addresses only areas of exclusive NRC regulatory authority. Therefore, Agreement States will not need to make conforming changes to their regulations.

### COMMITMENTS:

In addition to the revised GEIS, the NRC also updated NUREG-1555, Supplement 1, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," and Regulatory Guide 4.2, Supplement 1, "Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses," now titled, "Preparation of Environmental Reports for License Renewal Applications." These associated guidance documents are used by the NRC staff to evaluate license renewal applications and to conduct site environmental reviews, and

they assist applicants in the preparation of environmental reports as part of their license renewal applications. Concurrent with the final rule, these guidance documents will also be issued.

#### RESOURCES:

The following table summarizes the staff full-time equivalents (FTEs) required to complete this rulemaking and prepare the associated regulatory guidance for publication. No resources for contractor support are required. These resources have been allocated in the fiscal year (FY) 2013 budget for the Office of Nuclear Reactor Regulation (NRR), the Office of Administration (ADM), the Office of Information Services (OIS), and the Office of the General Counsel (OGC).

Office	Description	FY 2013 FTE
NRR	Rulemaking and Regulatory Guidance	0.65
ADM	Rulemaking Processing and Publication	0.10
OIS	Paperwork Reduction Act—Office of Management and Budget (OMB) Supporting Statement	0.10
OGC	Legal Review—Provision of “No Legal Objection”	0.10
Total:		0.95

#### RECOMMENDATIONS:

The staff recommends that the Commission take the following three actions:

- (1) Approve the enclosed final rule for publication in the *Federal Register*. The staff recommends setting a compliance date of one year from publication in the *Federal Register* and in any case, no earlier than April 1, 2013. (Note: The nuclear industry has requested an 18 month compliance date, but the staff feels 12 months is sufficient for any potential applicant for license renewal to draft or revise its environmental report to conform to the updated rule.)
- (2) Certify that this rule, if promulgated, will not have a significant impact on a substantial number of small entities. This certification is included in the enclosed FRN and satisfies the requirement of the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)).
- (3) Note the following:
  - a. The staff has prepared a final regulatory analysis for this rulemaking (Enclosure 2).
  - b. The final rule contains amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, et seq.) that must be submitted to OMB for its review and approval before the final rule can be published in the *Federal Register*.
  - c. The staff has determined that this action is not a “major rule,” as defined in the Congressional Review Act of 1996 (5 U.S.C. 804(2)), and has confirmed this determination with OMB. The staff will inform the appropriate congressional and U.S. Government Accountability Office contacts.



- d. The staff will inform the appropriate congressional committees.
- e. The Office of Public Affairs will issue a press release.

COORDINATION:

The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objection. The OGC has no legal objection to the final rule. The Advisory Committee on Reactor Safeguards declined to review the final rulemaking package, which was provided for information.

***/RA by Martin J. Virgilio for/***

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for Operations

Enclosures:

1. *Federal Register* Notice
2. Final Regulatory Analysis

- d. The staff will inform the appropriate congressional committees.
- e. The Office of Public Affairs will issue a press release.

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- 1. *Federal Register* Notice
- 2. Final Regulatory Analysis

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\*Via e-mail

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DATE	03/27/12	03/20/12	03/27/12	04/17/12	04/20/12	

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