[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 51

[RIN 3150–AI42]

[NRC-2008-0608]

Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its environmental protection regulations by updating the Commission's 1996 findings on the environmental impacts related to the renewal of a nuclear power plant's operating license. The Commission stated that it intends to review the assessment of impacts and update it on a 10-year cycle, if necessary. The proposed rule redefines the number and scope of the environmental impact issues which must be addressed by the Commission in conjunction with the review of applications for license renewal. As part of this 10-year update, the NRC revised the 1996 *Generic Environmental Impact Statement* (GEIS) *for License Renewal of Nuclear Plants*. Concurrent with the amendments described in this proposed rule, the NRC is publishing for comment the revised GEIS, a revised Regulatory Guide 4.2, *Preparation of Environmental Reports for License Renewal Applications*, and a revised Environmental Standard Review Plan, *Standard Review Plans for Environmental Reviews for Nuclear Power Plants*.

DATES: Comments on this proposed rule, its information collection aspects and its draft regulatory analysis should be submitted by **[insert date 75-days from date of publication].**

Comments on the revised GEIS (NUREG-1437, Revision 1); Regulatory Guide (RG) 4.2, Supplement 1, Revision 1; and Environmental Standard Review Plan (ESRP), Supplement 1, Revision 1 (NUREG-1555), should be submitted by **[insert date 75-days from date of publication].**

ADDRESSES: Comments may be submitted by letter or electronic mail and will be made available for public inspection. Because comments will not be edited, the NRC cautions against including any personal information that you do not want to be publicly disclosed.

Federal eRulemaking Portal: Go to *http://www.regulations.gov* and search for documents filed under Docket ID [NRC–2008–0608]. Address questions about NRC dockets to Carol Gallagher (301) 492–3668; e-mail Carol.Gallager@nrc.gov.

Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, ATTN: Rulemakings and Adjudications Staff.

E-mail comments to: Rulemaking.Comments@nrc.gov. If you do not receive a reply e-mail confirming that we have received your comments, contact us directly at (301) 415–1677.

Fax comments to: Secretary, U.S. Nuclear Regulatory Commission at (301) 415–1101.

Publicly available documents related to this rulemaking may be accessed using the following methods:

NRC's Public Document Room (PDR): Publicly available documents may be examined at the NRC's PDR, Public File Area O1–F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The PDR reproduction contractor will copy documents for a fee.

NRC's Agencywide Document Access and Management System (ADAMS): Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at *http://www.nrc.gov/reading-rm/adams.html*. From this link, the public can gain entry into ADAMS, which provides text and image files of NRC's public

documents. If problems are encountered accessing documents in ADAMS, contact the NRC's PDR reference staff at (800) –397–4209, or (301) 415–4737, or by e-mail to *PDR.resource@nrc.gov.*

FOR FURTHER INFORMATION CONTACT: Mr. Jason Lising, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; telephone (301) 415–3220; e-mail: *Jason.Lising@nrc.gov*; or Ms. Jennifer Davis, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001; telephone (301) 415–3835; e-mail: *Jennifer.Davis@nrc.gov*.

SUPPLEMENTARY INFORMATION:

I. Introduction.

II. Background.

III. Public Comments.

IV. Discussion.

V. Proposed Actions and Basis for Changes to Table B-1.

VI. Section-by-Section Analysis.

VII. Specific Request for Comments.

VIII. Guidance Documents.

IX. Agreement State Compatibility.

X. Availability of Documents.

XI. Plain Language.

XII. Voluntary Consensus Standards.

XIII. Finding of No Significant Environmental Impact.

XIV. Paperwork Reduction Act Statement.

XV. Regulatory Analysis.

XVI. Regulatory Flexibility Act Certification.

XVII. Backfit Analysis.

I. Introduction.

The NRC is proposing to amend Title 10, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," of the *Code of Federal Regulations* (10 CFR Part 51) by updating Table B-1 in Appendix B to Subpart A of "Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants," and other related provisions in Part 51 (e.g., § 51.53(c)(3)), which describes the requirements for the license renewal applicant's environmental report. These amendments are based on comments received from the public on NUREG-1437, "Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants" (May 1996), referred to as the "1996 GEIS," and its Addendum 1 (August 1999), a review of plant-specific supplemental environmental impact statements (SEISs) completed since the GEIS was issued in 1996, lessons learned, and knowledge gained from the preparation of these SEISs. The NRC staff has prepared a draft revision to the 1996 GEIS, referred to as the "revised GEIS," which updates the 1996 GEIS based upon consideration of the above described factors. The revised GEIS provides the technical basis for this proposed rule.

In the 1996 GEIS and final rule (61 FR 28467, June 5, 1996), which promulgated Table B-1 and related provisions in Part 51, 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 environmental impacts could be avoided. The Commission based its generic assessment of certain environmental impacts 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 and completed license renewals.

(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.

The 1996 GEIS improved the efficiency of the license renewal process by (1) providing an evaluation of the types of environmental impacts that may occur from renewing commercial nuclear power plant operating licenses; (2) identifying and assessing impacts that are expected to be generic (i.e., the same or similar) at all nuclear plants or plants with specified plant or site characteristics; and (3) defining the number and scope of environmental impacts that need to be addressed in plant-specific SEISs.

As stated in the 1996 final rule that incorporated the findings of the GEIS in Part 51, the NRC recognized that the assessment of the environmental impact issues might change over time, and that additional issues may be identified for consideration. This proposed rule is the result of the 10-year review conducted by the NRC on the information and findings currently presented in Table B-1 of Appendix B to Part 51.

II. Background.

Rulemaking History

In 1986, the NRC initiated a program to develop license renewal regulations and associated regulatory guidance in anticipation of applications for the renewal of nuclear power plant operating licenses. A solicitation for comments on the development of a policy statement was published in the *Federal Register* on November 6, 1986 (51 FR 40334). However, the

Commission decided to forgo the development of a policy statement and to proceed directly to rulemaking. An advance notice of proposed rulemaking was published on August 29, 1988 (53 FR 32919). Subsequently, in addition to a decision to proceed with the development of license renewal regulations focused on the protection of health and safety, the NRC decided to amend its environmental protection regulations in Part 51.

On October 13, 1989 (54 FR 41980), the NRC published a notice of its intent to hold a public workshop on license renewal on November 13 and 14, 1989. One of the workshop sessions was devoted to the environmental issues associated with license renewal and the possible merit of amending 10 CFR Part 51. The workshop is summarized in NUREG/CP-0108, ‘‘Proceedings of the Public Workshop on Nuclear Power Plant License Renewal’’ (April 1990). Responses to the public comments submitted after the workshop are summarized in NUREG-1411, ‘‘Response to Public Comments Resulting from the Public Workshop on Nuclear Power Plant License Renewal’’ (July 1990).

On July 23, 1990, the NRC published an advance notice of proposed rulemaking (55 FR 29964) and a notice of intent to prepare a generic environmental impact statement (55 FR 29967). The proposed rule published on September 17, 1991 (56 FR 47016), described the supporting documents that were available and announced a public workshop to be held on November 4 and 5, 1991. The supporting documents for the proposed rule included:

(1) NUREG-1437, ‘‘Draft Generic Environmental Impact Statement for License Renewal of Nuclear Plants’’ (August 1991);

(2) NUREG-1440, ‘‘Regulatory Analysis of Proposed Amendments to Regulations Concerning the Environmental Review for Renewal of Nuclear Power Plant Operating Licenses: Draft Report for Comment’’ (August 1991);

(3) Draft Regulatory Guide DG-4002, Proposed Supplement 1 to Regulatory Guide 4.2, ‘‘Guidance for the Preparation of Supplemental Environmental Reports in Support of an Application To Renew a Nuclear Power Station Operating License’’ (August 1991); and

(4) NUREG-1429, ‘‘Environmental Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants: Draft Report for Comment’’ (August 1991).

After the comment period, the Commission directed the NRC staff to discuss concerns raised by a number of States that certain features of the proposed rule conflicted with State regulatory authority over the need for power and utility economics. To facilitate these discussions, the NRC developed an options paper entitled, ‘‘Addressing the Concerns of States and Others Regarding the Role of Need for Generating Capacity, Alternative Energy Sources, Utility Costs, and Cost-Benefit Analysis in NRC Environmental Reviews for Relicensing Nuclear Power Plants: An NRC Staff Discussion Paper.’’ A *Federal Register* document published on January 18, 1994 (59 FR 2542), announced the scheduling of three regional workshops in February 1994 and the availability of the options paper. A fourth public meeting was held in May 1994 to address proposals that had been submitted after the regional workshops. After consideration of all comments, the NRC issued a supplement to the proposed rule on July 25, 1994 (59 FR 37724), to resolve concerns about the need for power and utility economics.

The NRC published the final rule, “Environmental Review for Renewal of Nuclear Power Plant Operating Licenses,” on June 5, 1996 (61 FR 28467). The final rule identified and assessed license renewal environmental impact issues for which a generic analysis had been performed and therefore, did not have to be addressed by a licensee in its environmental report or by the NRC staff in its SEIS. Similarly, the final rule identified and assessed those environmental impacts for which a site-specific analysis was required, both by the licensee in its environmental report and by the NRC staff in its SEIS. The final rule, amongst other

amendments to Part 51, added Appendix B to Subpart A of Part 51. Appendix B included Table B-1, which summarizes the findings of NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," May 1996 (1996 GEIS).

On December 18, 1996 (61 FR 66537), the NRC amended the final rule published in June 1996 to incorporate minor clarifying and conforming changes and add language omitted from Table B-1. This amendment also analyzed comments received specific to the treatment of low-level waste storage and disposal impacts, the cumulative radiological effects from the uranium fuel cycle, and the effects from the disposal of high-level waste and spent fuel requested in the June 1996 final rule.

On September 3, 1999 (64 FR 48496), the NRC amended the December 1996 final rule to expand the generic findings about the environmental impacts resulting from transportation of fuel and waste to and from a single nuclear power plant. This amendment permitted the NRC to make a generic finding regarding these environmental impacts so that an analysis would not have to be repeated for each license renewal application. The amendment also incorporated rule language consistent with the findings in the 1996 GEIS, which addressed local traffic impacts attributable to continued operations of the nuclear power plant during the license renewal term. The *Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Main Report Section 6.3—'Transportation,' Table 9.1, 'Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants,' Final Report* (NUREG-1437, Volume 1, Addendum 1), published in August 1999, provides the analysis supporting the amendment.

The current proposed rulemaking began in June 2003 when the NRC issued a notice of intent to update the 1996 GEIS in the *Federal Register* (68 *FR* 33209). The original comment period began in June 2003 and ended in September 2003. In October 2005 the scoping period was reopened until December 30, 2005 (70 *FR* 57628).

III. Public Comments.

Scoping Process

On June 3, 2003 (68 FR 33209), the NRC solicited public comments which provided the public with an opportunity to participate in the environmental scoping process, as defined in § 51.26. In this notice, the NRC announced the intent to update the 1996 GEIS. The NRC conducted scoping meetings in each of the four NRC regions for the GEIS update. The scoping meetings were held in Atlanta, Georgia (July 8, 2003), Oak Lawn, Illinois (July 10, 2003), Anaheim, California (July 15, 2003), and Boston, Massachusetts (July 17, 2003). The public comment period closed in September 2003 and the project was inactive for the next two years due to limited staff resources and competing demands. On October 3, 2005 (70 FR 57628), the NRC reopened the public comment period and extended it until December 30, 2005. All comments submitted in response to the 2003 scoping request have been considered in preparing the revised GEIS and are publicly available. No comments were received during the 2005 public comment period.

The official transcripts, written comments, and meeting summaries are available electronically for public inspection in the NRC Public Document Room (PDR) or from the Publicly Available Records (PARS) component of NRC's document system under ADAMS Accession Nos. ML032250338, ML032260318, ML032260702, and ML032270109. All comments and suggestions received orally or in writing during the scoping process were considered.

The NRC has prepared a scoping summary report that is available electronically for public inspection in the NRC PDR or from the PARS component of ADAMS under Accession No. ML073450861. Additionally, the scoping summary is located in Appendix A in the revised GEIS.

IV. Discussion.

1996 GEIS

Under the NRC's environmental protection regulations in Part 51, which implements Section 102(2) of the National Environmental Policy Act of 1969 (NEPA), renewal of a nuclear power plant operating license requires the preparation of an environmental impact statement (EIS). To help in the preparation of individual operating license renewal EISs, the NRC prepared the 1996 GEIS.

In 1996 and 1999, the Commission amended its environmental protection regulations in Part 51, to improve the efficiency of the environmental review process for applicants seeking to renew a nuclear power plant operating license for up to an additional 20 years. These amendments were based on the analyses reported in the 1996 GEIS.

The 1996 GEIS summarizes the findings of a systematic inquiry into the environmental impacts of continued operations and refurbishment activities associated with license renewal. The NRC identified 92 environmental impact issues. Of the 92 environmental issues analyzed, 69 issues were resolved generically (i.e., Category 1), 21 would require a further plant-specific analysis (i.e., Category 2), and 2 would require a site-specific assessment by the NRC prior to issuance of a renewed license (i.e., uncategorized). As part of a license renewal application, an applicant submits an environmental report to the NRC, and the NRC prepares a plant-specific SEIS to the 1996 GEIS.

The GEIS assigns one of three impact levels (small, moderate, or large) to a given environmental resource (e.g., air, water, or soil). A small impact means that the environmental effects are not detectable, or are so minor that they will neither destabilize, nor noticeably alter, any important attribute of the resource. A moderate impact means that the environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the

resource. A large impact means that the environmental effects are clearly noticeable, and are sufficient to destabilize important attributes of the resource.

Table B-1 in Appendix B to Part 51, summarizes the findings of the analyses conducted for the 1996 GEIS. Issues and processes common to all nuclear power plants having generic (i.e., the same or similar) environmental impacts are considered Category 1 issues. Category 2 issues are those issues that cannot be generically dispositioned and would require a plant-specific analysis to determine the level of impact.

The 1996 GEIS, has been effective in focusing NRC resources on important environmental issues and increased the efficiency of the environmental review process. Currently, 51 nuclear units at 29 plant sites have received renewed licenses.

Revised GEIS

The GEIS revision evaluates the environmental issues and findings of the 1996 GEIS. Lessons learned and knowledge gained during previous license renewal reviews provided a significant source of new information for this assessment. Public comments on previous plant-specific license renewal reviews were analyzed to assess the existing environmental issues and identify new ones. The purpose of this evaluation was to determine if the findings presented in the 1996 GEIS remain valid. In doing so, the NRC considered the need to modify, add to, or delete any of the 92 environmental issues in the 1996 GEIS. After this evaluation, the staff carried forward 78 impact issues for detailed consideration in this GEIS revision. Fifty-eight of these issues were determined to be Category 1 and would not require additional plant-specific analysis. Of the remaining twenty issues, nineteen were determined to be Category 2 and one remained uncategorized. No environmental issues identified in Table B-1 and in the 1996 GEIS were eliminated, but several were combined or regrouped according to similarities.

Environmental issues in 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 adopts the NRC's standard format for EISs as established in Part 51, Appendix A to Subpart A of Part 51—"Format for Presentation of Material in Environmental Impact Statements." The environmental impacts of license renewal activities, including plant operations and refurbishment along with replacement power alternatives, are addressed in each resource area. The revised GEIS summarizes environmental impact issues under the following resource areas: (1) land use and visual resources; (2) meteorology, air quality, and noise; (3) geology, seismology, and soils; (4) hydrology (surface water and groundwater); (5) ecology (terrestrial ecology, aquatic ecology, threatened, endangered, and protected species and essential fish habitat); (6) historic and cultural resources; (7) socioeconomics; (8) human health (radiological and nonradiological hazards); (9) environmental justice; and (10) waste management and pollution prevention. The proposed rule revises Table B-1 in Appendix B to Subpart A of Part 51 to follow the organizational format of the revised GEIS.

Environmental impacts of license renewal and the resources that could be affected were identified in the revised GEIS. The general analytical approach for identifying environmental impacts was to (1) describe the nuclear power plant activity that could affect the resource, (2) identify the resource that is affected, (3) evaluate past license renewal reviews and other available information, (4) assess the nature and magnitude of the environmental impact on the affected resource, (5) characterize the significance of the effects, (6) determine whether the results of the analysis apply to all nuclear power plants (whether the impact issue is Category 1 or Category 2), and (7) consider additional mitigation measures for adverse impacts. Identifying environmental impacts (or issues) was conducted in an iterative rather than a stepwise manner.

For example, after information was collected and levels of significance were reviewed, impacts were reexamined to determine if any should be removed, added, recombined, or divided.

The revised GEIS retains the 1996 GEIS definitions of a Category 1 and Category 2 issue. The revised GEIS discusses four major types of changes:

(1) *New Category 1 Issue:* These issues would include Category 1 issues not previously listed in the 1996 GEIS or multiple Category 1 issues from the 1996 GEIS that have been combined into a Category 1 issue in the revised GEIS. The applicant does not need to assess this issue in its environmental report. Pursuant to § 51.53(c)(3)(iv), however, the applicant is responsible for reporting in the environmental report any "new and significant information" of which the applicant is aware. If the applicant is not aware of any new and significant information that would change the conclusion in the revised GEIS, the applicant would be required to state this determination in the environmental report. The NRC has addressed the environmental impacts of these Category 1 issues generically for all plants in the revised GEIS.

(2) *New Category 2 Issue:* These issues would include Category 2 issues not previously listed in the 1996 GEIS or multiple Category 2 issues from the 1996 GEIS that have been combined into a Category 2 issue in the revised GEIS. For each new Category 2 issue, the applicant would have to conduct an assessment of the potential environmental impacts related to that issue and include it in the environmental report. The assessment must include a discussion of (i) the possible actions to mitigate any adverse impacts associated with license renewal and (ii) the environmental impacts of alternatives to license renewal.

(3) *Existing Issue Category Change from Category 2 to Category 1:* These would include issues that were considered as Category 2 in the 1996 GEIS and would now be considered as Category 1 in the revised GEIS. An applicant would no longer be required to conduct an assessment on the environmental impacts associated with these issues. Consistent

with the requirements of § 51.53(c)(iv), an applicant would only be required to describe in its environmental report any "new and significant information" of which it is aware.

(4) *Existing Issue Category Change from Category 1 to Category 2:* These would include issues that were considered as Category 1 in the 1996 GEIS and would now be considered as Category 2 in the revised GEIS. An applicant that previously did not have to provide an analysis on the environmental impacts associated with these issues would now be required to conduct an assessment of the environmental impacts and include it in the environmental report.

V. Proposed Actions and Basis for Changes to Table B-1.

The revised GEIS which is concurrently issued for public comment and publicly available (ADAMS Accession No. ML090220654) provides a summary change table comparing the ninety-two environmental issues in the 1996 GEIS with the seventy-eight environmental issues in the revised GEIS. The proposed rule amends Table B-1in Appendix B to Subpart A, "Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants," to reflect the changes made in the revised GEIS. The changes to Table B-1 are described below:

(i) Land Use

(1) Onsite Land Use – "Onsite land use" remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(2) Offsite Land Use – The proposed rule language combines two Category 2 issues, "Offsite land use (refurbishment)" and "Offsite land use (license renewal term)" reclassifies this combined issue as a Category 1 issue, and names it, "Offsite land use." The finding column of the current Table B-1 for "Offsite land use (refurbishment)" indicates that impacts may be of moderate significance at plants in low population areas. The finding column of the current Table B-1 for "Offsite land use (license renewal term)" indicates that significant changes in land use may be

associated with population and tax revenue changes resulting from license renewal. As described in the 1996 GEIS, environmental impacts are considered to be small if refurbishment activities were to occur at plants located in high population areas and if population and tax revenues would not change.

Significant impacts on offsite land use are not anticipated. Previous plant-specific license renewal reviews conducted by the NRC have shown no requirement for a substantial number of additional workers during the license renewal term and that refurbishment activities, such as steam generator and vessel head replacement, have not required the large numbers of workers and the months of time that was conservatively estimated in the 1996 GEIS. These reviews support a finding that offsite land use impacts during the license renewal term would be small for all nuclear power plants.

(3) Offsite Land Use in Transmission Line Rights-of-Way (ROWs) – The proposed rule renames “Powerline right of way” as “Offsite land use in transmission line rights-of-way (ROWs);” it remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(ii) Visual Resources

(4) Aesthetic Impacts – The proposed rule language combines three Category 1 issues “Aesthetic impacts (refurbishment),” “aesthetic impacts (license renewal term),” and “aesthetic impacts of transmission lines (license renewal term)” into one new Category 1 issue, “Aesthetic impacts.” The 1996 GEIS concluded that renewal of operating licenses and the refurbishment activities would have no significant aesthetic impact during the license renewal term. Impacts are considered to be small if the visual appearance of plant and transmission line structures would not change. Previous license renewal reviews conducted by the NRC show that the appearance of nuclear plants and transmission line structures do not change significantly over time or because of refurbishment activities. Therefore, aesthetic impacts are not anticipated and the combined issue remains a Category 1 issue.

These three issues are combined into one Category 1 issue as they are similar and combining them would streamline the license renewal process.

(iii) Air Quality

(5) Air Quality (Non-Attainment and Maintenance Areas) – The proposed language renames “Air quality during refurbishment (non-attainment and maintenance areas)” as “Air quality (non-attainment and maintenance areas)” and expands it to include emissions from testing emergency diesel generators, boilers used for facility heating, and particulate emissions from cooling towers. The issue remains a Category 2 issue.

(6) Air Quality Effects of Transmission Lines – “Air quality effects of transmission lines” remains a Category 1 issue. There are no changes for this issue.

(iv) Noise

(7) Noise Impacts – The proposed rule renames “Noise” as “Noise impacts;” it remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(v) Geology and Soils

(8) Impacts of Nuclear Plants on Geology and Soils – The proposed language adds a new Category 1 issue, “Impacts of nuclear plants on geology and soils,” to the impacts of continued power plant operations and refurbishment activities on geology and soils (i.e., prime farmland) and to determine if there is new or significant information in regard to regional or local seismology. New seismological conditions are limited to the identification of previously unknown geologic faults and are expected to be rare. Geology and soil conditions at all nuclear power plants and associated transmission lines have been well established during the current licensing term and are expected to remain unchanged during the 20-year license renewal term. The impact of continued operations and refurbishment activities during the license renewal term on geologic and soil resources would consist of soil disturbance for construction or renovation projects. Implementing best management practices would reduce soil erosion and subsequent impacts on surface water quality. Best management

practices include: (1) minimizing the amount of disturbed land, (2) stockpiling topsoil before ground disturbance, (3) mulching and seeding in disturbed areas, (4) covering loose materials with geotextiles, (5) using silt fences to reduce sediment loading to surface water, (6) using check dams to minimize the erosive power of drainages, and (7) installing proper culvert outlets to direct flows in streams or drainages.

No information in any plant-specific SEIS prepared to date, or in the referenced documents has identified these impacts as being significant.

(vi) Surface Water

(9) Surface – Water Use and Quality – The proposed rule combines two Category 1 issues, "Impacts of refurbishment on surface water quality" and "Impacts of refurbishment on surface water use," and names the combined issue "Surface-water use and quality." These two issues were combined because the impacts of refurbishment on both surface water use and quality are negligible and the effects are closely related.

The NRC expects licensees to use best management practices during the license renewal term for both continuing operations and refurbishment activities. Use of best management practices will minimize soil erosion. In addition, implementation of spill prevention and control plans will reduce the likelihood of any liquid chemical spills. If refurbishment activities take place during a reactor shutdown, the overall water use by the facility will be reduced. Based on this conclusion, the impact on surface water use and quality during a license renewal term will continue to be small for all plants. The combined issue remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(10) Altered Current Patterns at Intake and Discharge Structures, (11) Altered Salinity Gradients, (12) Altered Thermal Stratification of Lakes, and (13) Scouring Caused by Discharged Cooling Water – "Altered current patterns at intake and discharge structures," "Altered salinity gradients," "Altered thermal stratification of lakes," and "Scouring caused by discharged

cooling water" remain Category 1 issues. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for each of these issues.

(14) Discharge of Metals in Cooling System Effluent – The proposed language renames "Discharge of other metals in waste water" as "Discharge of metals in cooling system effluent;" it remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(15) Discharge of Biocides, Sanitary Wastes, and Minor Chemical Spills – The proposed rule combines two Category 1 issues, "Discharge of chlorine or other biocides" and "Discharge of sanitary wastes and minor chemical spills" as "Discharge of biocides, sanitary wastes, and minor chemical spills." The combined issue remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(16) Water Use Conflicts (plants with once-through cooling systems) – "Water use conflicts (plants with once-through cooling systems)" remains a Category 1 issue. The proposed rule makes a minor clarifying change to the finding column of Table B-1 for this issue.

(17) Water Use Conflicts (plants with cooling ponds or cooling towers using make-up water from a river with low flow) – "Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a river with low flow)" remains a Category 2 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(18) Effects of Dredging on Water Quality – The proposed rule adds a new Category 1 issue, "Effects of dredging on water quality," that evaluates the impacts of dredging to maintain intake and discharge structures at nuclear power plant facilities. The impact of dredging on surface water quality was not considered in the 1996 GEIS and is not listed in the current Table B-1. Most plants have intake and discharge structures that must be maintained by periodic dredging of sediment accumulated in or on the structures.

This dredging, while temporarily increasing turbidity in the source water body, has been shown to have little effect on water quality. In addition to maintaining intake and discharge

structures, dredging is often done to keep barge slips and channels open to service the plant. Dredged material is most often disposed on property owned by the applicant and usually contains no hazardous materials. Dredging is performed under a permit issued by the U.S. Army Corps of Engineers and consequently, each dredging action would be subject to a site-specific environmental review conducted by the Corps.

Temporary impacts of dredging are measurable in general water quality terms, but the impacts have been shown to be small.

(19) Temperature Effects on Sediment Transport Capacity – "Temperature effects on sediment transport capacity" remains a Category 1 issue. There are no changes to this issue.

(vii) Groundwater

(20) Groundwater Use and Quality - The proposed rule renames "Impacts of refurbishment on groundwater use and quality" as "Groundwater use and quality." The issue remains a Category 1 issue. The NRC has concluded that use of best management practices would address any wastes or spills that could affect groundwater quality. The proposed rule updates the finding column of Table B-1 for this issue to include a statement identifying best management practices and makes other minor clarifying changes to the finding column.

(21) Groundwater Use Conflicts (Plants that Withdraw Less Than 100 Gallons per Minute [gpm]) – The proposed rule renames "Ground-water use conflicts (potable and service water; plant that use <100 gpm)" as "Groundwater use conflicts (plants that withdraw less than 100 gallons per minute [gpm])." The issue remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(22) Groundwater use conflicts (plants that withdraw more than 100 gpm including those using Ranney Wells) – The proposed rule combines two Category 2 issues, "Groundwater use conflicts (potable and service water, and dewatering; plants that use >100 gpm)" and "Ground-water use conflicts (Ranney wells)" and names the combined issue "Groundwater use conflicts (plants that withdraw more than 100 gpm including those using Ranney wells)." The

combined issue remains a Category 2 issue. Because Ranney wells produce significantly more than 100 gpm, the Ranney wells issue was combined with the general issue of groundwater use conflicts for plants using more than 100 gpm of groundwater. The proposed rule makes clarifying changes to the finding column of Table B-1 for this combined issue.

(23) Groundwater Use Conflicts (Plants With Closed-Cycle Cooling Systems That Withdraw Makeup Water from a River) – The proposed rule renames "Ground-water use conflicts (plants using cooling tower withdrawing make-up water from a small river" as "Groundwater use conflicts (plants with closed-cycle cooling systems that withdraw makeup water from a river)." The combined issue remains a Category 2 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(24) Groundwater Quality Degradation Resulting from Water Withdrawals – The proposed rule combines two Category 1 issues, "Ground-water quality degradation (Ranney wells)" and "Ground-water quality degradation (saltwater intrusion)" and names the combined issue "Groundwater quality degradation resulting from water withdrawals." The combined issue remains a Category 1 issue. The two issues were combined as they both consider the possibility of groundwater quality becoming degraded as a result of the plant drawing water of potentially lower quality into the aquifer. The proposed rule makes clarifying changes to the finding column of Table B-1 for this combined issue.

(25) Groundwater Quality Degradation (Plants with Cooling Ponds in Salt Marshes) and (26) Groundwater Quality Degradation (Plants with Cooling Ponds at Inland Sites) – "Groundwater quality degradation (plants with cooling ponds in salt marshes)" and "Groundwater quality degradation (plants with cooling ponds at inland sites)" remain, respectively, Category 1 and Category 2 issues. The proposed rule makes clarifying changes to the finding column of Table B-1 for each of these issues.

(27) Groundwater and Soil Contamination – The proposed rule adds a new Category 2 issue, "Groundwater and Soil Contamination," to evaluate the impacts of the industrial use of

solvents, hydrocarbons, heavy metals, or other chemicals on groundwater, soil, and subsoil at nuclear power plant sites during the license renewal term. Review of license renewal applications has shown the existence of these non-radionuclide contaminants at some plants. This contamination is usually regulated by State environmental regulatory authorities or the Environmental Protection Agency (EPA). In addition, this new Category 2 issue has been added because each specific site has its own program for handling waste and hazardous materials, and no generic evaluation would apply to all nuclear power plants.

Industrial practices at all plants have the potential to contaminate site groundwater and soil through the use and spillage of solvents, hydrocarbons, heavy metals, or other chemicals, especially on sites with unlined wastewater lagoons and storm water lagoons. Any contamination by these substances is subject to characterization and clean-up by State and EPA regulated remediation and monitoring programs.

(28) Radionuclides Released to Groundwater – The proposed rule adds a new Category 2 issue, “Radionuclides released to groundwater,” to evaluate the potential impact of discharges of radionuclides, such as tritium, from plant systems into groundwater. The issue is relevant to license renewal because virtually all commercial nuclear power plants routinely release radioactive gaseous and liquid materials into the environment. A September 2006 NRC report, “Liquid Radioactive Release Lessons Learned Task Force Report,” documented instances of inadvertent releases of radionuclides into groundwater from nuclear power plants (ADAMS Accession No. ML062650312).

NRC regulations in Parts 20 and 50 limit the amount of radioactivity released into the environment to be “As Low As is Reasonably Achievable” (ALARA) to ensure that the impact on public health is very low. Most of the inadvertent liquid release events involved tritium, which is a radioactive isotope of hydrogen. However, other radioactive isotopes have been inadvertently released into the environment. An example is leakage from spent fuel pools, where leakage from the stored fuel would allow fission products to be released into the pool water.

The most significant conclusion of the NRC report regards public health impacts. Although there have been a number of events where radionuclides were released inadvertently into groundwater, based on the data available, the NRC did not identify any instances where the health of the public was impacted. The NRC did identify that under the existing regulatory requirements, the potential exists for inadvertent radionuclide releases to migrate offsite into groundwater.

Another factor in adding this new Category 2 issue is the level of public concern associated with such inadvertent releases of radionuclides into groundwater. The NRC concludes that the impact of radionuclide releases to groundwater quality could be small or moderate, depending on the occurrence and frequency of leaks and the ability to respond to leaks in a timely fashion.

(viii) Terrestrial Resources

(29) Impacts of Continued Plant Operations on Terrestrial Ecosystems – The proposed rule renames “Refurbishment impacts” as “Impacts of continued plant operations on terrestrial ecosystems;” it remains a Category 2 issue. The analysis in the revised GEIS expands the scope of this issue to include the environmental impacts associated with continued plant operations and maintenance activities in addition to refurbishment. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(30) Exposure of Terrestrial Organisms to Radionuclides – The proposed rule adds a new Category 1 issue, “Exposure of terrestrial organisms to radionuclides,” to evaluate the issue of the potential impact of radionuclides on terrestrial organisms resulting from normal operations of a nuclear power plant during the license renewal term. This issue was not evaluated in the 1996 GEIS. However, the impact of radionuclides on terrestrial organisms has been raised by members of the public as well as Federal and State agencies during previous license renewal reviews.

The revised GEIS evaluates the potential impact of radionuclides on terrestrial biota at nuclear power plants from continued operations during the license renewal term. Site-specific radionuclide concentrations in water, sediment, and soils were obtained from Radiological Environmental Monitoring Operating Reports from 15 nuclear power plants. These 15 plants were

selected to represent sites with a range of radionuclide concentrations in the media, including plants with high annual worker dose exposure values for both boiling water reactors and pressurized water reactors. The calculated radiation dose rates to terrestrial biota were compared against radiation-acceptable radiation safety guidelines issued by the U.S. Department of Energy, the International Atomic Energy Agency, the National Council of Radiation Protection and Measurement, and the International Commission on Radiological Protection. The NRC concludes that the impact of radionuclides on terrestrial biota from past and current operations would be small for all nuclear power plants and would not be expected to change appreciably during the license renewal term.

(31) Cooling System Impacts on Terrestrial Resources (Plants with Once-Through Cooling Systems or Cooling Ponds) – The proposed rule renames "Cooling pond impacts on terrestrial resources" as "Cooling system impacts on terrestrial resources (plants with once-through cooling systems or cooling ponds)." This issue remains a Category 1 issue. The analysis in the revised GEIS expands the scope of this issue to include plants with once-through cooling systems. This analysis concludes that the impacts on terrestrial resources from once-through cooling systems, as well as from cooling ponds, is of small significance at all plants. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(32) Cooling Tower Impacts on Vegetation (Plants with Cooling Towers) – The proposed rule combines two Category 1 issues, "Cooling tower impacts on crops and ornamental vegetation" and "Cooling tower impacts on native plants" and names the combined issue "Cooling tower impacts on vegetation (plants with cooling towers)." The combined issue remains a Category 1 issue. The two issues were combined to conform to the resource-based approach used in the revised GEIS and to simplify and streamline the analysis. With the recent trend of replacing lawns with native vegetation, some ornamental plants and crops are native plants, and the original separation into two issues is unnecessary and cumbersome. The proposed rule makes clarifying changes to the finding column of Table B-1 for this combined issue.

(33) Bird Collisions with Cooling Towers and Transmission Lines – The proposed rule combines two Category 1 issues, “Bird collisions with cooling towers” and “Bird collision with power lines” and names the combined issue “Bird collisions with cooling towers and transmission lines.” The combined issue remains a Category 1 issue. The two issues were combined to conform to the resource-based approach used in the revised GEIS and to simplify and streamline the analysis. The proposed rule makes clarifying changes to the finding column of Table B-1 for this combined issue.

(34) Water Use Conflicts with Terrestrial Resources (Plants with Cooling Ponds or Cooling Towers Using Make-up Water from a River with Low Flow) – The proposed rule adds a new Category 2 issue, “Water use conflicts with terrestrial resources (plants with cooling ponds or cooling towers using make-up water from a river with low flow)” to evaluate water use conflict impacts with terrestrial resources in riparian communities. Such impacts could occur when water that supports these resources is diminished either because of decreased availability due to droughts; increased water demand for agricultural, municipal, or industrial usage; or a combination of these factors. The potential range of impact levels at plants, subject to license renewal, with cooling ponds or cooling towers using makeup water from a small river with low flow cannot be generically determined at this time.

(35) Transmission Line ROW Management Impacts on Terrestrial Resources – The proposed rule combines two Category 1 issues, “Power line right-of-way management (cutting and herbicide application)” and “Floodplains and wetland on power line right of way” and names the combined issue “Transmission line ROW management impacts on terrestrial resources.” The combined issue remains a Category 1 issue. The two issues were combined to simplify and streamline the analysis.

The scope of the evaluation of transmission lines in the revised GEIS is reduced from that of the 1996 GEIS—only those transmission lines currently needed to connect the nuclear power plants to the regional electrical distribution grid are considered within the scope of license renewal. Thus,

the number of and length of transmission lines being evaluated are greatly reduced. The revised GEIS analysis indicates that proper management of transmission line ROW areas does not have significant adverse impacts on current wildlife populations, and ROW management can provide valuable wildlife habitats. The proposed rule makes clarifying changes to the finding column of Table B-1 for this combined issue.

(36) Electromagnetic Fields on Flora and Fauna (Plants, Agricultural Crops, Honeybees, Wildlife, Livestock) – "Electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock)" remains a Category 1 issue. There are no changes to this issue.

(ix) Aquatic Resources

(37) Impingement and Entrainment of Aquatic Organisms (Plants with Once-Through Cooling Systems or Cooling Ponds) – The proposed rule combines two Category 2 issues, "Entrainment of fish and shellfish in early life stages (for plants with once-through cooling and cooling pond heat dissipation systems)" and "Impingement of fish and shellfish (for plants with once-through cooling and cooling pond heat dissipation systems)" and one Category 1 issue, "Entrainment of phytoplankton and zooplankton (for all plants)." and names the combined issue "Impingement and entrainment of aquatic organisms (plants with once-through cooling systems or cooling ponds)." The combined issue is a Category 2 issue.

For the revised GEIS, these issues were combined to simplify the review process in keeping with the resource-based approach and to allow for a more complete analysis of the environmental impact. Nuclear power plants typically conduct separate sampling programs to estimate the numbers of organisms entrained and impinged, which explains the original separation of these issues. However, it is the combined effects of entrainment and impingement that reflect the total impact of the cooling system intake on the resource. Environmental conditions are different to each nuclear plant site and impacts cannot be determined generically. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(38) Impingement and Entrainment of Aquatic Organisms (Plants with Cooling Towers) - The proposed rule combines three Category 1 issues, "Entrainment of fish and shellfish in early life stages (for plants with cooling tower-based heat dissipation systems)," "Impingement of fish and shellfish (for plants with cooling tower-based heat dissipation systems)," and "Entrainment of phytoplankton and zooplankton (for all plants)" and names the combined issue "Impingement and entrainment of aquatic organisms (plants with cooling towers)." The combined issue remains a Category 1 issue. The three issues are combined given their similar nature and to simplify and streamline the review process. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(39) Thermal Impacts on Aquatic Organisms (Plants with Once-Through Cooling Systems or Cooling Ponds) – The proposed rule combines four Category 1 issues, "Cold shock (for all plants)," "Thermal plume barrier to migrating fish (for all plants)," "Distribution of aquatic organisms (for all plants)," and "Premature emergence of aquatic insects (for all plants)," and one Category 2 issue "Heat shock (for plants with once-through and cooling pond heat dissipation systems)" and names the combined issue "Thermal impacts on aquatic organisms (plants with once-through cooling systems or cooling ponds)." The combined issue is a Category 2 issue.

The five issues are combined given their similar nature and to simplify and streamline the review process. With the exception of heat shock, previous license renewal reviews conducted by the NRC have shown that the thermal effects of once-through cooling and cooling pond systems have not been a problem at operating nuclear power plants and would not change during the license renewal term, so future impacts are not anticipated. However, it is difficult to differentiate the various thermal effects of once-through cooling and cooling pond systems in the field. Different populations may react differently due to changes in water temperature. For example, if a resident population avoided a heated effluent, the 1996 GEIS would have identified this issue as "distribution of aquatic organisms;" however, had this population been migrating, the issue would have been considered under "thermal plume barrier to migrating fish." If individuals had remained in the heated effluent too

long, the issue would have been considered under “heat shock;” or, if the individuals then left the warm water, the issue would have been considered under “cold shock.” Using the resource-based approach in the revised GEIS, each of these issues would be considered a thermal impact from once-through and cooling pond systems. Environmental conditions are different at each nuclear plant site and impacts cannot be determined generically. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(40) Thermal Impacts on Aquatic Organisms (Plants with Cooling Towers) – The proposed rule combines five Category 1 issues, “Cold shock (for all plants),” “Thermal plume barrier to migrating fish (for all plants),” “Distribution of aquatic organisms (for all plants),” “Premature emergence of aquatic insects (for all plants),” and “Heat shock (for plants with cooling-tower-based heat dissipation systems)” and names the combined issue “Thermal impacts on aquatic organisms (plants with cooling towers).” The combined issue is a Category 1 issue.

The five issues are combined given their similar nature and to simplify and streamline the review process. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(41) Effects of Cooling Water Discharge on Dissolved Oxygen, Gas Supersaturation, and Eutrophication – The proposed rule combines three Category 1 issues, “Eutrophication,” “Gas supersaturation (gas bubble disease),” and “Low dissolved oxygen in the discharge,” and names the combined issue “Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication.” The combined issue is a Category 1 issue.

The three issues are combined given their similar nature and to simplify and streamline the review process. The proposed rule revises the finding column of Table B-1 for this issue accordingly.

(42) Effects of Non-Radiological Contaminants on Aquatic Organisms – The proposed rule renames “Accumulation of contaminants in sediments or biota” as “Effects of non-radiological

contaminants on aquatic organisms;" it remains a Category 1 issue. The proposed rule makes clarifying changes to the finding column of Table B-1 for this issue.

(43) Exposure of Aquatic Organisms to Radionuclides – The proposed rule adds a new Category 1 issue, "Exposure of Aquatic Organisms to Radionuclides," to evaluate the potential impact of radionuclide discharges upon aquatic organisms. This issue has been raised by members of the public as well as Federal and State agencies during the license renewal process for various plants.

The revised GEIS evaluates the potential impact of radionuclides on aquatic organisms at nuclear power plants from continued operations during the license renewal term. A radiological assessment was performed using effluent release data from 15 NRC-licensed nuclear power plants chosen based on having a range of radionuclide concentrations in environmental media. Site-specific radionuclide concentrations in water and sediments, as reported in the plant's radioactive effluent and environmental monitoring reports, were used in the calculations. The data is representative of boiling water reactors and pressurized water reactors. The calculated radiation dose rates to aquatic biota were compared against radiation acceptable radiation safety guidelines issued by the U.S. Department of Energy, the International Atomic Energy Agency, the National Council of Radiation Protection and Measurement, and the International Commission on Radiological Protection. The NRC concludes that the impact of radionuclides on aquatic biota from past and current operations would be small for all nuclear power plants, and would not be expected to change appreciably during the license renewal term.

(44) Effects of Dredging on Aquatic Organisms – The proposed rule adds a new Category 1 issue, "Effects of dredging on aquatic organisms," to evaluate the impacts of dredging on aquatic organisms. Licensees conduct dredging to maintain intake and discharge structures at nuclear power plant facilities and in some cases, to maintain barge slips. Dredging may disturbs or remove benthic communities. In general, maintenance dredging for nuclear power plant operations would occur infrequently, would be of relatively short duration, and would affect relatively small

areas. Dredging is performed under a permit issued by the U.S. Army Corps of Engineers and consequently, each dredging action would be subject to a site-specific environmental review conducted by the Corps.

(45) Water Use Conflicts with Aquatic Resources (Plants with Cooling Ponds or Cooling Towers using Make-Up Water from a River with Low Flow) – The proposed rule adds a new Category 2 issue, "Water use conflicts with aquatic resources (plants with cooling ponds or cooling towers using make-up water from a river with low flow)" to evaluate water use conflict impacts with aquatic resources in instream communities. Such impacts could occur when water that supports these resources is diminished either because of decreased availability due to droughts; increased water demand for agricultural, municipal, or industrial usage; or a combination of these factors. The potential range of impact levels at plants, subject to license renewal, with cooling ponds or cooling towers using makeup water from a small river with low flow cannot be generically determined at this time.

(46) Refurbishment Impacts on Aquatic Resources – The proposed rule language renames "Refurbishment" as "Refurbishment impacts on aquatic resources;" it remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(47) Impacts of Transmission Line ROW Management on Aquatic Resources – The proposed rule adds a new Category 1, "Impacts of transmission line ROW management on aquatic resources," to evaluate the impact of transmission line ROW management on aquatic resources. Impacts on aquatic resources from transmission line ROW maintenance could occur as a result of the direct disturbance of aquatic habitats, soil erosion, changes in water quality (from sedimentation and thermal effects), or inadvertent releases of chemical contaminants from herbicide use. As described in the revised GEIS, any impact on aquatic resources resulting from transmission line ROW management is expected to be small, short term, and localized for all plants.

(48) Losses from Predation, Parasitism, and Disease Among Organisms Exposed to Sublethal Stresses and (49) Stimulation of Aquatic Nuisance Species (e.g., Shipworms) – "Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses" and "Stimulation of aquatic nuisance species (e.g., shipworms)" remain Category 1 issues. The proposed rule does not change the finding column entries of Table B-1 for these issues.

(x) Threatened, Endangered, and Protected Species and Essential Fish Habitat

(50) Threatened, Endangered, and Protected Species and Essential Fish Habitat – The proposed rule renames "Threatened or endangered species" as "Threatened, endangered, and protected species and essential fish habitat" and expands the scope of the issue to include essential fish habitats protected under the Magnuson-Stevens Fishery Conservation and Management Act. The issue remains a Category 2 issue. The proposed rule makes clarifying changes to the finding column entry of table B-1 for this issue.

(xi) Historic and Cultural Resources

(51) Historic and Cultural Resources – The proposed rule language renames "Historic and archaeological resources" as "Historic and cultural resources;" it remains a Category 2 issue. The proposed rule language more accurately reflects the National Historic Preservation Act requirements that Federal agencies consult with State Historic Preservation Officer and appropriate Native American Tribes to determine the potential impacts and mitigation.

(xii) Socioeconomics

(52) Employment and Income, Recreation and Tourism – The proposed rule adds a new Category 1 issue, "Employment and income," and combines it with the "tourism and recreation" portion of a current Table B-1 Category 1 issue, "Public services: public safety, social services, and tourism and recreation." These issues are combined given the similar nature and to streamline the review process. The revised GEIS provides an analysis of this issue and concludes that the impacts are generic to all plants undergoing license renewal.

(53) Tax Revenues – The proposed rule adds a new Category 1 issue, “Tax revenues,” to evaluate the impacts of license renewal on tax revenues. Refurbishment activities, such as steam generator and vessel head replacement, have not had a noticeable affect on the value of nuclear plants, thus changes in tax revenues are not anticipated from future refurbishment activities. Refurbishment activities involve the one-for-one replacement of existing components and are generally not considered a taxable improvement. Also, new property tax assessments; proprietary payments in lieu of tax stipulations, settlements, and agreements; and State tax laws are continually changing the amounts paid to taxing jurisdictions by nuclear plant owners, and these occur independent of license renewal and refurbishment activities.

(54) Community Services and Education – The proposed rule language reclassifies two Category 2 issues, “Public services: public utilities” and “Public services, education (refurbishment)” as Category 1 issues, and combines them with the Category 1 issue, “Public services, education (license renewal term),” and the “Public safety and social service” portion of the Category 1 issue, “Public services: public safety, social services, and tourism and recreation.” The combined issue, “Community services and education,” is a Category 1 issue.

The four issues are combined as all public services are equally affected by changes in plant operations and refurbishment at nuclear plants. Any changes in the number of workers at a nuclear plant will affect demand for public services from local communities. Nevertheless, past environmental reviews conducted by NRC have shown that the number of workers at relicensed nuclear plants has not changed significantly because of license renewal, so impacts on community services are not anticipated from future license renewals. In addition, refurbishment activities, such as steam generator and vessel head replacement, have not required the large numbers of workers and the months of time that was conservatively analyzed in the 1996 GEIS, so significant impacts on community services are no longer anticipated. Combining the four issues also simplifies and streamlines the NRC review process. The proposed rule revises the finding column of Table B-1 accordingly.

(55) Population and Housing – The proposed rule language combines a new Category 1 issue, “Population,” and a Category 2 issue, “Housing impacts,” and names the combined issue, “Population and housing.” The combined issue is a Category 1 issue. The two issues are combined as the availability and value of housing are directly affected by changes in population and to simplify and streamline the NRC review process.

As described in the revised GEIS, the NRC has determined that the impacts of continued operations and refurbishment activities on population and housing, during the license renewal term, would be small, are not dependent on the socioeconomic setting of the nuclear plant, and are generic to all plants. The proposed rule revises the finding column of Table B-1 accordingly.

(56) Transportation – The proposed rule reclassifies the Category 2 issue, “Public services, transportation,” as a Category 1 issue and renames it, “Transportation.” As described in the revised GEIS, the NRC has determined that the numbers of workers have not changed significantly due to license renewal, so transportation impacts are no longer anticipated from future license renewals. The proposed rule revises the finding column entry of table B-1 for this issue accordingly.

(xiii) Human Health

(57) Radiation Exposures to the Public – The proposed rule combines two Category 1 issues, “Radiation exposures to the public during refurbishment” and “Radiation exposure to public (license renewal term)” and names the combined issue, “Radiation exposures to the public.” The combined issue is a Category 1 issue. These issues are combined given the similar nature and to streamline the review process. The proposed rule revises the finding column of Table B-1 accordingly.

(58) Radiation Exposures to Occupational Workers – The proposed rule combines two Category 1 issues, ”Occupational radiation exposures during refurbishment” and “Occupational radiation exposures (license renewal term)” and names the combined issue, “Radiation exposures to occupational workers.” The combined issue is a Category 1 issue. These issues are combined

given the similar nature and to streamline the review process. The proposed rule revises the finding column of Table B-1 accordingly.

(59) Human Health Impact from Chemicals – The proposed rule adds a new Category 1 issue, “Human health impact from chemicals,” to evaluate the potential impacts of chemical hazards to workers and chemical releases to the environment.

The evaluation addresses the potential impact of chemicals on human health resulting from normal operations of a nuclear power plant during the license renewal term. Impacts of chemical discharges to human health are considered to be small if the discharges of chemicals to water bodies are within effluent limitations designed to ensure protection of water quality and if ongoing discharges have not resulted in adverse effects on aquatic biota.

The disposal of essentially all of the hazardous chemicals used at nuclear power plants is regulated by Resource Conservation and Recovery Act or National Pollutant Discharge Elimination System (NPDES) permits, thereby minimizing adverse impacts to the environment and on workers and the public. It is anticipated that all plants would continue to operate in compliance with all applicable permits and that no mitigation measures beyond those implemented during the current license term would be warranted as a result of license renewal.

A review of the documents, as referenced in the GEIS; operating monitoring reports; and consultations with utilities and regulatory agencies that were performed for the 1996 GEIS, indicated that the effects of the discharge of chlorine and other biocides on water quality would be of small significance for all power plants. Small quantities of biocides are readily dissipated and/or chemically altered in the body of water receiving them, so significant cumulative impacts to water quality would not be expected. Major changes in the operation of the cooling system are not expected during the license renewal term, so no change in the effects of biocide discharges on the quality of the receiving water is anticipated. Discharges of sanitary wastes and heavy metals are regulated by NPDES. Discharges that do not violate the permit limits are considered to be of small

significance. The effects of minor chemical discharges and spills on water quality would be of small significance and mitigated as needed.

(60) Microbiological Hazards to the Public (Plants with Cooling Ponds or Canals or Cooling Towers that Discharge to a River) – The proposed rule renames "Microbiological organisms (public health) (plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river)" as "Microbiological hazards to the public (plants with cooling ponds or canals or cooling towers that discharge to a river);" it remains a Category 2 issue. The proposed rule makes minor clarifying changes to the Table B-1 finding column entry for this issue.

(61) Microbiological Hazards to Plant Workers – The proposed rule renames "Microbiological organisms (occupational health)" as "Microbiological hazards to plant workers;" it remains a Category 1 issue. There are no changes to the Table B-1 finding column entry for this issue.

(62) Chronic Effects of Electromagnetic Fields (EMFs) – The proposed rule renames "Electromagnetic fields, chronic effects" as "Chronic effects of electromagnetic fields (EMFs);" it remains an uncategorized issue. The proposed rule revises the Table B-1 finding column entry for this issue.

(63) Physical Occupational Hazards – The proposed rule adds a new Category 1 issue, "Physical occupational hazards," to evaluate the potential impact of physical occupational hazards on human health resulting from normal nuclear power plant operations during the license renewal term. The impact of physical occupational hazards on human health has been raised by members of the public as well as Federal and State agencies during the license renewal process. Occupational hazards can be minimized when workers adhere to safety standards and use appropriate protective equipment; however, fatalities and injuries from accidents can still occur. Data for occupational injuries in 2005 obtained from the U.S. Bureau of Labor Statistics indicate that the rate of fatal injuries in the utility sector is less than the rate for many sectors (e.g., construction, transportation and warehousing, agriculture, forestry, fishing and hunting, wholesale trade, and mining) and that

the incidence rate for nonfatal occupational injuries and illnesses is the least for electric power generation, followed by electric power transmission control and distribution. It is expected that over the license renewal term, workers would continue to adhere to safety standards and use protective equipment, so adverse occupational impacts would be of small significance at all sites. No mitigation measures beyond those implemented during the current license term would be warranted.

(64) Electric Shock Hazards – The proposed rule renames "Electromagnetic fields, acute effects (electric shock)" as "Electric shock hazards;" it remains a Category 2 issue. The proposed rule revises the Table B-1 finding column entry for this issue by more accurately summarizing the discussion in the GEIS which focuses attention on the potential of electrical shock from transmission lines.

(xiv) Postulated Accidents

(65) Design-Basis Accidents and (66) Severe Accidents – "Design-basis accidents" and "Severe accidents" remain Category 1 and 2 issues, respectively. The proposed rule makes minor clarifying changes to the Table B-1 finding column entries for these issues.

(xv) Environmental Justice

(67) Minority and Low-Income Populations – The proposed rule adds a new Category 2 issue, "Minority and low-income populations," to evaluate the impacts of nuclear plant operations and refurbishment during the license renewal term on minority and low-income populations living in the vicinity of the plant. This issue is listed in the current Table B-1, but it was not evaluated in the 1996 GEIS. The current Table B-1 finding column entry states that "[t]he need for and the content of an analysis of environmental justice will be addressed in plant-specific reviews."

Executive Order 12898 (59 FR 7629, February 16, 1994) initiated the Federal government's environmental justice program. The NRC's "Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions" (69 FR 52040, August 24, 2004) states "the NRC is committed to the general goals of E.O. 12898, it will strive to meet those goals through its normal and traditional NEPA review process." Guidance for implementing Executive Order 12898

was not available prior to the completion of the 1996 GEIS. To accomplish these goals, NRC requires the assistance of applicants in identifying minority and low-income populations and communities residing in the vicinity of the nuclear power plant and determining whether there would be any disproportionately high and adverse human health and environmental impacts on these populations from continued power plant operations and refurbishment activities during the license renewal term.

(xvi) Solid Waste Management

(68) Low-Level Waste Storage and Disposal – "Low-level waste storage and disposal" remains a Category 1 issue. The proposed rule makes clarifying changes to the Table B-1 finding column entry for this issue.

(69) Onsite Storage of Spent Nuclear Fuel – The proposed rule renames "On-site spent fuel" as "Onsite storage of spent nuclear fuel;" it remains a Category 1 issue. The proposed rule does not change the finding column entry of Table B-1 for this issue.

(70) Offsite Radiological Impacts of Spent Nuclear Fuel and High-Level Waste Disposal – The proposed rule renames "Offsite radiological impacts (spent fuel and high level waste disposal)" as "Offsite radiological impacts of spent nuclear fuel and high-level waste disposal." It remains a Category 1 issue. The proposed rule summarizes the lengthy discussion in the finding column of Table B-1 for this issue, and incorporates specific dose limits obtained from the recent docketing by the NRC of the application for the proposed repository at Yucca Mountain, Nevada.

(71) Mixed-Waste Storage and Disposal – "Mixed-waste storage and disposal" remains a Category 1 issue. The proposed rule revises the Table B-1 finding column entry for this issue by more accurately summarizing the discussion in the GEIS.

(72) Nonradioactive Waste Storage and Disposal – The proposed language renames "Nonradiological waste" as "Nonradiological waste storage and disposal;" it remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(xvii) Cumulative Impacts

(73) Cumulative Impacts – The proposed rule adds a new Category 2 issue, "Cumulative impacts," to evaluate the potential cumulative impacts of license renewal. The term "cumulative impacts" is defined in § 51.14(b) by reference to the Council on Environmental Quality (CEQ) regulations, 40 CFR 1508.7, as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

For the purposes of analysis, past actions are considered to be when the nuclear power plant was licensed and constructed, present actions are related to current plant operations, and future actions are those that are reasonably foreseeable through the end of plant operations including the license renewal term. The geographic area over which past, present, and future actions are assessed depends on the affected resource.

The NRC requires the assistance of applicants in identifying other past, present, and reasonably foreseeable future actions, such as the construction and operation of other power plants and other industrial and commercial facilities in the vicinity of the nuclear power plant. Therefore, this environmental impact is considered a Category 2 issue.

(xviii) Uranium Fuel Cycle

(74) Offsite Radiological Impacts – Individual Impacts from Other Than the Disposal of Spent Fuel and High-Level Waste – "Offsite radiological impacts – individual impacts from other than the disposal of spent fuel and high-level waste" remains a Category 1 issue. The proposed rule makes minor clarifying changes to the findings column of Table B-1 for this issue.

(75) Offsite Radiological Impacts – Collective Impacts from Other Than the Disposal of Spent Fuel and High-Level Waste – The proposed rule renames "Offsite radiological impacts (collective effects)" as "Offsite radiological impacts – collective impacts from other than the disposal

of spent fuel and high-level waste;" it remains a Category 1 issue. The proposed rule summarizes the discussion in the Table B-1 finding column entry for this issue.

(76) Nonradiological Impacts of the Uranium Fuel Cycle – Nonradiological impacts of the uranium fuel cycle" remains a Category 1 issue. The proposed rule makes minor clarifying changes to the finding column of Table B-1 for this issue.

(77) Transportation – "Transportation" remains a Category 1 issue. The proposed rule revises the Table B-1 finding column entry for this issue by retaining the significance level assigned to this environmental issue as applicable to the uranium fuel cycle. The specific technical discussion supporting these findings is retained in the GEIS.

(xiv) Termination of Nuclear Power Plant Operations and Decommissioning

(78) Termination of Nuclear Power Plant Operations and Decommissioning – The proposed rule combines one new Category 1 issue, "Termination of nuclear power plant operations" with six other Category 1 issues, "Radiation doses," "Waste management," "Air quality," "Water quality," "Ecological resources," and "Socioeconomic impacts," listed in the 1996 GEIS under the resource area, "Decommissioning" and names the combined issue, "Termination of plant operations and decommissioning." This combined issue is a Category 1 issue.

The 1996 GEIS analysis indicates that the six decommissioning issues are expected to be small at all nuclear power plant sites. The new issue addresses the impacts from terminating nuclear power plant operations prior to plant decommissioning. Termination of nuclear power plant operations results in the cessation of activities necessary to maintain the reactor, as well as a significant reduction in plant workforce. It is assumed that termination of plant operations would not lead to the immediate decommissioning and dismantlement of the reactor or other power plant infrastructure.

These issues current environmental issues and the termination of nuclear power plant operations issue would be combined into one Category 1 issue to simplify and streamline the NRC review process. These issues are also addressed in the "2002 Generic Environmental Impact

Statement on Decommissioning of Nuclear Facilities: Regarding the Decommissioning of Nuclear Power Reactors," NUREG-0586, which is incorporated by reference in the revised GEIS. The proposed rule revises the findings column of Table B-1 accordingly.

VI. Section-by-Section Analysis.

The following section-by-section analysis discusses the proposed modifications to the Part 51 provisions.

Proposed § 51.14(a)

The proposed rule adds to § 51.14(a) a definition for the term "historic properties." The term is intended to be an overarching term that includes those historic, archaeological, and Native American traditional religious and cultural properties (districts, sites, buildings, structures, objects, artifacts) that are covered by the various Federal preservation laws, including the National Historic Preservation Act, and where applicable, the Archaeological Resources Protection Act and the Native American Graves Protection and Repatriation Act.

Proposed § 51.53(c)(2)

The NRC proposes to clarify the required contents of the license renewal environmental report which applicants must submit in accordance with § 54.21 by revising the second sentence in this subparagraph to read, "This report must describe in detail the affected environment around the plant, the modifications directly affecting the environment or any plant effluents, and any planned refurbishment activities."

Proposed §§ 51.53(c)(3)(ii)(A), (B), and (E)

For those applicants seeking an initial license renewal and holding either an operating license, construction permit, or combined license as of June 30, 1995, the environmental report shall

include the information required in § 51.53(c)(2), but is not required to contain analyses of the environmental impacts of certain license renewal issues identified as Category 1 (generically analyzed) issues in Appendix B to Subpart A of Part 51. The environmental report must contain analyses of the environmental impacts of the proposed action, including the impacts of refurbishment activities, if any, associated with license renewal and the impacts of operation during the renewal term, for those issues identified as Category 2 (plant specific analysis required) issues in Appendix B to Subpart A of Part 51 and must include consideration of alternatives for reducing adverse impacts of Category 2 issues. In addition, the environmental report must contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware. The required analyses are listed in §§ 51.53(c)(3)(ii)(A) (P).

The proposed language for §§ 51.53(c)(3)(ii)(A), (B), and (E) consists of changes to conform to the proposed changes in Table B-1, which in turn, reflects the revised GEIS. The NRC proposes to modify these paragraph to more accurately reflect the specific information needed in the environmental report that will help the NRC conduct the environmental review of the proposed action.

Section 51.53(c)(3)(ii)(A) is revised to incorporate the findings of the revised GEIS and to require applicants to provide information in their environmental reports regarding water availability and competing water demands and related impacts on instream (aquatic) and riparian (terrestrial) communities.

Section 51.53(c)(3)(ii)(B) is revised to replace “heat shock” with “thermal changes” to reflect the proposed changes made in the revised Table B-1 as described earlier in this document under “(ix) Aquatic Resources,” environmental impact issue, “(39) Thermal Impacts on Aquatic Organisms (Plants with Once-Through Cooling Systems or Cooling Ponds).”

Section 51.53(c)(3)(ii)(E) is revised to expressly include power plant continued operations within the scope of the impacts to be assessed by license renewal applicants. The paragraph is

further revised to expand the scope of the provision to include all Federal wildlife protection laws and essential fish habitat under the Magnuson-Stevens Fishery Conservation and Management Act.

Proposed § 51.53(c)(3)(ii)(I)

The NRC proposes to remove the language in § 51.53(c)(3)(ii)(I) to conform with the proposed changes made in the revised Table B-1 and to reserve the paragraph. These Category 2 issues were changed to Category 1 because significant changes in housing availability, land-use, and increased population demand attributable to the proposed project on the public water supply have not occurred at relicensed nuclear plants. Therefore, impacts to these resources are no longer anticipated from future license renewals. In addition, refurbishment activities, such as steam generator and vessel head replacement, have not required the large numbers of workers and the months of time that was conservatively analyzed in the 1996 GEIS. As such, significant impacts on public schools are no longer anticipated from future refurbishment activities. Applicants would no longer need to assess the impacts of the proposed action on housing availability, land-use, and public schools (impacts from refurbishment activities only) within the vicinity of the plant. Additionally, applicants would no longer need to assess the impact of population increases attributable to the proposed action on the public water supply.

Proposed § 51.53(c)(3)(ii)(J)

The NRC proposes to remove the language in § 51.53(c)(3)(ii)(J) to conform with the proposed changes made in the revised Table B-1 and to reserve the paragraph. This Category 2 issue, “Public service, Transportation” was changed to Category 1, “Transportation,” and remains under resource area, “Socioeconomic” because refurbishment activities, such as steam generator and vessel head replacement, have not required the large numbers of workers and the months of time that was conservatively analyzed in the 1996 GEIS; therefore significant transportation impacts are not anticipated from future refurbishment activities. Applicants would no longer need to assess

the impact of the proposed action on local transportation during periods of license renewal refurbishment activities.

Proposed § 51.53(c)(3)(ii)(K)

The proposed language for § 51.53(c)(3)(ii)(K) deletes the phrase, “or archaeological.” This term is encompassed by the use of the term “historical,” as defined in the proposed rule language under § 51.14, “Definitions.”

Proposed § 51.53(c)(3)(ii)(N)

The NRC proposes to add a new paragraph (c)(3)(ii)(N) in § 51.53 to conform with the proposed changes made in the revised Table B-1. A new Category 2 issue, “Minority and low-income populations” under resource area, "Environmental Justice" addresses the issue of determining the effects of nuclear plant operations and refurbishment on minority and low-income populations living in the vicinity of the plant. This issue is listed in the current Table B-1, but was not evaluated in the 1996 GEIS. The finding stated that: “The need for and the content of an analysis of environmental justice will be addressed in plant-specific reviews.” Guidance for implementing E.O. No. 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” (Section 1-101) (59 FR 7629) and dated February 16, 1994 was not available before the completion of the 1996 GEIS.

As stated in NRC’s Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (69 FR 52040), “the NRC is committed to the general goals of E.O. 12898, it will strive to meet those goals through its normal and traditional NEPA review process.” To accomplish these goals, NRC requires the assistance of applicants in identifying minority and low-income populations and communities residing in the vicinity of the nuclear power plant and determine if there would be any disproportionate and adverse human health and environmental impacts on these populations.

Proposed § 51.53(c)(3)(ii)(O)

The NRC proposes to add a new paragraph (c)(3)(ii)(O) in § 51.53 to conform with the proposed changes made in the revised Table B-1. A new Category 2 issue has been added to the GEIS to evaluate the potential contamination of soil and groundwater from industrial practices at nuclear plants. Industrial practices at all plants have the potential to contaminate site groundwater and soil through the use and spillage of solvents, hydrocarbons, heavy metals, or other chemicals, especially on sites with unlined wastewater lagoons and storm water lagoons. Any contamination by these substances is subject to characterization and clean-up by EPA and state remediation and monitoring programs. NRC requires the assistance of applicants to assess the impact of the industrial practices involving the use of solvents, hydrocarbons, heavy metals, or other chemicals where there is a potential for contamination of site groundwater, soil, and subsoil.

Proposed § 51.53(c)(3)(ii)(P)

The NRC proposes to add a new paragraph (c)(3)(ii)(P) in § 51.53 to conform with the proposed changes made in the revised Table B-1. A new Category 2 issue has been added to the GEIS to evaluate the potential cumulative effects of license renewal and refurbishment at nuclear plants. Cumulative impacts was not addressed in the 1996 GEIS, but is currently being evaluated by the NRC in plant-specific supplements to the GEIS. The Council on Environmental Quality (CEQ), in 40 CFR 1508.7, defines cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” The NRC considers potential cumulative impacts on the environment resulting from the

incremental impact of license renewal when added to other past, present, and reasonably foreseeable future actions.

The NRC requires the assistance of applicants in identifying other past, present, and reasonably foreseeable future actions, such as the construction and operation of other power plants and other industrial and commercial facilities in the vicinity of the nuclear power plant.

Proposed § 51.71(c)

The proposed language for § 51.71(c) deletes the term “entitlement” and “entitlements.” These terms are not applicable in a license renewal context.

Proposed § 51.71(d)

The proposed language for § 51.71(d) consists of minor conforming word changes to clarify the readability and to include the analysis of cumulative effects. Cumulative impacts was not addressed in the 1996 GEIS, but is currently being evaluated by the NRC in plant-specific supplements to the GEIS. The NRC proposes to modify this paragraph to more accurately reflect the cumulative impacts analysis conducted for environmental reviews of the proposed action.

Proposed § 51.95(c)

The proposed language changes for § 51.95(c) is administrative in nature, and replaces the reference to the 1996 GEIS for license renewal of nuclear plants with a reference to the revised GEIS.

Proposed § 51.95(c)(4)

The proposed language for § 51.95(c)(4) consists of minor grammatical word changes to enhance the readability of the regulation.

VII. Specific Request for Comments.

The NRC seeks comments on the proposed Part 51 provisions described in this document and on the regulatory analysis and the information collection aspects of this proposed rule.

The NRC also seeks voluntary information from industry about refurbishment activities and employment trends at nuclear power plants. Information on refurbishment would be used to evaluate the significance of impacts from this type of activity. Information on employment trends would be used to assess the significance of socioeconomic effects of ongoing plant operations on local economies.

Refurbishment

Table B.2 in the 1996 GEIS lists major refurbishment or replacement activities that the NRC used to estimate environmental impacts. The NRC recognizes that the refurbishment impact analysis in the 1996 GEIS may not accurately reflect industry experience performing the activities identified in Table B.2. Please provide (1) the estimated frequency for each activity (e.g., annually, once in the lifetime of a power reactor, as-needed based on inspections, etc.), (2) the duration (in weeks), (3) the peak number of project workers in full-time equivalents (FTEs), (4) the timing of these activities (e.g., during planned refueling or maintenance outages), and (5) whether the period of extended operation (i.e., license renewal term) has triggered a need for these activities.

Employment trends

Please provide data on the annual average number of permanent operations workers (in FTEs by year) after commencement of nuclear plant operations. If possible, the information

should include a short non-proprietary discussion about general employment trends and include reasons for any significant changes in employment.

VIII. Guidance Documents.

In addition to issuing the revised GEIS for public comment, the NRC is also issuing a revised RG 4.2, Supplement 1, Revision 1 and a revised ESRP, Supplement 1, Revision 1. Both documents are being published concurrently with these proposed amendments. Revised RG 4.2, Supplement 1, Revision 1, provides general procedures for the preparation of environmental reports, which are submitted as part of an application for the renewal of a nuclear power plant operating license in accordance with Title 10, Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," of the *Code of Federal Regulations* (10 CFR Part 54). More specifically, this revised regulatory guide explains the criteria on how Category 2 issues are to be addressed in the environmental report, as specified in the proposed amendments to Part 51.

The revised ESRP, Supplement 1, Revision 1 provides guidance for NRC staff on how to conduct a license renewal environmental review. The ESRP parallels the format in RG 4.2, Supplement 1, Revision 1. The primary purpose of the ESRP is to ensure that these reviews focus on those environmental concerns associated with license renewal as described in Part 51. Additionally, in order to enhance public openness, the NRC committed to issuing for public comment with the proposed rule, the RG 4.2, Supplement 1, Revision 1 and ESRP, Supplement 1, Revision 1.

IX. Agreement State Compatibility.

Under the "Policy Statement on Adequacy and Compatibility of Agreement States Programs," approved by the Commission on June 20, 1997, and published in the

Federal Register (62 FR 46517; September 3, 1997), this rule is classified as compatibility category "NRC." Agreement State Compatibility is not required for Category "NRC" regulations. The NRC program elements in this category are those that relate directly to areas of regulation reserved to the NRC by the Atomic Energy Act or the provisions of 10 CFR. Although an Agreement State may not adopt program elements reserved to NRC, it may wish to inform its licensees of certain requirements via a mechanism that is consistent with the particular State's administrative procedure laws, but does not confer regulatory authority on the State.

X. Availability of Documents.

The NRC is making the documents identified below available to interested persons through one or more of the following methods, as indicated.

Public Document Room (PDR). The NRC Public Document Room is located at 11555 Rockville Pike, Rockville, Maryland 20852.

Regulations.gov (Web). These documents may be viewed and downloaded electronically through the Federal eRulemaking Portal http://www.regulations.gov, Docket number NRC–2008–0608.

NRC's Electronic Reading Room (ERR). The NRC's public electronic reading room is located at http://www.nrc.gov/reading-rm.html.

Document	**PDR**	**Web**	**ERR** (ADAMS)
NUREG-1437 – Draft, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants"	X	X	ML090220654

Document	PDR	Web	ERR (ADAMS)
Regulatory Guide (RG) 4.2S1 – Draft, "Supplement 1 to Regulatory Guide 4.2 Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses, Revision 1	X	X	ML090220659
NUREG-1555 – Draft, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants, Supplement 1: Operating License Renewal", Revision 1	X	X	ML090230497
Draft Regulatory Analysis for RIN 3150-AI42 Proposed Rulemaking Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses	X	X	ML083460087
Appendix 1 to Draft Regulatory Analysis for RIN 3150-AI42 Proposed Rulemaking Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses	X	X	ML083460096
Draft OMB Supporting Statement for RIN 3150-AI42 Proposed Rulemaking Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses	X	X	ML090260568
Summary of Public Scoping Meeting to Discuss Update to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Atlanta, GA	X	X	ML032250338

Document	PDR	Web	ERR (ADAMS)
Summary of Public Scoping Meeting to Discuss Update to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-1437) and Companion Rule Change, Oak Lawn, IL	X	X	ML032260318
Summary of Public Scoping Meeting To Discuss Update to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-1437) and Companion Rule Change, Anaheim, CA	X	X	ML032260702
Summary of Public Scoping Meeting to Discuss Update to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-1437) and Companion Rule Change, Boston, MA	X	X	ML032270109
Liquid Radiation Release Lessons Learned Task	X	X	ML062650312

XI. Plain Language.

The Presidential memorandum dated June 1, 1998, entitled "Plain Language in Government Writing" directed that the Government's writing be in clear and accessible language. This memorandum was published on June 10, 1998 (63 FR 31883). The NRC requests comments on the proposed rule specifically with respect to the clarity and effectiveness of the language used. Comments should be sent to the NRC as explained in the ADDRESSES heading of this document.

XII. Voluntary Consensus Standards.

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or is otherwise impractical. The NRC is not aware of any voluntary consensus standard that could be used instead of the proposed Government standards. The NRC will consider using a voluntary consensus standard if an appropriate standard is identified.

XIII. Finding of No Significant Environmental Impact.

The NRC has determined that this proposed regulation is the type of action described in categorical exclusion § 51.22(c)(3). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this proposed regulation. This action is procedural in nature in that it pertains to the type of environmental information to be reviewed.

XIV. Paperwork Reduction Act Statement.

This proposed rule would contain new or amended information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, *et seq*). This proposed rule has been submitted to the Office of Management and Budget (OMB) for review and approval of the information collection requirements.

Type of submission, new or revision: Revision.

The title of the information collection: 10 CFR Part 51 Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, Proposed Rule.

The form number if applicable: Not applicable.

How often the collection is required: Once per license renewal.

Who will be required or asked to report: Applicants for license renewal.

An estimate of the number of annual responses: Six.

The estimated number of annual respondents: Six.

An estimate of the total number of hours needed annually to complete the requirement or request (net one-time reporting): 1,944.00 hours

Abstract: 10 CFR Part 51 specifies information to be provided by applicants and licensees so that the NRC can make determinations necessary to adhere to the policies, regulations, and public laws of the United States, which are to be interpreted and administered in accordance with the policies set forth in the National Environmental Policy Act of 1969, as amended.

The NRC is seeking public comment on the potential impact of the information collections contained in this proposed rule and on the following issues:

1. Is the proposed information collection necessary for the NRC to properly perform its functions? Does the information have practical utility?

2. Is the burden estimate accurate?

3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?

4. How can the burden of the information collection be minimized, including the use of automated collection techniques or other forms of information technology?

A copy of the OMB clearance package may be viewed free of charge at the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Room O–1F21, Rockville, MD 20852. The OMB clearance package and rule are available at the NRC worldwide Web site: http://www.nrc.gov/public-involve/doc-comment/omb/index.html. for 60 days after the signature date of this notice.

Send comments on any aspect of these proposed information collections, including suggestions for reducing the burden and on the above issues, by [**Month day, 200X]**.

Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date. Comments submitted in writing or in electronic form will be made available for public inspection. Because your comments will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed. Comments submitted should reference Docket No. NRC–2008–0608. Comments can be submitted in electronic form via the Federal e-Rulemaking Portal at http://www.regulations.gov by search for Docket No. NRC–2008–0608. Comments can be mailed to NRC Clearance Officer, Gregory Trussell (T–5F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001. Questions about the information collection requirements may be directed to the NRC Clearance Officer, Gregory Trussell (T–5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, by telephone at (301) 415-6445, or by email to INFOCOLLECTS.Resource@nrc.gov. Comments can be mailed to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0021), Office of Management and Budget, Washington, DC 20503, or by email to Nathan_J._Frey@omb.eop.gov, or by telephone at (202) 395-7345.

XV. Regulatory Analysis.

The Commission has prepared a regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the alternatives considered by the NRC. The two alternatives considered (a) No Action—no change to applicable license renewal portions of Part 51 regulations, including Table B-1, which would require applicants seeking license renewal to comply with the existing provisions; or (b) review and update the environmental impact issues and findings and amend applicable license renewal portions of Part 51 and

Table B-1. The conclusions of the regulatory analysis show substantial cost savings of alternative (b) over alternative (a).

The NRC requests public comments on this regulatory analysis. Information on availability of the regulatory analysis is provided in Section X of this document. Comments on the regulatory analysis may be submitted to the NRC as indicated under the ADDRESSES heading of this document.

XVI. Regulatory Flexibility Act Certification.

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule would not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule would only affect nuclear power plant licensees filing license renewal applications. The companies 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 size standards established by the NRC (§ 2.810).

XVII. Backfit Analysis.

The NRC has determined that the requirements in this proposed rule do not constitute backfitting as defined in § 50.109(a)(1). Therefore, a backfit analysis has not been prepared for this proposed rule.

List of Subjects in 10 CFR Part 51

Administrative practice and procedure, Environmental impact statement, Nuclear materials, Nuclear power plants and reactors, 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 amendments to 10 CFR Part 51.

PART 51 — ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULTORY FUNCTIONS

1. The authority citation for Part 51 continues to read as follows:

Authority: Sec. 161, 68 Stat. 948, as amended, sec. 1701, 106 Stat. 2951, 2952, 2953 (42 U.S.C. 2201, 2297f); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note). Subpart A also issued under National Environmental Policy Act of 1969, secs. 102, 104, 105, 83 Stat. 853-854, as amended (42 U.S.C. 4332, 4334, 4335); and Pub. L. 95-604, Title II, 92 Stat. 3033-3041; and sec. 193, Pub. L. 101-575, 104 Stat. 2835 (42 U.S.C. 2243). Sections 51.20, 51.30, 51.60, 51.80, and 51.97 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241, and sec. 148, Pub. L. 100-203, 101 Stat. 1330-223 (42 U.S.C. 10155, 10161, 10168). Section 51.22 also issued under sec. 274, 73 Stat. 688, as amended by 92 Stat. 3036-3038 (42 U.S.C. 2021) and under Nuclear Waste Policy Act of 1982, sec. 121, 96 Stat. 2228 (42 U.S.C. 10141). Sections 51.43, 51.67, and 51.109 also issued under Nuclear Waste Policy Act of 1982, sec. 114(f), 96 Stat. 2216, as amended (42 U.S.C. 10134(f)).

2. Amend § 51.14 to add a paragraph defining the term, “Historic properties” to read as follows:

§ 51.14 Definitions.

(a) * * *

“Historic properties” means any prehistoric or historic districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes properties of traditional

religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria. The term also includes archaeological resources, such as artifacts, records, and remains, that are related to and located within such prehistoric or historic districts, sites, buildings, or structures.

* * * * *

3. Amend § 51.53 to revise the second sentence of paragraph (c)(2), revise the first sentence of paragraph (c)(3)(ii)(A), revise the second sentence of paragraph (c)(3)(ii)(B), revise paragraphs (c)(3)(ii)(E) and (K), to remove and reserve paragraphs (c)(3)(ii)(I) and (J), and to add paragraphs (c)(3)(ii)(N), (O), and (P) to read as follows:

§ 51.53 Postconstruction environmental reports.

* * * * *

(c) * * *

(2) The report must contain a description of the proposed action, including the applicant's plans to modify the facility or its administrative control procedures as described in accordance with § 54.21 of this chapter. This report must describe in detail the affected environment around the plant, the modifications directly affecting the environment or any plant effluents, and any planned refurbishment activities. * * *

(3) * * *

(i) * * *

(ii) * * *

(A) If the applicant's plant utilizes cooling towers or cooling ponds and withdraws make-up water from a river whose annual flow rate is less than 3.15×10^{12} ft^3/year ($9 \times 10^{10} m^3$/year), an assessment of the impact of the proposed action on water availability and competing water

demands, the flow of the river, and related impacts on instream (aquatic) and riparian (terrestrial) ecological communities must be provided. * * *

(B) * * * If the applicant can not provide these documents, it shall assess the impact of the proposed action on fish and shellfish resources resulting from thermal changes and impingement and entrainment.

(C) * * *

(D) * * *

(E) All license renewal applicants shall assess the impact of refurbishment, continued operations, and other license-renewal-related construction activities on important plant and animal habitats. Additionally, the applicant shall assess the impact of the proposed action on threatened or endangered species in accordance with Federal laws protecting wildlife, including but not limited to the Endangered Species Act, and essential fish habitat in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

(F) * * *

(G) * * *

(H) * * *

(I) [Reserved]

(J) [Reserved]

(K) All applicants shall assess whether any historic properties will be affected by the proposed project.

(L) * * *

(M) * * *

(N) Applicants shall provide information on the general demographic composition of minority and low-income populations and communities (by race and ethnicity) residing in the immediate

vicinity of the plant that could be affected by the renewal of the plant's operating license, including any planned refurbishment activities, and ongoing and future plant operations.

(O) If the applicant's plant conducts industrial practices involving the use of solvents, hydrocarbons, heavy metals, or other chemicals and has unlined wastewater lagoons, the applicant shall assess the potential for contamination of site groundwater, soil, and subsoil. The applicant shall provide an assessment of dissolved chemical and suspended sediment discharge to the plant's wastewater lagoons in addition to National Pollutant Discharge Elimination System (NPDES) compliance data collected for submittal to the U.S. Environmental Protection Agency (EPA) or designated State agency. A summary of existing reports describing site groundwater and soil contamination should also be included.

(P) Applicants shall provide information about past, present, and reasonably foreseeable future actions occurring in the vicinity of the nuclear plant that may result in a cumulative effect. For example, the applicant should include information about the construction and operation of other power plants and other industrial and commercial facilities in the vicinity of the nuclear plant.

* * * * *

4. Amend § 51.71 to revise paragraph (c) and the first sentence of paragraph (d) to read as follows:

§ 51.71 Draft environmental impact statement—contents.

* * * * *

(c) *Status of compliance.* The draft environmental impact statement will list all Federal permits, licenses, and approvals which must be obtained in implementing the proposed action and will describe the status of compliance with those requirements. If it is uncertain whether a Federal permit, license, or approval is necessary, the draft environmental impact statement will so indicate.

(d) *Analysis.* Unless excepted in this paragraph or § 51.75, the draft environmental impact statement will include a preliminary analysis that considers and weighs the environmental effects, including any cumulative effects, of the proposed action; the environmental impacts of alternatives to

the proposed action; and alternatives available for reducing or avoiding adverse environmental effects. Additionally, the draft environmental impact statement will include a consideration of the economic, technical, and other benefits and costs of the proposed action and alternatives. The draft environmental impact statement will indicate what other interests and considerations of Federal policy, including factors not related to environmental quality, if applicable, are relevant to the consideration of environmental effects of the proposed action identified under paragraph (a) of this section. * * *

* * * * *

5. Amend § 51.95 to revise the preamble of paragraph (c) and to revise the second sentence of paragraph (c)(4) to read as follows:

§ 51.95 Postconstruction environmental impact statements.

* * * * *

(c) *Operating license renewal stage*. In connection with the renewal of an operating license or combined license for a nuclear power plant under parts 52 or 54 of this chapter, the Commission shall prepare an environmental impact statement, which is a supplement to the Commission's NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" [**(Month 20XX)]**, which is available in the NRC Public Document Room, 11555 Rockville Pike, Rockville, Maryland.

(1) * * *

(2) * * *

(3) * * *

(4) * * * In order to make recommendations and reach a final decision on the proposed action, the NRC staff, adjudicatory officers, and Commission shall integrate the conclusions in the generic environmental impact statement for issues designated Category 1 (with the exception of offsite radiological impacts for collective effects and the disposal of spent fuel and high level waste)

with information developed for those open Category 2 issues applicable to the plant under

§ 51.53(c)(3)(ii), and any new and significant information. * * *

* * * * *

6. Revise Appendix B to Part 51, Table B-1 is revised to read as follows:

APPENDIX B TO SUBPART A OF PART 51 — ENVIRONMENTAL EFFECT OF RENEWING THE OPERATING LICENSE OF A NUCLEAR POWER PLANT

* * * * *

Table B-1--Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants[1]

Issue	Category[2]	Finding[3]
Land Use		
Onsite land use	1	SMALL. Changes in onsite land use from continued operations and refurbishment associated with the license renewal term would be a small fraction of any nuclear power plant site and would involve only land that is controlled by the licensee.
Offsite land use	1	SMALL. Offsite land use would not be affected from continued operations and refurbishment associated with the license renewal term.
Offsite land use in transmission line rights-of-way (ROWs)	1	SMALL. Use of transmission line ROWs from continued operations and refurbishment associated with the license renewal term would continue with no change in land use restrictions.
Visual Resources		
Aesthetic impacts	1	SMALL. No important changes to the visual appearance of plant structures or transmission lines are expected from continued operations and refurbishment associated with the license renewal term.
Air Quality		

Issue	Category[2]	Finding[3]
Air quality (non-attainment and maintenance areas)	2	SMALL, MODERATE, or LARGE. Air quality impacts of continued operations and refurbishment activities associated with the license renewal term are expected to be small. However, emissions during these activities could be a cause for concern at locations in or near air quality nonattainment or maintenance areas. The significance of the impact cannot be determined without considering the compliance status of each site and the activities that could occur. These impacts would be short-lived and cease after projects were completed. Emissions from testing emergency diesel generators and fire pumps and from routine operations of boilers used for space heating would not be a concern, even for those plants located in or adjacent to nonattainment areas. Although particulate emissions from cooling towers may be a concern for a very limited number of plants located in States that regulate such emissions, the impacts in even these worst-case situations have been small.
Air quality effects of transmission lines	1	SMALL. Production of ozone and oxides of nitrogen is insignificant and does not contribute measurably to ambient levels of these gases.
Noise		
Noise impacts	1	SMALL. Noise levels would remain below regulatory guidelines for offsite receptors during continued operations and refurbishment associated with the license renewal term.
Geology and Soils		
Impacts of nuclear plants on geology and soils	1	SMALL. Impacts on geology and soils would be small at all nuclear plants if best management practices were employed to reduce erosion associated with continued operations and refurbishment.
Surface Water		
Surface-water use and quality	1	SMALL. Impacts are expected to be negligible if best management practices are employed to control soil erosion and spills. Water use associated with continued operation and refurbishment projects for license renewal would not increase significantly or would be reduced if a plant outage is necessary to accomplish the action.
Altered current patterns at intake and discharge structures	1	SMALL. Altered current patterns would be limited to the area in the vicinity of the intake and discharge structures. These impacts have been small at operating nuclear power plants.
Altered salinity gradients	1	SMALL. Effects on salinity gradients would be limited to the area in the vicinity of the intake and discharge structures. These impacts have been small at operating nuclear power plants.

Issue	Category[2]	Finding[3]
Altered thermal stratification of lakes	1	SMALL. Effects on thermal stratification would be limited to the area in the vicinity of the intake and discharge structures. These impacts have been small at operating nuclear power plants.
Scouring caused by discharged cooling water	1	SMALL. Scouring effects would be limited to the area in the vicinity of the intake and discharge structures. These impacts have been small at operating nuclear power plants.
Discharge of metals in cooling system effluent	1	SMALL. Discharges of metals have not been found to be a problem at operating nuclear power plants with cooling-tower-based heat dissipation systems and have been satisfactorily mitigated at other plants. Discharges are monitored as part of the National Pollutant Discharge Elimination System (NPDES) permit process.
Discharge of biocides, sanitary wastes, and minor chemical spills	1	SMALL. The effects of these discharges are regulated by State and Federal environmental agencies. Discharges are monitored as part of the NPDES permit process. These impacts have been small at operating nuclear power plants.
Water use conflicts (plants with once-through cooling systems)	1	SMALL. These conflicts have not been found to be a problem at operating nuclear power plants with once-through heat dissipation systems.
Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a river with low flow)	2	SMALL or MODERATE. Impacts could be of small or moderate significance, depending on makeup water requirements, water availability, and competing water demands.
Effects of dredging on water quality	1	SMALL. Dredging to remove accumulated sediments in the vicinity of intake and discharge structures and to maintain barge shipping has not been found to be a problem for surface water quality. Dredging is performed under permit from the U.S. Army Corps of Engineers.
Temperature effects on sediment transport capacity	1	SMALL. These effects have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.
Groundwater		
Groundwater use and quality	1	SMALL. Extensive dewatering is not anticipated from continued operations and refurbishment activities associated with the license renewal term. The application of best management practices for handling any materials produced or used during activities would reduce impacts.
Groundwater use conflicts (plants that withdraw less than 100 gallons per minute [gpm])	1	SMALL. Plants that withdraw less than 100 gpm are not expected to cause any groundwater use conflicts.

Issue	Category[2]	Finding[3]
Groundwater use conflicts (plants that withdraw more than 100 gpm including those using Ranney wells)	2	SMALL, MODERATE, or LARGE. Plants that withdraw more than 100 gpm could cause groundwater use conflicts with nearby groundwater users.
Groundwater use conflicts (plants with closed-cycle cooling systems that withdraw makeup water from a river)	2	SMALL, MODERATE, or LARGE. Water use conflicts could result from water withdrawals from rivers during low-flow conditions, which may affect aquifer recharge. The significance of impacts would depend on makeup water requirements, water availability, and competing water demands.
Groundwater quality degradation resulting from water withdrawals	1	SMALL. Groundwater withdrawals at operating nuclear power plants would not contribute significantly to groundwater quality degradation.
Groundwater quality degradation (plants with cooling ponds in salt marshes)	1	SMALL. Sites with closed-cycle cooling ponds could degrade groundwater quality; however, because groundwater in salt marshes is brackish, this is not a concern for plants located in salt marshes.
Groundwater quality degradation (plants with cooling ponds at inland sites)	2	SMALL, MODERATE, or LARGE. Sites with closed-cycle cooling ponds could degrade groundwater quality. For plants located inland, the quality of the groundwater in the vicinity of the ponds could be affected. The significance of the impact would depend on cooling pond water quality, site hydrogeologic conditions (including the interaction of surface water and groundwater), and the location, depth, and pump rate of water wells.
Groundwater and soil contamination	2	SMALL or MODERATE. Industrial practices involving the use of solvents, hydrocarbons, heavy metals, or other chemicals and unlined wastewater lagoons have the potential to contaminate site groundwater, soil, and subsoil. Contamination is subject to State and Environmental Protection Agency regulated cleanup and monitoring programs.
Radionuclides released to groundwater	2	SMALL or MODERATE. Underground system leaks of process water have been discovered in recent years at several plants. Groundwater protection programs have been established at all operating nuclear power plants.
Terrestrial Resources		
Impacts of continued plant operations on terrestrial ecosystems	2	SMALL, MODERATE, or LARGE. Continued operations, refurbishment, and maintenance activities are expected to keep terrestrial communities in their current condition. Application of best management practices would reduce the potential for impacts. The magnitude of impacts would depend on the nature of the activity, the status of the resources that could be affected, and the effectiveness of mitigation.
Exposure of terrestrial organisms to radionuclides	1	SMALL. Doses to terrestrial organisms are expected to be well below exposure guidelines developed to protect these organisms.

Issue	Category[2]	Finding[3]
Cooling system impacts on terrestrial resources (plants with once-through cooling systems or cooling ponds)	1	SMALL. No adverse effects to terrestrial plants or animals have been reported as a result of increased water temperatures, fogging, humidity, or reduced habitat quality. Due to the low concentrations of contaminants in cooling system effluents, uptake and accumulation of contaminants in the tissues of wildlife exposed to the contaminated water or aquatic food sources are not expected to be significant issues.
Cooling tower impacts on vegetation (plants with cooling towers)	1	SMALL. Impacts from salt drift, icing, fogging, or increased humidity associated with cooling tower operation have the potential to affect adjacent vegetation, but these impacts have been small at operating nuclear power plants and are not expected to change over the license renewal term.
Bird collisions with cooling towers and transmission lines	1	SMALL. Bird collisions with cooling towers and transmission lines occur at rates that are unlikely to affect local or migratory populations.
Water use conflicts with terrestrial resources (plants with cooling ponds or cooling towers using make-up water from a river with low flow)	2	SMALL or MODERATE. Impacts on terrestrial resources in riparian communities affected by water use conflicts could be of moderate significance in some situations.
Transmission line ROW management impacts on terrestrial resources	1	SMALL. Continued ROW management during the license renewal term is expected to keep terrestrial communities in their current condition. Application of best management practices would reduce the potential for impacts.
Electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock)	1	SMALL. No significant impacts of electromagnetic fields on terrestrial flora and fauna have been identified. Such effects are not expected to be a problem during the license renewal term.
Aquatic Resources		
Impingement and entrainment of aquatic organisms (plants with once-through cooling systems or cooling ponds)	2	SMALL, MODERATE, or LARGE. The impacts of impingement and entrainment are small at many plants but may be moderate or even large at a few plants with once-through and cooling-pond cooling systems, depending on cooling system withdrawal rates and volumes and the aquatic resources at the site.
Impingement and entrainment of aquatic organisms (plants with cooling towers)	1	SMALL. Impingement and entrainment rates are lower at plants that use closed-cycle cooling with cooling towers because the rates and volumes of water withdrawal needed for makeup are minimized.
Thermal impacts on aquatic organisms (plants with once-through cooling systems or cooling ponds)	2	SMALL, MODERATE, or LARGE. Most of the effects associated with thermal discharges are localized and are not expected to affect overall stability of populations or resources. The magnitude of impacts, however, would depend on site-specific thermal plume characteristics and the nature of aquatic resources in the area.

Issue	Category[2]	Finding[3]
Thermal impacts on aquatic organisms (plants with cooling towers)	1	SMALL. Thermal effects associated with plants that use cooling towers are small because of the reduced amount of heated discharge.
Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication	1	SMALL. Gas supersaturation was a concern at a small number of operating nuclear power plants with once-through cooling systems but has been satisfactorily mitigated. Low dissolved oxygen was a concern at one nuclear power plant with a once-through cooling system but has been effectively mitigated. Eutrophication (nutrient loading) and resulting effects on chemical and biological oxygen demands have not been found to be a problem at operating nuclear power plants.
Effects of non-radiological contaminants on aquatic organisms	1	SMALL. Best management practices and discharge limitations of NPDES permits are expected to minimize the potential for impacts to aquatic resources. Accumulation of metal contaminants has been a concern at a few nuclear power plants but has been satisfactorily mitigated by replacing copper alloy condenser tubes with those of another metal.
Exposure of aquatic organisms to radionuclides	1	SMALL. Doses to aquatic organisms are expected to be well below exposure guidelines developed to protect these aquatic organisms.
Effects of dredging on aquatic organisms	1	SMALL. Effects of dredging on aquatic resources tend to be of short duration (years or less) and localized. Dredging requires permits from the U.S. Army Corps of Engineers, state environmental agencies, and other regulatory agencies.
Water use conflicts with aquatic resources (plants with cooling ponds or cooling towers using make-up water from a river with low flow)	2	SMALL or MODERATE. Impacts on aquatic resources in instream communities affected by water use conflicts could be of moderate significance in some situations.
Refurbishment impacts on aquatic resources	1	SMALL. Refurbishment impacts with appropriate mitigation are not expected to change aquatic communities from their current condition.
Impacts of transmission line ROW management on aquatic resources	1	SMALL. Application of best management practices to ROW near aquatic systems would reduce the potential for impacts.
Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses	1	SMALL. These types of losses have not been found to be a problem at operating nuclear power plants and are not expected to be a problem during the license renewal term.

Issue	Category[2]	Finding[3]
Stimulation of aquatic nuisance species (e.g., shipworms)	1	SMALL. Stimulation of nuisance organisms has been satisfactorily mitigated at the single nuclear power plant with a once-through cooling system where previously it was a problem. It has not been found to be a problem at operating nuclear power plants with cooling towers or cooling ponds and is not expected to be a problem during the license renewal term.
Threatened, Endangered, and Protected Species and Essential Fish Habitat		
Threatened, endangered, and protected species and essential fish habitat	2	SMALL, MODERATE, or LARGE. The magnitude of impacts on threatened, endangered, and protected species and essential fish habitat would depend on the occurrence of listed species and habitats and the effects of power plant systems on them. Consultation with appropriate agencies would be needed to determine whether special status species or habitats are present and whether they would be adversely affected by activities associated with license renewal.
Historic and Cultural Resources		
Historic and cultural resources	2	SMALL, MODERATE, or LARGE. Continued operations and refurbishment associated with the license renewal term are expected to have no more than small impacts on historic and cultural resources located onsite and in the transmission line ROW because most impacts could be mitigated by avoiding those resources. The National Historic Preservation Act (NHPA) requires the Federal agency to consult with the State Historic Preservation Officer (SHPO) and appropriate Native American Tribes to determine the potential impacts and mitigation. See § 51.14(a).
Socioeconomics		
Employment and income, recreation and tourism	1	SMALL. Although most nuclear plants have large numbers of employees with higher than average wages and salaries, employment and income impacts from continued operations and refurbishment are expected to be small. Nuclear plant operations, employee spending, power plant expenditures, and tax payments have an effect on local economies. Changes in plant operations, employment and expenditures would have a greater effect on rural economies than on semi-urban economies.
Tax revenues	1	SMALL. Nuclear plants provide tax revenue to local jurisdictions in the form of property tax payments, payments in lieu of tax (PILOT), or tax payments on energy production. The amount of tax revenue paid during the license renewal term from continued operations and refurbishment is not expected to change, since the assessed value of the power plant, payments on energy production and PILOT payments are also not expected to change.

Issue	Category[2]	Finding[3]
Community services and education	1	SMALL. Changes to local community and educational services would be small from continued operations and refurbishment associated with the license renewal term. With no increase in employment, value of the power plant, payments on energy production, and PILOT payments expected during the license renewal term, community and educational services would not be affected by continued power plant operations. Changes in employment and tax payments would have a greater effect on jurisdictions receiving a large portion of annual revenues from the power plant than on jurisdictions receiving the majority of their revenues from other sources.
Population and housing	1	SMALL. Changes to regional population and housing availability and value would be small from continued operations and refurbishment associated with the license renewal term. With no increase in employment expected during the license renewal term, population and housing availability and values would not be affected by continued power plant operations. Changes in housing availability and value would have a greater effect on sparsely populated areas than areas with higher density populations.
Transportation	1	SMALL. Changes to traffic volumes would be small from continued operations and refurbishment activities associated with the license renewal term. Changes in employment would have a greater effect on rural areas, with less developed local and regional networks. Impacts would be less noticeable in semi-urban areas depending on the quality and extent of local access roads and the timing of plant shift changes when compared to typical local usage.
Human Health		
Radiation exposures to the public	1	SMALL. Radiation doses to the public from continued operations and refurbishment associated with the license renewal term are expected to continue at current levels, and would be well below regulatory limits.
Radiation exposures to occupational workers	1	SMALL. Occupational doses from continued operations and refurbishment associated with the license renewal term are expected to be within the range of doses experienced during the current license term, and would continue to be well below regulatory limits.
Human health impact from chemicals	1	SMALL. Chemical hazards to workers would be minimized by observing good industrial hygiene practices. Chemical releases to the environment and the potential for impacts to the public are minimized by adherence to discharge limitations of NPDES permits.

Issue	Category[2]	Finding[3]
Microbiological hazards to the public (plants with cooling ponds or canals or cooling towers that discharge to a river)	2	SMALL, MODERATE, or LARGE. These organisms are not expected to be a problem at most operating plants except possibly at plants using cooling ponds, lakes, or canals that discharge to rivers. Impacts would depend on site-specific characteristics.
Microbiological hazards to plant workers	1	SMALL. Occupational health impacts are expected to be controlled by continued application of accepted industrial hygiene practices to minimize worker exposures.
Chronic effects of electromagnetic fields (EMFs)[5]	N/A[4]	**Uncertain impact.** Studies of 60-Hz EMFs have not uncovered consistent evidence linking harmful effects with field exposures. EMFs are unlike other agents that have a toxic effect (e.g., toxic chemicals and ionizing radiation) in that dramatic acute effects cannot be forced and longer-term effects, if real, are subtle. Because the state of the science is currently inadequate, no generic conclusion on human health impacts is possible.
Physical occupational hazards	1	SMALL. Occupational safety and health hazards are generic to all types of electrical generating stations, including nuclear power plants, and is of small significance if the workers adhere to safety standards and use protective equipment.
Electric shock hazards	2	SMALL, MODERATE, or LARGE. Electrical shock potential is of small significance for transmission lines that are operated in adherence with the National Electrical Safety Code (NESC). Without a review of each nuclear plant transmission line conformance with NESC criteria, it is not possible to determine the significance of the electrical shock potential.
Postulated Accidents		
Design-basis accidents	1	SMALL. The NRC staff has concluded that the environmental impacts of design-basis accidents are of small significance for all plants.
Severe accidents	2	SMALL. The probability-weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to groundwater, and societal and economic impacts from severe accidents are small for all plants. However, alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives.
Environmental Justice		
Minority and low-income populations	2	SMALL or MODERATE. Impacts to minority and low-income populations and subsistence consumption will be addressed in plant-specific reviews. See NRC Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (69 FR 52040).
Solid Waste Management		

Issue	Category[2]	Finding[3]
Low-level waste storage and disposal	1	SMALL. The comprehensive regulatory controls that are in place and the low public doses being achieved at reactors ensure that the radiological impacts to the environment would remain small during the term of a renewed license.
Onsite storage of spent nuclear fuel	1	SMALL. The expected increase in the volume of spent fuel from an additional 20 years of operation can be safely accommodated onsite with small environmental effects through dry or pool storage at all plants, if a permanent repository or monitored retrievable storage is not available.
Offsite radiological impacts of spent nuclear fuel and high-level waste disposal	1	For the high-level waste and spent-fuel disposal component of the fuel cycle, the EPA established a dose limit of 15 millirem (0.15 mSv) per year for the first 10,000 years and 100 millirem (1.0 mSv) per year between 10,000 years and 1 million years for offsite releases of radionuclides at the proposed repository at Yucca Mountain, Nevada. The Commission concludes that the impacts would not be sufficiently large to require the NEPA conclusion, for any plant, that the option of extended operation under 10 CFR Part 54 should be eliminated. Accordingly, while the Commission has not assigned a single level of significance for the impacts of spent fuel and high level waste disposal, this issue is considered Category 1.
Mixed-waste storage and disposal	1	SMALL. The comprehensive regulatory controls and the facilities and procedures that are in place ensure proper handling and storage, as well as negligible doses and exposure to toxic materials for the public and the environment at all plants. License renewal would not increase the small, continuing risk to human health and the environment posed by mixed waste at all plants. The radiological and nonradiological environmental impacts of long-term disposal of mixed waste from any individual plant at licensed sites are small.
Nonradioactive waste storage and disposal	1	SMALL. No changes to systems that generate nonradioactive waste are anticipated during the license renewal term. Facilities and procedures are in place to ensure continued proper handling, storage, and disposal, as well as negligible exposure to toxic materials for the public and the environment at all plants.
Cumulative Impacts		
Cumulative impacts	2	Cumulative impacts of license renewal must be considered on a plant-specific basis. Impacts would depend on regional resource characteristics, the resource-specific impacts of license renewal, and the cumulative significance of other factors affecting the resource.
Uranium Fuel Cycle		

Issue	Category[2]	Finding[3]
Offsite radiological impacts – individual impacts from other than the disposal of spent fuel and high-level waste	1	SMALL. The impacts to the public from radiological exposures have been considered by the Commission in Table S-3 of this part. Based on information in the GEIS, impacts to individuals from radioactive gaseous and liquid releases, including radon-222 and technetium-99, would remain at or below the NRC's regulatory limits.
Offsite radiological impacts – collective impacts from other than the disposal of spent fuel and high-level waste	1	There are no regulatory limits applicable to collective doses to the general public from fuel-cycle facilities. The practice of estimating health effects on the basis of collective doses may not be meaningful. All fuel-cycle facilities are designed and operated to meet the applicable regulatory limits and standards. The Commission concludes that the collective impacts are acceptable. The Commission concludes that the impacts would not be sufficiently large to require the NEPA conclusion, for any plant, that the option of extended operation under 10 CFR Part 54 should be eliminated. Accordingly, while the Commission has not assigned a single level of significance for the collective impacts of the uranium fuel cycle, this issue is considered Category 1.
Nonradiological impacts of the uranium fuel cycle	1	SMALL. The nonradiological impacts of the uranium fuel cycle resulting from the renewal of an operating license for any plant would be small.
Transportation	1	SMALL. The impacts of transporting materials to and from uranium-fuel-cycle facilities on workers, the public, and the environment are expected to be small.
Termination of Nuclear Power Plant Operations and Decommissioning		
Termination of plant operations and decommissioning	1	SMALL. License renewal is expected to have a negligible effect on the impacts of terminating operations and decommissioning on all resources.

Issue	Category[2]	Finding[3]

1. Data supporting this table are contained in NUREG-1437, Revision 1, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (May 2009).
2. The numerical entries in this column are based on the following category definitions:
Category 1: For the issue, the analysis reported in the Generic Environmental Impact Statement has shown:
(1) The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristic;
(2) A single significance level (i.e., small, moderate, or large) has been assigned to the impacts (except for collective off site radiological impacts from the fuel cycle and from high level waste and spent fuel disposal); and
(3) Mitigation of adverse impacts associated with the issue has been considered in the analysis, and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.
The generic analysis of the issue may be adopted in each plant-specific review.
Category 2: For the issue, the analysis reported in the Generic Environmental Impact Statement has shown that one or more of the criteria of Category 1 cannot be met, and therefore additional plant-specific review is required.
3. The impact findings in this column are based on the definitions of three significance levels. Unless the significance level is identified as beneficial, the impact is adverse, or in the case of "small," may be negligible. The definitions of significance follow:
SMALL--For the issue, environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource. For the purposes of assessing radiological impacts, the Commission has concluded that those impacts that do not exceed permissible levels in the Commission's regulations are considered small as the term is used in this table.
MODERATE--For the issue, environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.
LARGE--For the issue, environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.
For issues where probability is a key consideration (i.e. accident consequences), probability was a factor in determining significance.
4. NA (not applicable). The categorization and impact finding definitions do not apply to these issues.
5. If, in the future, the Commission finds that, contrary to current indications, a consensus has been reached by appropriate Federal health agencies that there are adverse health effects from electromagnetic fields, the commission will require applicants to submit plant-specific reviews of these health effects as part of their license renewal applications. Until such time, applicants for license renewal are not required to submit information on this issue.

Dated at Rockville, Maryland, this **[Xst day of Month 2009.]**

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,
Secretary of the Commission.